

S T U D Y   A S S O C I A T I O N

# G E W I S

 **UPREMUM**

VOL 51 NO 1

**THE  
KNOWLEDGE  
EDITION**



# EDITORIAL

**EDITOR IN CHIEF** Susan van Ewijk

Thinking I would originally start this edition with a quote as well, I found the following:

"Knowledge has a beginning, but no end."

As students this is all too familiar. Every day we drag ourselves to university to gain more and more knowledge, thinking it will end once we graduate. Knowledge, however, is ever growing. Whether you learn about the topics of Computer Science and Mathematics, or about yourself, it can all be perceived as knowledge and will someday serve you.

In our previous edition we stated that "knowledge is knowing that a tomato is a fruit", but actually doing something with that information is what makes it useful.

Where last edition I.V.V. graced us with some truth, GEPWNAGE is here to deliver some knowledge. Though this is not the only party here to educate you. To see who joins them, I invite you to skim through this edition and see for yourself. Who knows, maybe you will learn a thing or two this edition and add that information to your expanding base of knowledge, because knowledge has no end after all.

We hope you will enjoy this edition as much as we enjoyed making it.

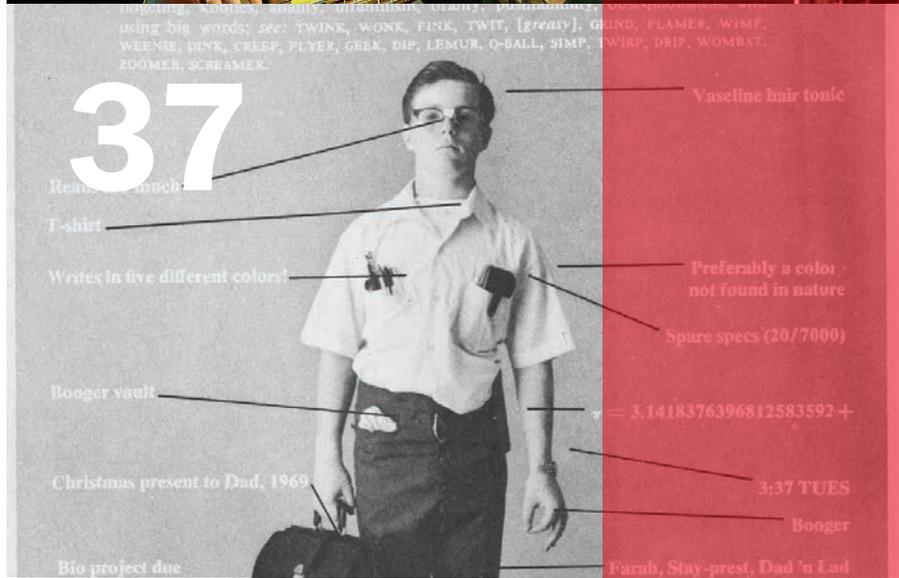
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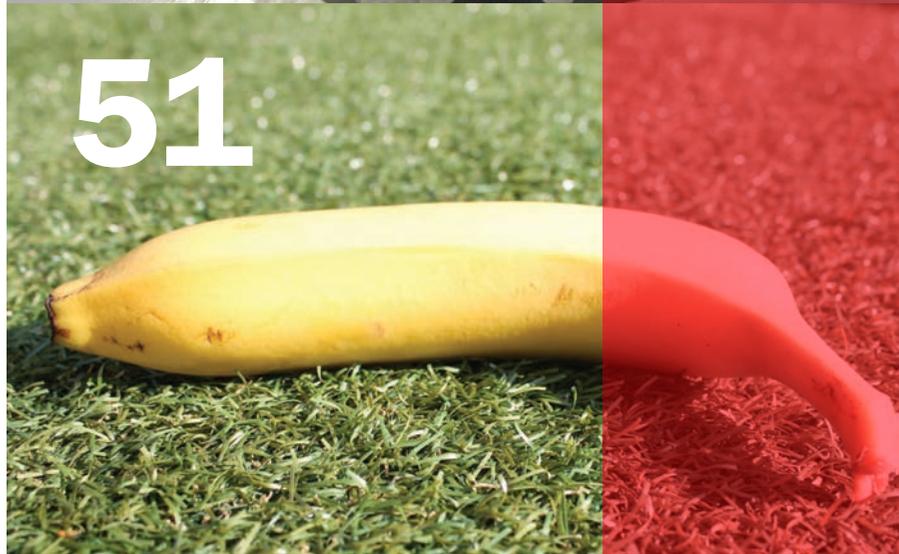
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GEWIS

# CHAIRMAN'S NOTE

## KNOWLEDGE IS POWER

**A** proverb everyone may have heard of is "Knowledge is power". You may have heard it during university courses, during negotiations or as the slogan of the Dutch television show "Wie is de Mol?", in which the participants need to find the saboteur. However, is this really true?

**TEXT** Illona Hoenderop

During the first half a year as the chairman of GEWIS I already learnt a lot. Because I started as a chairman for the first time, everything from the first of July was new to me, unlike for most employees of the university, who just start a new academic year.

One of the many challenges for me during the beginning of my board year was, besides learning new names, getting to know the employees, other study associations and our freshmen. My experience with the last one can be read in the chairman's note of the previous Supremum. I have to admit it was a hard task to process all this information, but this knowledge helped me a lot these last months and hopefully also during the coming and final half year as chairman. My motto during this kind of situations is "a good start is half of the work". This quote already proved its value during last months for me. Now I know a lot of names from the first years (and they know mine), the power is that I can easily address them and vice versa.

**" A good start is half of the work "**

So, I received a lot of knowledge during the first half year, which was an enormous and incredible experience. I did not expect to have learnt that much in just half a year already. Imagine what beneficial side-effects this knowledge could have for the next half year.

Information received from my predecessor Laura Kuntze, previously attended meetings and preparations for future meetings form knowledge which provides a powerful position for me as chairman. Let's not forget that I can fully rely on my other board members, as they provide me and each other with the necessary information they received. This knowledge is one of the best kinds of preparations you can have as a board member. In the upcoming months I will use the obtained knowledge as power in meetings and discussions. Maybe I can even improve my convincing pitches.

**" Knowledge is power "**

To conclude, I can definitely confirm that knowledge is power. You can use it as a preparation, even at moments when you did not expect it. You never know who you pass by in the walkways in the university building, or even outside the university campus. The final challenge at the end of my board year for me and my board members is to transfer this information to our successors, to give the next board a head start. Luckily, this is not the main priority for this moment. So, for the coming few months I want to keep applying my knowledge, but most of all keep enjoying being the chairman of this beautiful study association as much as I am doing at the moment of writing.



# EDUCATION FIRST

## THE ART OF SPREADING KNOWLEDGE

**O**ne of the most important features of a university is sharing knowledge. When you ask a student what they think about when they hear the word “knowledge”, you probably get the answer “lectures” or “teaching”, or one might say “knowing what the final exam of Physics will look like”. We usually put this word in the context of things we spend the most time on: studying! There is however, little use to knowledge if we have troubles spreading it. A teacher may be the smartest person you know, but when you cannot follow the lectures or instructions they give, you won’t find them a good teacher.

**TEXT** Thomas Wiekping

The best lecturers are the ones able to transfer knowledge to you in a way you have no troubles understanding and absorbing it. This attribute is often recalled during the Best Teacher Award. But knowledge transfer in a proper way is not easy. When you’re spreading knowledge, you already understand what you are saying. However, receivers may not automatically understand what you are saying. Therefore, spreading knowledge should not be one-way traffic, but bidirectional. When it is unclear to you what is being told, say so. Most of the teachers at the department of Mathematics and Computer Science would like nothing better than students telling them when the knowledge being transferred is not received as intended. They want to hear it preferably already during the lectures. In this way, the teacher can adjust the way they transfer their knowledge in a way it may improve right away. Another way of giving feedback to the teacher is during the feedback sessions that GEWIS organizes. But it could also be via email to the teacher directly, or through me.

I have been talking about teachers transmitting knowledge, but spreading knowledge is not limited to teachers. Other employees at our department, for example your academic advisors, student mentor, or teacher coach, transfer knowledge too. They transfer a different kind of knowledge, but it is at least as important as knowledge spread by a lecturer. If there

exist unclarities there, they would like to know it too. Students also take a big role in transferring knowledge to peers. Many students submit their summaries to GEWIS, so others can use them to understand the material better. When you submit summaries to GEWIS, you even earn free drinks! On top of that, don’t forget tutoring sessions between students. GEWIS offers a service which easily connects students that need tutoring and students that offer tutoring. Plenty of ways to show your own capabilities of spreading knowledge at our university.

I wish you all the best this quartile and remember: the best way to improve the art of spreading knowledge is to address it when the transfer is not being successful.

Sending summaries:

[summary@gewis.nl](mailto:summary@gewis.nl)

Requesting private tutoring:

[tutoringCS@gewis.nl](mailto:tutoringCS@gewis.nl) (Computer Science),

[tutoringAM@gewis.nl](mailto:tutoringAM@gewis.nl) (Applied Mathematics)

# BOARD





# POWER

*There was a time not so long ago, but before many readers of this journal were born, that knowledge was difficult to obtain. As a researcher, getting to the appropriate literature for your research was not that simple. You went to the library in order to examine journals and conference proceedings in search for relevant articles. Once you found a few good starting points, more works could be examined by following references. Some of these would not be available locally, which meant that you had to ask for a copy (by regular mail) from either the researcher themselves or from another library, e.g. in Amsterdam, which would take a few days. The best starting point was in many cases a book. A major concern in this process was whether you had indeed found the relevant work. There might always be an article or even an entire community hidden somewhere that escaped your attention.*

**TEXT** prof. dr. Johan Lukkien (Dean)

In this process and over a long time of activity in the same topic, expertise and experts develop. People that know everything about a subject that there is to know, know who is working on the subject and have a routine to keep this knowledge up to date. The university was long regarded a temple of such knowledge; creative experts – professors – with their teams would push the boundaries of knowledge and engineering through thinking, experimenting and a bit of engineering.

It is true, collecting and learning just facts is not very useful. However, knowledge is more than that. Knowledge also refers to understanding, insight, the ability to interpret facts, and using this in generating new knowledge. Without a basic knowledge about history, the present cannot be understood. Without a good understanding of a field, no novel and creative contributions can be given. Indeed, knowledge is power (quote by Francis Bacon (1597)), the power to be productive and creative. This is still difficult to acquire, as it requires effort and practice, just as before.

**“ Without a basic knowledge about history, the present cannot be understood ”**

That is very different from how society looks at expertise and knowledge today. Wikipedia is the source of our knowledge and an expert in a group of friends is the one who calls the relevant pages first. In talk shows, a scientific expert is regarded as ‘just another opinion’. Students wonder why they have to learn facts since they can look these up immediately.



# BEST MASTER LECTURER AWARD

*In September last year I was lucky enough to receive the Best Master Lecturer Award. The award was handed out during MomenTUM, the new event that combines various award and diploma ceremonies. How do you get to win the award and what can you do with it?*

**TEXT** prof. dr. Mark de Berg

To start with something that I have always wondered myself: no, the nominees do not know beforehand whether they have won. It was as much of a surprise to me as to anyone who had seen the nominations. Anyway, let's go back to the beginning: how does one get nominated in the first place?

At MomenTUM there were three candidates left for the Best Master Lecturer Award, but initially there was a longer list of candidates who were each nominated by one of the study associations. A committee consisting of the rector, student representatives from the various study associations and some more people then makes a shortlist of three candidates. So, if you want to win the Best Master Lecturer Award, then you definitely need a study association that writes nice nomination letters. Fortunately, GEWIS can do that, thanks guys! In May I heard I was on the shortlist and was asked to give a short presentation for the committee, followed by an interview. The committee suggested some topics for the presentation (In what way do you professionalize yourself? What are the major problems within the educational system? You get the drift ...) which I happily ignored. Instead, I talked about Advanced Algorithms, the master course I am teaching. First, I presented some statistics and quotes from students, which show that the course is generally perceived as difficult and a lot of work. Then I presented statistics and quotes showing that many students appreciate the course and lectures, and tried to explain why this is the case. My conclusion: students appreciate it when teachers put effort into their

courses; they are willing to work hard and like being challenged! Above all, algorithms are just a fun topic.

So, a few months after the presentation and interview, I was sitting together with the other nominees in the MomenTUM audience. The "advantage" of being nominated is that you get the full MomenTUM experience: a speech, graduated students marching in, dancing, more graduated students walking in, even more graduated students marching in, another speech, more dancing, a presentation, and some hat throwing. Oh, and the award ceremonies. All in all a, well, very American experience. When it was time for the Best Master Lecturer Award, we had to line up and each take our place on a big cube. I like cubes---my main expertise is algorithms for geometric objects---but this felt a bit awkward, especially when glitters started falling from the sky. Still, it was nice to see that my glitters were golden. After getting off my cube and walking on stage, I was presented with the award. My first idea was to use the 5,000 euro prize for a vacation to a sunny island, to recover from all the grading for Advanced Algorithms. Unfortunately, this would probably not be considered "educational purposes", and so, I still have to decide how I can put the money to good use. If you have any ideas, let me know!



DEPARTMENT





# DE ONVERWACHTE OORSPRONG VAN 'MAGIC: THE GATHERING' EEN BESCHOUWING

**W**ij zijn Mitchel en Frederique en dit stukje gaat over bermtoeristen die in de berm hun etiketten gaan ruilen alsof het Pokémonkaarten zijn. Er zijn ook holografische etiketten, die zijn extra zeldzaam. Voordat we gaan kijken naar de etiketruilhandel onder bermtoeristen in de jaren '60, moeten we definiëren wat een etiket is.

**TEXT** Frederique Gerritsen & Mitchel Brunings

Een etiket is een stukje papier dat bijvoorbeeld om een blikje knakworstjes zit. Wie van ons groovy grootouders heeft, zal bij hen na kunnen gaan dat het etiketruilhandelbermtourisme echt een ding was in die tijd. De etiketruilhandelbermtourismehipheid begon bij nozems. Die werden namelijk direct weggebonjourd als ze voor de Albert Heijn allemaal aan klanten vroegen of ze nog etiketten hadden, dus trokken ze zich maar terug naar de berm. Aanvankelijk waren de originele bermtoeristen niet zo te spreken over al die nozems die hun berm kwamen bezetten met hun etiketruilhandel, maar al snel werden zij ook aangestoken door het etiketruilhandelvirus.

“ Destijds bestond het woord 'deck' nog niet, en werd dit in de volksmond een 'keuken' genoemd ”

Omdat alleen het ruilen en verzamelen van etiketten onvoldoende voldoening bracht bij sommige etiketruilhandelaren, bedachten zij een spel met de etiketten

in de hoofdrol. Dit spel was oorspronkelijk bedoeld voor twee spelers en maakte gebruik van de voedingswaardes die op etiketten te vinden waren. Voor het spelen van dit spel moesten spelers eerst een deck van 33 tot 37 etiketten bouwen. Destijds bestond het woord 'deck' nog niet, en werd dit in de volksmond een 'keuken' genoemd. In een keuken mogen niet meer dan twee dezelfde etiketten voorkomen.

Bij aanvang van het spel husselt elke speler eerst zijn of haar keuken. Vervolgens trekt iedere speler vijf etiketten. Koolhydraten, eiwitten, en vetten functioneren als categorieën. In de eerste ronde begint de jongste speler met het kiezen van een van deze drie categorieën. Vervolgens kiezen beide spelers een etiket en draaien dit tegelijkertijd om. De speler in het bezit van het etiket met de hoogste waarde in de gekozen categorie wint de ronde. Daarna worden de gespeelde etiketten op een aflegstapel gelegd. Deze aflegstapel werd in de volksmond een 'prullenbak' genoemd. Dan trekken beide spelers een nieuw etiket uit hun keuken. De verliezer van de vorige ronde kiest steeds de categorie van de nieuwe ronde. Zo gaat het spel door, totdat beide spelers door hun keuken heen zijn. De speler die dan de meeste rondes gewonnen heeft, wint. Sommigen speelden dit puur voor recreatie, maar

anderen speelden dit ook om andermans etiketten te veroveren.

De etiketruilhandel en het bijbehorende spel (wat in de volksmond overigens onder verscheidene namen bekend stond, zoals 'etiketduellieren', 'voedselgevecht' (dit vormde later de inspiratie voor wat we nu kennen als een soortgelijk gevecht, alleen dan zit het eten nog bevestigd aan het etiket, alleen dan zonder etiket, en wordt ermee gegooid. Daarnaast wordt de winnaar ook niet meer bepaald door punten. Oké, eigenlijk is het niet heel vergelijkbaar. Maar goed, we dwalen af.), of 'het bermtoeristenspel') werd door Nederlanders ultraveel gespeeld in de pauzes van de Olympische Spelen in 1972 in München en trok daar veel bekijks. Het trok zó veel bekijks, dat iedereen meer aandacht besteedde aan dit bermtoeristenspel dan aan de daadwerkelijke Olympische Spelen. Het werd razendsnel een wereldwijde hausse. Het werd in het daaropvolgende jaar in Boldovië zelfs zo enorm intens populair dat het daar de nieuwe, betere nationale sport werd.

## ONRUST IN BOLDOVIË

De etiketruilhandelbermtoerismerazernij in Boldovië kwam echter niet zonder problemen. Boldovië stond namelijk bekend om haar etiketindustrie, en hier ontstond een serieuze discrepantie tussen het aantal gemaakte en geleverde etiketten. Een groot aantal etiketten kwam namelijk op de zwarte markt terecht en sommige etiketten werden verkocht voor absurd hoge bedragen. Prijzen van etiketten schoten destijds omhoog, met name die van producten die op een gegeven moment uit het assortiment werden gehaald. Dit kwam doordat deze zowel door verzamelaars als etiketduellisten (in de volksmond ook wel 'bordenlikkers' genoemd) zeer gewild waren. Zo werden misdrukken opeens ook unieke verzamelobjecten, zoals men dat ook regelmatig ziet bij postzegels of munten.

In deze zwarte jaren uit de Boldovische geschiedenis zag men ook een enorme influx van holografische etiketten. Voedselproducenten speelden namelijk in op de markt en begonnen de meerwaarde te zien van

een fraai uitziend etiket. Dit zorgde er namelijk voor dat mensen deze voedselproducten kochten, ook al waren het echt degoutante producten. In de winkels hadden mensen er mede hierdoor last van dat er vaak hele schappen vol producten stonden zonder etiket, omdat mensen die gewoon ongegeneerd weggeschoept hadden. Hierdoor wisten vakkenvullers niet meer waar ze producten neer moesten zetten, en het kwam geregeld voor dat consumenten dachten een blik witte bonen in tomatensaus mee te nemen, om er vervolgens thuis achter te komen dat ze per ongeluk een blik doperwtjes hadden gekocht. Toch hadden ze wel betaald voor witte bonen in tomatensaus, wat in die tijd veel duurder was.

“ **Boldovië stond namelijk bekend om haar etiketindustrie** ”

Hierdoor ontstond er een volksopstand tegen de supermarkten, omdat mensen zich bedrogen voelden. Gelukkig was het slechts een 20-jarige modegril, want in het jaar 1993 kwam Magic: the Gathering uit, waarna iedereen dat maar ging spelen. Het voordeel aan Magic: the Gathering was namelijk dat dit spel specifiek voor dit doel ontworpen was. Ook overtrof de papierkwaliteit van Magic: the Gathering kaarten ruimschoots die van die spichtige etiketblaadjes.

Dus.

Exoneratieclausule: dit is een fictief verhaal. Behalve dat niet alles fictief is, maar het meeste wel. Tenzij we per toeval dingen wel goed hebben.





MEMBER

## ATTEMPT NO. 2

*I graduated a while ago. The stress and nerves aside, it was a very enjoyable day. I liked that after six months of working my ass off, I had some results to show to my friends and family (and to the graduation committee as well). Regrettably, after my presentation I was informed that some people did not understand much of it. (I suppose my grandfather was the first to give up trying to understand me, but he doesn't speak English so that was an acceptable loss.) Since I always very much liked mathematical articles in the Supremum and to give myself a second chance at explaining what I've done during my graduation project, I will try to do so here.*

**TEXT** Marloes Boswerger

We'll start with the fact that I found my project (internship and graduation) at a company called Sioux LIME. They had been asked a (what turned out to be difficult to answer) question by Roos Meerman. She's an innovator and designer located in Arnhem. For one of her projects, she prints hollow plastic preforms with a 3D printer. This plastic has the interesting property that it behaves like a rubber band when heated to a certain temperature: you can stretch it and then it returns to its original shape. So it is possible to heat a 3D printed preform, and then inflate it with an air compressor while hot. When the preform has cooled down, the air pressure is turned off, and the preform stays in its inflated state. The plastic "freezes". The question was: can we predict the final shape, given the initial preform shape?

**“ This problem with accurately modeling the material was the inspiration for my graduation project ”**

During my internship, I tried to answer this question using one of the most commonly used methods to model physical problems. It is called the Finite Element Method. To use this, we first have to formulate the

inflation process as a partial differential equation (and rewrite that to something called a weak formulation). The difficulty in this approach is accurately modeling the material's behavior. The simplest model for elasticity is Hooke's law, which states that the force  $F$ , needed to extend a spring by some distance  $x$ , scales linearly with that distance:  $F = -k x$ . This model can be extended to three dimensions. It is a horrible choice to model the behavior in this case, because it is anything but linear. While there are many non-linear models available (e.g. Mooney-Rivlin, polynomial, neo-hookean), all suffer from the same problem: they describe a perfectly known material in known circumstances. And we did not know the exact circumstances. For example, these models have no temperature dependence and essentially assume it is fixed. This is wildly untrue in practice, as the preform cools down during the process. Besides, we could find very little information about material parameters in the relevant range anyway. This problem with accurately modeling the material was the inspiration for my graduation project.

The idea was that we could try to formulate the problem in such a way that we would not need to explicitly model the material behavior ourselves. This solution would involve data (at least  $(x,y,z)$  coordinates and air pressure at those coordinates) at many time steps from several inflations of multiple preform shapes and a neural network. Now, I will not go into much



detail about neural networks, because then this article does not fit in the 1200 words I'm maximally allowed to use, and Wikipedia is pretty clear on them. For the mathematicians, the basic tldr is that you have an input matrix (or tensor) and do matrix multiplications with matrices that have "clever" entries (called weights) and put some non-linear functions in between multiplications. The weights are established using large amounts of data and an algorithm called backpropagation. (My apologies to any data scientist reading this for summarizing your entire field of work like this.) I can imagine that this may be a little bit quick, so as an easy alternative you may also think of a neural network as a magical non-linear black box function that learns the right output for a given input using lots of data. Done well, neural networks can be used to recognize speech, defeat the world champion of Go, or recognize cats and dogs in images.

“ The result was a program that could be used to simulate the inflation of a preform as a 2D surface in 3D space ”

So the idea was that we could use this bit of magic to locally compute the displacement of the material, given its current shape and the pressure. However, to substantiate claims that this is a good idea, we first had to show that the idea of looking at the preform shape, and displacement, locally was a good one. Hence, I spent the majority of my time on a method called Smoothed Particle Hydrodynamics (SPH). SPH is generally used to model fluid flows and star systems. Actually, any physical system that lets itself be described with particles works with SPH. Its main downside is that it does not come with proofs about convergence and other such nice properties. Also, it still requires us to choose a material model for the plastic. Furthermore, SPH actually does not work well with solid mechanics, which was precisely what I'd

be using it for... Anyway, I wrote my SPH code in a programming language called Julia and enjoyed that far more than I had thought I would. The result was a program that could be used to simulate the inflation of a preform as a 2D surface in 3D space. In the end, I did not have enough time to show that it was possible to train a neural network and use it as we intended it to. I did do some other things with neural networks, but you'll have to read my thesis if you're really curious.

What I've learned in those six months? These kind of projects rarely go as you think they'll go. This is not necessarily a bad thing, as it allows for your own creative input. I liked being at a company, it allowed me a look in the kitchen before choosing where I wanted to work and teach me some practical skills I wouldn't have learned otherwise (hello Linux command line!)

Finally, I recommend applying at several companies (before graduating!) to be able to compare them, even if you're fairly certain you know what you want. Then you know for sure that wherever you end up, it's a good choice.



0

*Hollow plastic preforms*



# JAVA DEVELOPMENT AT ISAAC

*“If you had told me in my third year that I was going to work on web applications for an international bank, I would not have believed you ... Now I do know that many new, interesting and fun things come along with this project. Also things I really had not expected to be related to working on a banking project.” Melanie started her graduation project at ISAAC and then continued as a Java developer in a client team for one of our e-finance projects.”*

TEXT ISAAC

“My first day as a Java developer was a leap in the deep. I immediately started working on the project and started picking up tickets: set up code bases, develop APIs and implement new functionalities in Java and SQL. That was sometimes difficult, but you also learn a lot from it. When I had questions, I could always contact one of my colleagues, even if they were busy. On the other hand, you get a lot of responsibility as a junior. I conferred directly with our project architect and during discussions I can bring my own points to the table. These are taken seriously and are also appreciated.”

## CHALLENGE IN .COMPLEXITY

*You said that you came across things that you did not immediately link to the banking world.*

“Yes correct. For example, now I am working on a loyalty program for credit card holders, with which saved points can be converted into supermarket vouchers. Such a project offers a lot of challenges. However simple it may sound, there are many architectural dependencies that can make or break the project. Moreover, they are also quite large projects. That keeps it interesting, and ensures that you go to work with a good feeling.”

## A CRITICAL JOB INTERVIEW

*Why did you opt for a graduation internship at ISAAC?*

“When I was looking for a graduation project, I noticed that most companies welcomed me with open arms.

Especially because I am a woman. Here it was different. ISAAC was the only company which really did a critical job interview. A lot of specific questions were asked. I found them quite difficult, to be honest. We also had to talk over Skype, because at that moment I was still in Mexico. In retrospect, perhaps not the smoothest conversation ever. In the end, the challenge having this conversation did convince me. I chose ISAAC and ISAAC chose me, based on my knowledge and skills. That gave me confidence in the in-house knowledge at ISAAC and that I would get proper guidance.”

## GUILD MASTER

*In daily practice, what do you notice about the knowledge and support you receive?*

“ISAAC gives you a lot of space to develop. Among other things, at the moment, I am specializing myself by obtaining Java certifications. That is not only good for my resume, but ultimately also important for demonstrating your knowledge and professionalism to customers. Through my work I can also develop on a personal level. From a customer demand there was a need for more knowledge about Java microservices. It was then decided to start a Java microservices Guild, of which I became the Guild Master. As a Guild Master you have the responsibility to organize monthly meetings, coordinate action points and monitor the Guilds knowledge development.”



# WEB COMPONENTS: WHAT DO THEY SOLVE?

*In recent years, the role of front-end development has changed considerably. Where this type of computer programming was often seen as simply 'code knocking', nowadays, the role of a front-end developer within development teams is the 'spider within the web'. With responsive web designs, microservices and new front-end techniques, the importance of the modular code, transfer-ability of code and, above all, the importance of cooperating functionalities, is constantly increasing. Web Components may play a key role here, but what exactly does it solve?*

TEXT ISAAC

## WEB COMPONENTS: A SHORT INTRODUCTION

Web components are packages that allow you to create re-usable widgets or components in HTML pages and web applications. One of web components' core function is the ability to create custom elements. These custom elements which you can create encapsulate functionalities on an HTML page. It is therefore no longer necessary to develop a long batch of elements which put together offer one custom function, for example a menu. Using a web component you take away the writing of the code, the styling and the way the user interacts. The advantage: re-usable elements which can be deployed without implementation issues within other frameworks.

## VALUABLE TO E-BUSINESS

Valuable to e-business Web Components can add business value to companies in different ways. An encapsulated web component is offered as a complete package and can also be implemented in any front-end framework. It is therefore no longer necessary for a front-end developer to have functionality-specific knowledge, for example specific knowledge of web payments or 3D visualizations.

In the case of web payments, the payment method is offered as a web component. This package includes the entire payment method, including the interface, payment functionality and the validation of the

payment. In such a case, web components solve the fact that the developer of an e-commerce platform no longer needs to know the technical pre-conditions for completing a payment.





# SCIENTIA POTENTIA EST

According to everyone's favourite slightly unreliable source of knowledge, Wikipedia, the phrase "Knowledge is Power" is first documented by Imam Ali, a 7th century central figure in Muslim History. Although this exact phrasing has in later years turned to a cliché, which was wonderfully exploited in one of my favourite Game of Thrones-quotes: "Power is Power", it remains an undeniable potent expression. Allow me, in lieu of an elaborate explanation of the metaphysical nonsense I would typically discuss, to suggest a more virtuous direction which eventually coincides with the originally intended message.

TEXT Yoram Meijaard

You see, before being bestowed with power acquired through knowledge, that know-how, expertise, or je ne sais quoi should be obtained. Typically, knowledge is gained through either experience ("Placing your hand in the fire hurts.", paraphrased after Yoram Meijaard at 3 years old, also portrayed as "AUW!"), discovery of new fields of knowledge, or learning in which one party with the knowledge transfers this to the party without the knowledge, without the inconvenience of actually experiencing the knowledge first-hand.

Thusly, education is the foremost bearer of knowledge, in particular during the first quarter of your life (which you have just experienced, due to the dreaded decay of time). In ye olden days of ancient Greece, education was done one-on-one and was only available to the very rich, from which we could conclude the contradiction that knowledge follows power, not the other way around. Fortunately, over the course of history the threshold to education has been lowered up to the point that everyone in the Netherlands can enjoy (or endure) a proper education.

However, to make education available to everyone, there is a much larger responsibility placed on the individual student. You are responsible for reading chapters XYZ, for executing certain activities and directing your own educational path. Therefore, you must take charge of your own education and be

powerful, in order to obtain knowledge. You might now righteously ask: Is this going anywhere, and why should I care about any of this? Well, this is the point where we conclude that if you do not know how to study, you are not in a position of power to successfully study, consequently remaining unknowledgeable and therefore powerless. The takeaway is that it is worthwhile to improve the process of studying i.e. learn how to learn.

“ ... take charge of your own education and be powerful ... ”

Allow me to conclude with the following pieces of advice: if you have no idea how you should study for a course, you should just ask a senior. Moreover, if you want to improve your studying abilities, is it worthwhile to learn about them: [goo.gl/G3aA2z](https://goo.gl/G3aA2z) (or similar sources, but I can recommend this one). Additionally, I would say that the best way of studying is explaining the material to others. Not only does this force you to fully understand the material, it also immediately transfers your knowledge to others.

“ It is the mark of the educated mind to be able to entertain a thought without accepting it. ” - Aristotle



**FYC19-0 BEERCODE**

# FYC 19-0 BEERCODE INTRODUCES

*It was Friday September fourteenth when the first of us met. It was the 'Follow Up' weekend of the study association, a weekend organised to get acquainted with GEWIS and its members. Now, three of our members were more informed about the course of events for first year students at GEWIS than any other of us. A tremendous flow of enthusiasm spread through the place we were visiting when the three members, all Computer Science students, came to us explaining how they wanted to set up a First Year Committee.*

**TEXT** Mathieu de Ridder - FYC 19-0 Beercode

They explained how they already had a name, 'Biercode', and a fantastic logo. The the only thing left was to find some people that studied Applied Mathematics to join their FYC. They explained how their name was a variation to the word 'barcode', where 'bar' was replaced by the word 'bier', for it is by now a sort of symbol for student life. Then, they explained that the logo was a barcode in the shape of a beer. Their enthusiasm reached so far, that we were convinced to join the FYC and even other GEWIS members were startled with the dedication that spread through the room. This is a fair representation of the enthusiasm our committee still expresses each and every day.

From that point on, the dedication of our fellow members kept growing, together with the number of people that wanted to join, until the day came that we had to form the FYCs. Since the number of people reached far beyond acceptable, we had to split up. A group that was full of excitement was to fall apart and end up totally different from what was planned. However, it only made us stronger; the same three people that came to us, along with the first people that got convinced by them and a few fresh-minded others, formed a group of eight people. Later, this number got completed by our last member.

We are proud to say that as a committee everything

seems to work very well and, moreover, in advance of the other committees. Since our logo and name had already been designed, we could almost immediately start choosing our colour and clothing. However, we found that our name did not properly represent us. It turned out that many people saw the name 'Biercode' as if drinking beer was one of our priorities. This, however, is not true at all. For us, the beer is only symbolic to the student life we live and our experience with our committee. Therefore, we changed our name into 'Beercode', after the Dutch word for 'bear'. It is still a sort of reference to our old name, for 'beer' is English for 'bier', but with a bit less emphasis on it. In addition, as a last member to our committee, we welcomed our bear: Boris.

Our committee is one that lacks no dedication, keeps up with a steady pace and is passionate about itself. Whenever something needs to be done, the initiative is already taken by one of our members before the point has even come to the attention. This makes it that the workload is distributed evenly among the members of the FYC, for everyone shares in the enthusiasm. Also, when talking to other people, our members gladly and heartily speak about Beercode, to express our enthusiasm and dedication. Within the committee, we have the advantage of having nine different yet similar minds. In general, we have the



most enthusiastic part of our team, coming up with a lot of ideas, and we have a group of realistic members, evaluating the plans and focusing on the details. We have creative minds and fair organisers, we have doers and thinkers. We have Max, the treasurer, a man who has a lot of creativity, but also regularly points out the feasibility of ideas and activities. Then we have Jay, who helps a lot in everything that is done. Next up is Eline, she is someone who looks at the feasibility of ideas as well and then transforms them into less grand, but very realistic ones. We also have Bas. He too is one of the realists among us. Whenever an idea comes up, Bas is someone who looks at the possibility of carrying out the idea. If it's not possible, he will make sure to come up with ideas to make it so. Bas is also someone to think of ideas no-one has yet thought of.

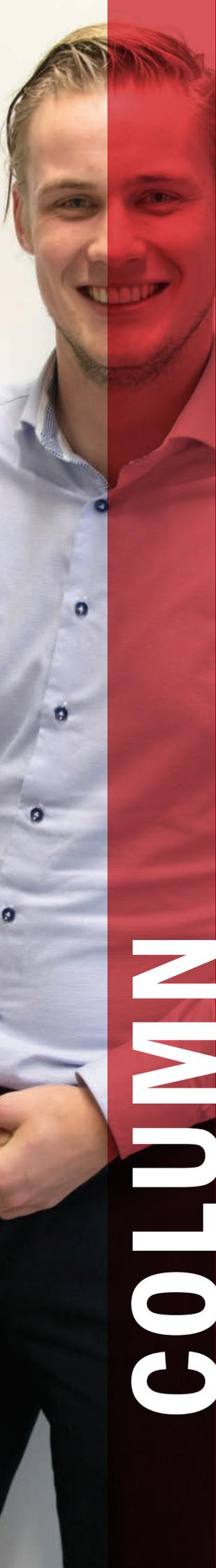
Loek, vice-chairman, is someone who not only thinks of grand ideas, but also thinks of how to plan them. Whenever he finds a proposal to be in the interest of our committee, he gladly supports the idea. Furthermore, we have Wouter, whose thoughts are always contributing to the discussion and definitely add important details or new ideas. Likewise, we have Gijs, thinking of new ideas, but also helping to find solutions to problems we come across or pointing out important matters we must keep in mind. Moreover, we have Leon, our secretary, who is by far the one doing most of the work. He knows even more than necessary for completing his tasks and whenever some idea comes up, he will be the one to check the feasibility and take the necessary measures for having the idea worked out. Also, he takes care of everyday business, so that our committee does not encounter any difficulties or unexpected tasks when preparing everything. Lastly, we have our chairman, Mathieu. He makes sure everything runs smoothly and he is the one to lead the group. However, he does so in such a way that all the initiative and ideas still come from all of the members themselves. Not only during the meetings, but also beyond them. He makes sure that everything keeps running smoothly. All these different additions contribute to a committee that expresses its enthusiasm, that keeps working forward and that lacks no productivity.

During the second quartile, Beercode organized a chess activity. We wanted to organise an activity that would not just bring more, but especially other people to GEWIS than we see on a regular basis. Therefore, we chose to organise an activity that is appreciated by a lot of students at GEWIS, namely chess.

We made sure there was a serious competition, in all quietness, and a competition where people could talk without distracting others. This way, we wanted people to feel comfortable in the place they were seated. After the activity, we heard a lot of kind words and compliments about it, for which we are very glad. We hope to organise an activity in such a way again soon. For photographs of the activity, you can have a look at the GEWIS website.

We hope to keep going as the committee that we are right now, for we are all pleased with the results of our work and we love being a part of Beercode. Also, we hope to contribute to GEWIS as much as possible and GEWIS-members will certainly hear from us in the next half year. If you would like to have a talk with us, you can always contact us directly or via [fyc19-0@gewis.nl](mailto:fyc19-0@gewis.nl).





# KENNIS IS MACHT

*“ Knowledge is power”, as an old Dutch proverb tells us. A related Dutch proverb would be: “Wisdom comes with the years”. Since the Parliament of the United Kingdom is the second oldest parliament, with Iceland in first place, one could expect our neighbour’s parliament to be one of the wisest. However, they have put themselves in ‘complete and utter chaos’, according to my favorite De Volkskrant columnist Bert Wagendorp.*

**TEXT** Tim Meeles

In the middle of this complete and utter chaos, which resulted from the dramatic loss of Prime Minister May’s Brexit deal, we find the Speaker of the House of Commons, John Bercow. He has been fulfilling the role of Speaker for the last nine years, after which he himself said he would resign. However, he was asked to remain in the seat, to guide Parliament through the Brexit. After all, his knowledge on the matter gave him the power needed for the chair, and for Parliament in these insecure times.

**“ Just as a Senior during a cantus, Mr. Speaker is always right ”**

Let me explain a little on British Politics. Imagine a combination of the Election-GM (de Wissel-AV) and the FLUP-cantus. Amazingly interesting to see as an outsider, who is completely unaware of the order, which is evidently present somehow. I believe British Parliament has more mores than we have during a cantus, but there is no set of rules in the beginning of the codex. In this comparison, consider John Bercow as a combination of the chairman during a GM and the Senior during a cantus, but then way more qualified. Just as the Senior during a cantus, Mr. Speaker is always right. Take for example this quote: “I wouldn’t argue the toss with the Chair if I were you”. Of course, he has set rules to live and act by, and therefore, the

Members of Parliament (MPs) are entitled to raise points of order to which he has to reply.

I wish to focus on the points of order he was subjected to after a controversial decision has been made. John Bercow (who, as a conservative (May’s party), ‘broke’ his impartiality as a Chair of the House by admitting he was a remainer) allowed an amendment on the agenda of the House, which was set up by the government. This was unprecedented and many of the MPs were afraid of all consequences that could result from this decision. The amendment in question required May to come back with a Plan B within three days after her deal was potentially voted out, otherwise MPs could intervene or come up with alternative deals.

Of course, in the points of order, MPs focused on the Chair’s impartiality and questioned whether John Bercow would also allow the amendment, were he a leaver. Please note that these points of order for the Speaker of the House always come up without warning. As an experienced politician, Bercow definitely expected points of order of that kind, but I greatly admire the eloquence and knowledge in his answers. For those interested; he focused on the fact that it was up to the House to vote in favour or against the amendment, he merely selected it. Moreover, it was completely in track with all his former decisions to give back power to the backbenchers. According to the Glossary Page of the UK parliament, “Backbenchers are MPs or members of the House of Lords that are neither government ministers nor opposition, Shadow

spokespeople. They are so called because, in the Chamber, they sit in the rows of benches behind their parties' spokespeople who are known as frontbenchers." As said before, knowledge is power.

An interesting side note, is the fact that Bercow is required to address all points of order, but to what extent, and more importantly, whether the answer is satisfying, is determined by the Speaker of the House himself!

One of his counter arguments, however, was truly interesting. As a Speaker, he has always tried to give a more important say to the backbenchers. As the House frequently requested to take back power regarding the Brexit, one could argue Bercow was only standing up for the (requested) rights of the House, which is exactly his job description. It goes without saying that one will always agree with your decisions when they are beneficial for that individual, and will contest your decisions and ultimately the position you made them from otherwise. By the way, Parliament accepted the amendment, allowed by Bercow.

**“ Presentation is also power ”**

However, Bercow changed the focus of the Speaker, and several changes can be accounted to him. As he said himself, paraphrased, if we always follow precedence, there will never be change. This change even goes to the extent of his clothing. The Speaker, in history, wore a traditional court dress and the Speaker, accompanied by several clerks, wore wigs. Bercow, and the clerks, are still wearing gowns, as to be 'distinguishable as experts in parliamentary procedures and not lawyers'. Losing the traditional court dress, Bercow also enabled himself to display his immense collection of ties, most of them extremely noteworthy, curious, a little eccentric, and some might even argue of questionable taste.

This does raise some doubt on my side on the old



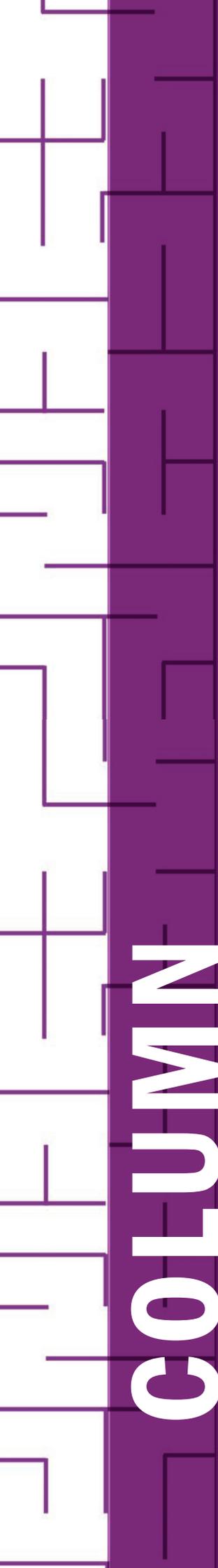
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*The Speaker of the House, John Bercow*

Dutch proverb 'Knowledge is power' and British Parliament might support my argument. All MPs are required to wear a suit, and under Bercow a tie is not required. Bercow himself, however, is put above that, not only by sitting in a higher chair, but by wearing his peculiar ties and on top of that a gown. Combining this with his remarkable eloquence, he makes for a noticeable Speaker and is therefore being heard in the last year, and not only in Great Britain. Of course, his eloquence only comes to its full right because of the content of his words, shaped by years of experience and hence, his knowledge. But this knowledge would never come forward if not brought on in a proper way. Did I get you interested, just enter John Bercow on YouTube, and there is plenty of great examples.

Research has shown that people are considered more trustworthy when wearing formal attire, and present it in an eloquent and formal way. I am sure you remember situations in which there was somebody with all the knowledge, but not the best appearance, and somebody with all the appearance, but not the most knowledge. I am sure you remember who got the job, won the argument, etc. Therefore it is wise to think about who you want to convince of your argument and make sure you dress up accordingly, because remember: presentation is also power.





# THE STORY BEHIND DÉFI

*Some of you might have already heard some rumors in the hallway about a new fraternity. Others might even have talked to a member of this new fraternity. You might be wondering, who are they? What are they going to do within GEWIS? More importantly, what can you expect from them? This is a short introduction on the new fraternity Défi. Enjoy!*

TEXT Jealy van den Aker

## THE START

Susan van Ewijk, Romy Schellekens, Irne Verwijst, Joy Wip and Jealy van den Aker are the founders of this new fraternity. Together they are active in a lot of GEWIS committees, including, but not limited to, the BAR Committee, Bata19, GEFLITST and even this very own Supremum. And in addition to all of those committees, we even have two kandi's in our midst! However, besides being active at the study association, they still felt like there was something missing in their lives and the GEWIS community. Something different, something that would push people out of their comfort zone, something that would bring them closer together. That is when they got the idea of setting up a new fraternity.

“ ... push you out of your comfort zone ... ”

Défi was the name they chose for this fraternity, named after the French word défi which is translated to the English noun 'challenge' or 'uitdaging' as we say in Dutch. Afterwards, Défi was given the title fraternity-to-be (Dutch: dispuut in oprichting) by the board of GEWIS. Together with this title, we have been given some milestones by the board. For example, we have to organize multiple activities, be present at activities of other fraternities and gain some new members.

All of this will help us to experience what it is like to be a fraternity! That's where we are right now, and probably where we will be on the day you are reading this.

## THE THEME

All fraternities within GEWIS have a certain theme that shines through all their activities and borrels. I.V.V is the oldest fraternity of GEWIS, and as you might know, they have characterized themselves with the theme of wine and cheese. Afterwards came B.O.O.M., who are all about outdoor activities and camping. A year after B.O.O.M., GELIMBO was brought to life and has characterized itself with Limburg and carnival. A few years later, GEPWNAGE came to GEWIS and they organise LAN-parties and gaming activities. Five years ago, the newest fraternity ATHENA came into our lives and put emphasis on women and female activities.

You must be asking yourself by now, what is the theme that Défi is going to implement through all their activities and borrels? Well, that is a very good question! Défi wants to organize activities that push you out of your comfort zone in a fun and entertaining way. Défi wants to challenge you to take some extra risks, do things that you usually would not have come up with yourself and even get out of your comfort zone! Examples of the activities that Défi might organize in the future are: abseiling from the Euromast in



Rotterdam, joining the Amsterdam Gay Pride or maybe even following a workshop on drifting cars. Of course, Défi also has some ideas for somewhat smaller activities, like wall climbing or bouldering. There even are already some ideas for a party or borrel, but those will be revealed later on!

## THE FUTURE

As it is stated above, Défi currently has five members. Jealy will be their first chairman, Irne will be their secretary and Romy will be the treasurer! For now, this is enough to set a good foundation for Défi. However, as a fraternity, Défi is always looking for people who take interest in the concept and the vision of Défi. In other words, Défi is looking for people who want to join! If you have any interest in joining this fraternity and therefore being part of setting up something new within GEWIS, let us know!

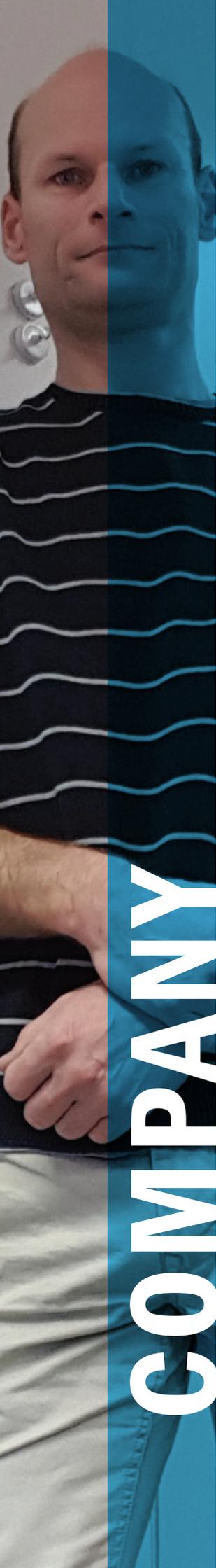
With this article, we hope that you have a better vision of what Défi is. Of course, if you still have any question about Défi, feel free to talk to any of us at any time. We are looking forward to seeing all of you at our upcoming activities!

### CONTACT INFO:

**Mail:** [defi@gewis.nl](mailto:defi@gewis.nl)

**Instagram:** [dispuutdefi](https://www.instagram.com/dispuutdefi)





# ADVERTORIAL DNB

***B**itcoin and other crypto-assets are popular these days. The underlying technology, blockchain, offers more uses. De Nederlandsche Bank (DNB) researches the blockchain to understand the technology and find new use cases.*

**TEXT** De Nederlandsche Bank

One of the promising uses is a so called Regulatory Node on a blockchain of a company which is obliged to report data to DNB. A Regulatory Node is a node on the blockchain which holds a copy of the ledger, but doesn't take part in validating transactions. This gives the supervisors from DNB real-time access to the data, instead of receiving an Excel sheet with aggregated data from the supervised company.

In order to explore the possibilities DNB participated in a project with a commercial bank. One of the project goals was to put commercial real estate data on a blockchain and see if this could replace the long process for the commercial bank to collect all data that DNB needs. The project started by choosing a blockchain implementation. For this case Hyperledger Fabric (HF) was chosen. The choice for HF was based on the fact that this is an open source private (or permissioned) blockchain. A private blockchain was used because all parties involved are known upfront and other parties are not allowed in this network.

The next step is to identify the data that is needed. This involved a number of parties. Next to the commercial bank and DNB, there were appraisers, the Kadaster and other commercial banks. Each party has its own needs and wishes. For instance the appraisers are only interested in a small part of the data (mainly the value of the building) and they do updates to this value. DNB is not interested in an individual building, but more in the LTV (loan-to-value) of a set of buildings. Another requirement was to have access to the rental contracts. These contracts are usually in PDF format and although they can be stored on the ledger, this was considered not to be a good idea. The ledger would

grow too fast. The decision was made to calculate the hash-value of the PDF and store that on the blockchain and provide an API (Application Programming Interface) to retrieve the actual PDF.

The biggest issue concerning the data had to do with validating the transactions. The nature of a blockchain is that everyone can see all data. This allows all nodes to validate the state of the ledger. The open nature of the data also holds for HF (an older version, without the possibility for having private collections was used in this project). With several commercial banks involved, some of the data was sensitive, due to the competitive nature of the market. Having all nodes validating the transactions was not an option, but having an external third party validating all transactions removes the blockchain feature to be resilient to tampering. One of the potential nodes to be a third party validator was the DNB node. Next to the already identified reason, a second reason not to do this, is the fact that DNB as supervisor becomes a crucial part of the process.

With the validation issue not yet resolved, the decision was made to take the next step for this project: building a real prototype. HF comes prepackaged in Docker containers, so the team (consisting of persons from the commercial bank, a consultant with HF experience from a software vendor, and DNB employees) could have the focus on the real issues, instead of the infrastructure. Well... true, but this is not the entire story. Due to a major architectural change between two HF versions, the team had to throw away the first version and basically start all over again. Following versions proved to be more stable in this regard.



In order to do a transaction on a blockchain network, you need a Smartcontract. A Smartcontract defines the rules to which a transaction must comply to be valid. In HF there are two ways to create a Smartcontract. The team explored them both. The first way is using the programming language GO. GO is an easy to learn C-like language. In order to create a Smartcontract in GO, you have to implement an interface and create the model. The model consists of pieces of GO-code to represent the data.

The second way uses JavaScript as programming language. In this situation the model and code for the Smartcontract are separated. The model is created in a very easy descriptive format. The code to perform the transactions is located in a different file. Both parts are packaged in a zip file to deploy them to the network. The advantage of using GO is that this is build-in in HF, making a deployment easy as copying files. The advantage of using JavaScript is the separation of the model and code, easing the creating of the model. In this project the JavaScript option was used.

Another big challenge was the onboarding of the nodes. To participate in the network, a node needs a set of certificates. There are certificates to sign transactions, certificates to identify yourself and SSL/TLS certificates. To complicate this, a node can have multiple roles (for instance administrator and user) to interact with the ledger. For the specific roles different certificates are needed. The nodes and their roles are defined in a configuration file which is read by a tool that generates all the certificates. Getting this file correct and configuring the network to use the correct certificates was a big puzzle. An additional reason why this was hard was the fact that the error

messages were not clear. The errors that were most seen were HTTP status codes 401 (unauthorized) and 404 (not found) without any extra comment.

Was everything a struggle? No, of course not. Actually the creation of Smartcontracts is fairly easy and there are tools to do some unit-testing on the Smartcontracts. Updating HF to a newer (minor) version is nothing more than changing a number in a configuration file. The HF community is very active and the developers of HF can be reached on RocketChat (an online chat application) and they respond quickly to questions. The team has delivered a working prototype. The network was deployed on two different clouds (Azure and AWS), with only a subset of the identified data and a few different Smartcontracts. The system offered enough performance for this use case.

For DNB this was a very interesting project. We have learned that it is technically feasible to setup a regulatory node on a blockchain from a commercial party. On the functional side, a few questions arose from this project. There is a question on how deep DNB should be involved in the process. Should we validate transactions or not? Another interesting question is what to do with the new possibilities. DNB is now able to access the data real-time and the data is more fine-grained. We can spot potential issues much faster, but should we actively tell the commercial party? In the end, it is their responsibility.

This experiment shows that DNB is interested in new technologies and that we participate in projects. We have to keep a lot of things secret, due to the nature of our work, but we keep an open mind to new technologies and their possibilities.

# DeNederlandscheBank

## EUROSYSTEEM





COLUMN

# WE LIKE PUPPIES

*It should come as no surprise that mastery of a musical instrument comes with great knowledge of music theory and at least some feeling for your instrument. This is the case for practically any genre that has ever been conceived. From Classical to Gangster Rap, it is beyond important to always have a balance between the musical compounds and the ideas and messages that you want to transfer to your audience. Over the years I have enjoyed Rock, Metal, Alternative, Grunge, Electropop, Hip-hop, ... The list goes on and on. In this article I want to highlight a genre that I recently became extremely interested in: Jazz/Fusion. We could talk hours on end about Koinonia, The Rippingtons, and Spyro Gyra if it were up to me, but there is one band that does not cease to inspire me ever since I discovered them. A huge collective under the ever so gentle name of Snarky Puppy.*

**TEXT** Lars Verstraelen

I remember the day that I found out about these guys like it was yesterday. I have been friends with the owner of the CD store (let's call him Mieze) in my hometown since about 2012, and his place is one of my favorite spots to hang out up to this day. As a natural consequence, he even sometimes leaves his shop open until midnight, so I and other regular customers can enjoy some very nice music for even longer. Including at one night my old guitar teacher. During the evening we listened to some very nice music; some metal, a bit of grunge, a small bit of prog, and the list goes on. Eventually it was my old teacher's turn to play a CD, and he grabs this almost totally white DVD/CD from the Fusion department, and he asks Mieze to put it in the DVD player. The next thing I witnessed was a show given by a huge collection of musicians in something that resembled a basement. A few people sitting at the side of the spot were live witnesses of the spectacle. And oh boy, a spectacle it was.

My guitar teacher pulled out the DVD 'Tell your friends' from the DVD/CD rack. What I saw and heard was a large cascade of sound and a very cohesive musical arrangement. I just got the chills – probably more than with any band or artist upon my first discovery before. The songs were just so charming and filled with many

twists and turns to attract one's attention. Songs like 'White Cap' and 'Slow Demon' are still in my playlist, along with many more of their songs.

However, it is not just 'their' music. Even though it is a group with (guest) musicians, the melodies are not written for every section, by any section. All of the music of Snarky Puppy is composed by just ONE guy; their bass player: Michael League. Learning about this immediately made me realize what kind of a genius this man is. Apart from the Percussion section, he writes every single note that is being played in the songs. Let's just focus on this: this man's knowledge of music theory makes him capable of writing the bass parts, guitar parts, musical arrangements for the brass section, the string sections, keyboards, and even the occasional miscellaneous string instruments that are used sometimes, like the harp. This man is a mad musical octopus, not only for Snarky Puppy, but also for his other (past) projects like Forq and Bokanté.

But theory is just one part of the music, of course. It is also the delivery of the emotions that League does extremely well. Not necessarily because he plays all instruments (that would've made him a literal octopus), but also because he selected and brought the best musicians possible to fill in the parts. You cannot just



have some robot in your band that reads the notes off sheet paper, calls it a performance and leaves for his coffee. And this is something that League understands very well. On the DVD 'Tell Your Friends' he explains that he really wants to put the emphasis on the fun with the other musicians. And when you watch the DVD, you know he is not bullshitting you. You can read the joy off his face. And the joy that shows from League and his other musicians really strengthens the communication between all of the members. This strong communication in its turn, naturally leads to a proper understanding of what everyone is doing during the performance of the songs.

And I as a musician can't put enough emphasis on a proper communication with your musicians. It provides so much more than just the knowledge of each of the other musicians and their capacities. It provides you with a color pallet to draw your music with. As you can see in Snarky Puppy, the strong connection and communication lets the listener feel like they are on some kind of journey with the musicians. Along this journey, stories are told, shared, written, and forgotten. You forget your worries about a furnace that was left on, a doctor's appointment that you needed to make, and bills that still needed to be paid. Snarky Puppy basically tells you: 'Worries are for later. We don't provide the solutions for you, but we try to make your day a bit warmer.' During a nice listening session with these guys, you just can't feel anything but this warm and rich feeling.

Now I can certainly understand that not everybody who is reading this will be immediately convinced of Fusion being this nice warm genre. It is often regarded as, what Miez and I like to call, 'musician's music'. And while it is certainly interesting to listen to Snarky Puppy for the musical thrill, you should also look beyond that. Or maybe, try to not even look for that at all. Snarky Puppy is a nice, warm and outspoken band, that wants to share its joyful moments with you. And once you are open for that, then the Puppies are really something that you won't be able to get your hands off anytime soon. If you want a nice starter into Snarky Puppy, I can guarantee a CD like 'We Like it Here' (which



was even recorded in Kytopia, Utrecht) or 'Tell Your Friends', as I am doing right now. I know one thing for sure: they have been announced for Rock Werchter this year and I certainly want to be part of this experience!! Definitely grab your earplugs, air pods, or hearing aids and let the music of Snarky Puppy drift you away. And for the really daring: grab your wallet and see them at Werchter this summer (;

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*The lead-singer of Snarky Puppy  
Michael League*



*Infimum: A strange or funny quotation from a teacher, a student or faculty member.  
Here you can find infima sent to the Supremum committee via [inf.gewis.nl](http://inf.gewis.nl).*

Remco tijdens een avond speciaalbiertjes drinken:  
Session IPA is gewoon radler voor gevorderden.

*\* Spotify speelt Wonderwall \**

Gijs: "Dit is Nickelback."

Wimmie: "Met welke hand vegen jullie je kont af?"

Timmie: "Vegen jullie je kont af?"

Floris moet de achternaam van Femke spellen: F A  
N...

Veronique (zusje van Laura) bekijkt een foto van

Guido uit zijn eerste jaar: "Waaaaatt, is dit jou  
hoofd?!"

Daniëlle: "Laat je niet verleiden door windmolens!"

Aart B: "We will not use this house, town, and kitchen  
method."

Danny: "Bestuur!!!! We hebben een incapabele sjaars!"

Gijs: "Wat! Eentje maar?"

Op de borrel, tegen sjaars Rick: "Ligt het nou aan mij  
of heb jij er elke keer dat ik je zie een onderkin bij?"

Ilse: "Oehh een sushi workshop! Ow wacht, ik ben  
vega..."

Jealy: "Je relatie gaat niet kapot als je vreemd gaat,  
hij gaat pas stuk als ze erachter komen."

Docent in Nijmegen over access control: "If you write  
things down, there is a chance to get it right."

Bas: "Weet je hoeveel pasta je kunt kopen voor  
TWEENTWINTIGDUIZEND euro!"

Dobin: "Voor wie is die tripel die daar staat?"

Rick: "Die is voor de sfeer."

Aart B: "Het leven begint pas bij 40. Het eindigt  
spoedig daarna."

Remco: "Leon, heb je wiskunde D gehad?"

Leon V: "Natuurlijk niet, ik hou wel van mijn leven!"

Tom tijdens eten: "We proberen op de open dag  
vooral Brabanders naar de TU te krijgen."

Trudy (moeder van Tom): "En hoezo is Tim Houthuijs  
er dan?"

Tom: "Die is er tussendoor geglipt."

Trudy: "Maar die is echt niet door een klein gaatje  
gekomen hoor!"

Emma over de sushi-rol die ze maakte: "Ik krijg hem  
niet meer dicht!"

Ingmar: "Daar heb ik ook vaker last van!"

Illona tegen Niels: "Waarom zit jij bij mij op schoot en  
ben jij mij niet geld aan het geven?"

Mark R: "Als je naam begint met een P ben je oké!"

Niels V. over kandi-periodes: "... in my time as a  
candy ..."

Ilse: "Oehh, ik heb weer zin in een feestje! Ow, ik ga  
vanavond al..."

Ian: "Sowieso!"

Sjaars, na een tijd Ilse geobserveerd te hebben in het  
bestuurshok: "Wat doe jij eigenlijk de hele dag?!"

*\* Kevin J. heeft PhpStorm open staan \**

Pieter E: "Welk vak is dit?"

Jasper D: "Dit is de GEWIS website."

Saskia: "Maureen, ik snap dat je geen bodem, water  
en atmosfeer in Wageningen doet, maar dit is geen  
boom."

**Yoram:** "Waarom schulti's? We kunnen toch ook gewoon wat lekkers drinken?"

**Rick:** "Zoals?"

**Yoram:** "Grolsch kanon"

---

**Daniëlle:** "Jezus, waarom schreeuwen mensen zo erg?"

**Saskia:** "Dat heet GEWIS."

---

**Wesley, nadat het IVV kookboekje is uitgedeeld:**

"Echt lekker, maar deze gerechten ga ik nooit zomaar zelf maken."

**Vincent:** "Dat hoeft ook niet, je kan ook zeggen: Mam, ik wil dit hebben!"

---

**Illona:** "Oehhh, mag ik ook een likje?"

**Sjaars Leon:** "Van de lolly bedoel je?"

---

**Ian (in een ruimte zonder vrouwen):** "Saai man, te veel vrouwen!"

**Rik:** "Te veel vrouwen, inderdaad."

**Ian:** "Ja man, BMT!"

---

**Danny:** "Introcest = wintrocest."

---

**Ava:** "Ik vind Brand eigenlijk helemaal niet lekker."

---

**Poes over het Spoorwegmuseum:** "Mag je daar drinken?"

---

**Tobin:** "Ben je nu een stukje borsthaar van mijn been aan het plukken?"

**Pim:** "Nee, dat is popcorn."

---

**Rick:** "Waarom zit jij eigenlijk bij AviCo?"

**Sjoerd:** "Omdat ik hartstikke goed ben met audio, video en commissies."

---

**Wouter:** "Halloweenborrel? We gaan zo veel bier drinken daar word je bang van."

---

**Bart:** "3 meiden hebben met me geflirt. Als ik hetro zou zijn, was ik een player."

**Deloorean:** "Als je hetero was, dan zouden ze niet met je flirten."

**Max M:** "Heb ik jullie ooit mijn straalpower laten zien?"

*\* Iedereen begint te lachen \**

**Max:** "Ja wat nou, mijn bijnaam op de middelbare was straalman."

---

**I.V.V-lid:** "Jezus wat een lap tekst heeft die feut van ons geplaatst, dat leest toch niemand?!"

---

**Sjoerd:** "Ik heb deze week al twee keer hardgelopen!"

**Eug:** "Naar de kroeg en terug?"

---

*\* Sjoerd rijdt door rood en fietst door \**

**Iedereen bij het stoplicht:** "SJOERD! EVEN WACHTEN!"

**Sjoerd:** "Dat gaat niet, dit is heuvel af!"

---

**Lieke V:** "Ik hoef mijn buikspieren niet te trainen, die heb ik toch geen."

---

**Anne over de intensiviteit van schaken:** "Ja dan verbrand je hersencellen ofzo."

---

**Mgr. Sanders:** "Als je slechte wijn goed vindt is dat juist goed! ... Voor je portemonnee."

---

**Sjaars nadat hij erachter is gekomen wat Ilse doet:** "Maar wat doet Lisan dan als secretaris?"

---

**Roel B. over TRAIN:** "This training is organized by a dispute of GEWIS."

---

**Ilse:** "Ingmar is de reden dat ik geen kinderen wil."

---

**Aart B. is erg enthousiast over een boek:** "It has much less information than the internet, but it has pictures!"

---

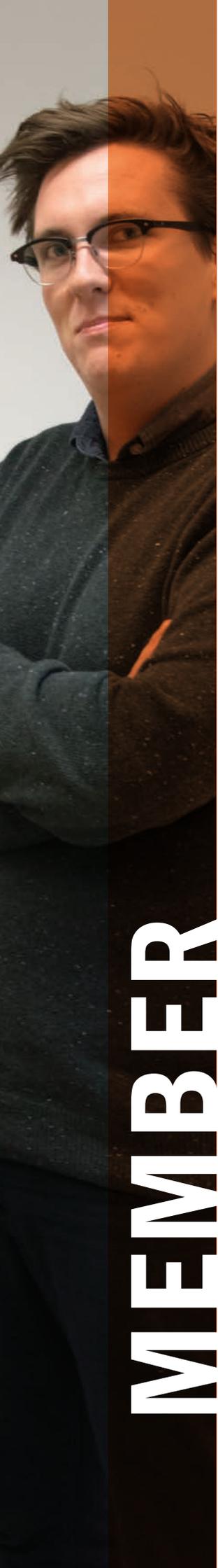
**Bor over recaptchas:** "Kan deze nare teringelende ook uitgezet worden?"

---

**Loek over Gijs en Noa:** "Hoe lang hebben jullie nou al wat, 2 maanden ofzo?"

**Jeffrey:** "Hè, dat is echt al 6 jaar in sjaarzen tijd, wanneer gaan jullie trouwen?"





# MEMBER

## DET ER ALT HYGGELIG: A GLANCE AT NORWEGIAN STUDENT LIFE

*H*ow is it to study in a foreign country? Here are some tales from a Dutchman in Scandinavia.

**TEXT** Bor de Kock

Last October I moved to Trondheim, which is the third city of Norway with about 180 000 inhabitants. Student life here is centered around Studentersamfundet or “The Student Society”, which has around 13 000 members, of which 1500 volunteers. In their huge red building they run the most prominent club / pub / bar / debate association / cabaret / concert venue in town, and if you do anything studenty in Trondheim, it will probably happen there. I have, for instance, joined the student symphony orchestra, which is part of Musikerlåfte, which is a part of Samfundet. In Eindhoven terms it’s basically like combining Hubble with De Bunkerbar with De Ballenbak with Stratumseind and most of the cultural associations into one building: bizarrely great and greatly bizarre.

In Samfundet you’ll get all the adventures you need, and that’s good because the rest of Trondheim’s nightlife is not extremely exciting. Norwegians are more inclined to get a beer at home with some friends than to go to a bar, and street corner pubs like in Brabant are rare. Of course, alcohol in Norway is absurdly expensive, so it makes sense that they try to cut some costs.

Since most students can’t easily go home on the weekend – reaching the closest city takes around 7 hours – it is more common to have events on Friday and Saturday than what I’m used to. Besides all the partying, spending the weekend enjoying nature is common: either you go skiing (which in Norway usually means cross-country), hiking, or camping. The

student sports organization owns a lot of cabins in the woods that you can rent cheaply to go on a hiking trip. Living unhealthily is frowned upon and as the saying here goes: “there’s no such thing as bad weather, there’s just bad clothing.”

I should also note some things are remarkably similar: the old name of this university is “NTH”, which stands for Norske Tekniske Høgskole. From NTH to NTNU is a transition similar to the one from THE to TU/e. Another thing to remark is that the concept of Study Associations exists here: in Norwegian they are called Linjeforeninger (“Study line associations”). They provide activities similar to what GEWIS offers, like curriculum-related events, recruitment opportunities, and trainings – but there are also parties, social drinks in a bar somewhere in the basement, and the like.

And then, of course, wherever you have students, you have weird customs and traditions. A particularly odd thing is the NTNU train war: in front of the Electrical Engineering building where I work, there is a big old electrical locomotive called Ohma Electra, which is able to run about ten meters back and forth on its track. On the other side of the campus you’ll find a bigger and older steam locomotive called Björkelangen. It is considered vitally important to emphasize that ‘our’ train is the superior one. During my first week I made the mistake of bringing up Björkelangen over lunch: “First of all, we do not speak that name here, and second of all, their train is lame because it cannot even drive.” The more you know.



# DEVELOPING AND MANUFACTURING TOMORROW'S PRODUCTS

*In the research and development department of AME, professionals work together on electronics, mechanics and software to realize a product in close cooperation with our customers. Quality is our highest priority. We achieve this by applying model driven design, rapid prototyping and short design cycles. Most of these activities happen right here in Eindhoven*

**TEXT** Ewout Voogt - AME

AME recently developed the complete control system including mechanics and electronics for the next generation of innovative storage solutions for a customer. These range from small office cabinets that are applied to optimize storage availability and save space, to large systems that can store multiple tons of goods in archives, museums, libraries and warehouses.

A system comprises of up to 21 cabinets in one system, with the possibility to connected child systems that move synchronously. Each cabinet contains one or more user interfaces with an innovative operating interface, a touch screen and RFID for access control, all designed by AME.

Each cabinet has a control unit that is responsible for the movement behavior of the cabinet and all safety features. Each control unit connects and manages up to 16 devices per cabinet. The control units can communicate with each other and the overall system control unit via either wired or wireless connectivity. This makes the control unit a complex product with a lot of design challenges for all engineering disciplines.

Since the largest cabinets can store over 15 tons of goods each, extensive safety measures are taken. The system uses multiple sensors and a vision system. These ensure that valuable items that are archived in

the storage or persons that are present in the aisles between the cabinets are never harmed during movement. The camera-based vision system is optimized to run on a small microcontroller and it is capable of detect objects completely standalone.

In the process of designing a system as large and complex as this, extensive modeling has been applied. In mechanical engineering this means utilizing 3D techniques including rapid prototyping using our in-house 3D printing facilities. To ensure correct functionality of all the software in the product, Matlab is used extensively for creation of state diagrams and control algorithms using Stateflow and Simulink. Model based design is applied to the software for operation of the cabinets and for the safety features. This allows for extensive simulation of many scenarios and the generation of code reduces errors introduced by manual coding. The software for motor control and battery management is generated from simulation models using the AME Power Conversion framework.

# AME





# INSIDE TSJERNOBYL: HOW DID IT HAPPEN?

**A**lmost every Monday and Wednesday a group of young and ripped gentlemen gather in GEWIS to get ready for the big match that afternoon. From there, on their way to the sports center, the previous match is discussed and analyzed. Different scenarios that happened are relived, and points of improvement are talked over. People that scored are still gloating about their amazing goal, while the others say it was just a tap in. After the big match is finished, it appears that nothing has changed. In the locker room the player who gave the assist talks about his amazing key pass behind the defense, and the striker gloats about his genius running lines. Even though the quality of the players isn't as high as they say, it is a success formula: FC TsjernobyL promoted to the first division.

**TEXT** Sjoerd van Heesbeen

In the early days of our mighty indoor soccer team, FC TsjernobyL consisted of only eight friends. Namely, Rik Rutjens, Bas Lodewijks, Michael Philips, Erwin Adriaans, Eddy van Beekveld, Thijs Ledeboer, Frank Wessels and Rik Hagelaars. This group was recognized by their radioactively coloured jerseys, resulting in our magnificent team name. Starting in the fourth division without any experience with indoor soccer, the comrades needed a start-up period. After a while the eight started playing better and better, resulting

in a promotion to the third division after only half a year. Frank Wessels decided to quit; as a replacement they found Jeffrey Minten. With the newly gained asset, the team promoted to the second division after just a year of existence. Some of the members were obliged to retire, because of their study or jobs, and so Tsjernobyl began to change. More young members of GEWIS joined the squad and the team had to rediscover itself and its qualities, resulting in some years of mixed results. In one match Tsjernobyl was totally overclassed, in the next one it was gallery play by our part. This continued with an ever-changing squad, since there were a lot of temporary players. However, Bouke Bosma also joined the team. With his youthful enthusiasm he tried to revive the glory days. This didn't work immediately, since the team spirit was not present that much at that point in time.

Moving forward to about a year ago, big changes were made inside the team; a new captain was appointed and there were enough enthusiastic players in our squad, which meant that we didn't need to ask dispensation players to play alongside us. The squad now consists of a youth player from Basel; our goalkeeper Maarten Flippo, the rocks in the defense; Thijs Ledebor and Sjoerd van Heesbeen, the outsiders from Industrial Engineering; Hidde Verschoor and Dennis de Koning, and our ever running playmakers; Niels Verheyden, Michael Philips, Jeffrey Minten and Patrick Wempe. Of course we have to score too, which should be done by our attackers; Kees Voorintholt and Teun van Dijk. This whole bunch needs some coordinating, which is done by our captain Bouke Bosma and ever positive and injured coach Rik Hagelaars.

After last year's dreadful performance, where we ended on the bottom of the table, the team decided that it was time for change. With the knowledge that having no tactics at all doesn't work, the captain made a simple game plan, starting last season. As Cruiff made us realize, soccer is also science: you have to test lots of different plans, make different lineups and find the most optimal fit for your team. In the beginning of the season results were good, but definitely not great. It

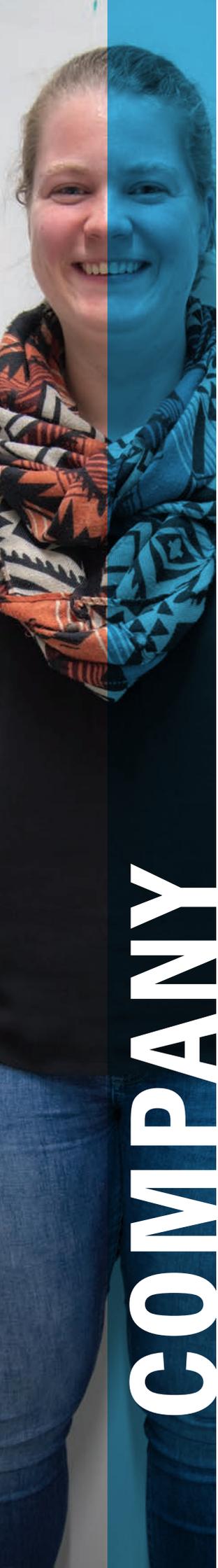
was clear that our defensive tactics were working, since we only got one goal against on average. The problem, however, was that we almost did not score any goals ourselves. Searching for different attacking tactics through the year, the players of Tsjernobyl started to learn more about each other and we started to get more and more team chemistry. Passes and running lines became more predictable for each other, which resulted in smoother attacking play.

That was not the only thing that was changing inside Tsjernobyl, however. Some training and collective shower sessions resulted in us becoming more and more of a team. This new-found spirit did not stay in the sports center, as we also have some regular team evenings throughout the year. These evenings are usually filled with lots of talk about football and tactics, as well as lots of beer, games and making fun of each other. These evening sessions make a big difference, since we are not just a football team anymore, we are, just as Tsjernobyl once started, a group of friends again.

Back to last season in the hall. Since we now suddenly had found ways of scoring, as well as staying well-organized at the back, our team started winning more and more matches. Our radioactive squad was suddenly a worthy opponent for the teams that we lost to without mercy in the beginning of the season. At the end of the season, winning was almost more like a habit than a coincidence, with us even winning against Bier MT, at that moment champions of division two. All this winning resulted in a very respectable second place in the rankings. Since the number one and two of each competition will be promoted, this means that we will be playing at the highest tier of afternoon competition next season, where we hope to continue our good form.

Do you think you can live up to our high standards of quality football, can you place a ball behind the defense, make the most beautiful goals or saves on regular basis or can you be another rock in our defense? Just talk to one of our squad members and maybe you will get the chance to wear our beloved radioactive jersey one day.





## IT BIJ DELA

**H**et zal misschien niet het eerste bedrijf zijn waar je aan denkt als je het hebt over technologische ontwikkeling. Maar met een IT afdeling van 130 mensen gebeurt er bij DELA juist heel veel op het gebied van IT. Aukje Boef werkt nu een jaar bij DELA als Solution Engineer. Graag geeft zij een inkijkje in wat werken op de IT afdeling van DELA inhoudt.

**TEXT** Aukje Boef - Solution engineer bij DELA

### DELA IN HET KORT

DELA biedt uitvaart-, spaar- en overlijdensrisicoverzekeringen. Wat al deze producten met elkaar gemeen hebben is dat je deze producten niet voor jezelf afneemt, maar het zijn producten waarmee je zorgt dat je nabestaanden niet in de problemen komen na jouw overlijden.

### REGULIERE WERKZAAMHEDEN

De taken van ons team zijn grotendeels samen te vatten als het inregelen en beheren van verschillende in- en uitgaande datastromen van het DELA datawarehouse. Als er iets fout loopt in het proces is het onze taak om in te grijpen en de oorzaak te achterhalen. Ook het meedenken over allerlei innovatieve projecten, zoals process mining van betaal- en aanvraagprocessen van uitvaart- en spaarpolissen, valt binnen ons team. Daarnaast houden we ons bezig met het selecteren van data voor verschillende marketing campagnes. Hier zit onder andere een uitgebreid model aan ten grondslag welke aan iedere DELA-klant een score toekent; op basis van zijn score krijgt de klant gepersonaliseerde berichten.

### JAARPOLIS

Een recent project binnen DELA waar ik aan mee heb gewerkt is de digitale jaarpolis. Het digitaliseren van de jaarpolis zorgt ervoor dat de klant makkelijk alle polis informatie online kan inzien. Daarnaast draagt het bij aan de MVO doelstelling van DELA om papiergebruik te reduceren. Dit lijkt op het eerste oog misschien een simpel project. Echter vanwege de grote keten aan diverse systemen binnen en buiten DELA

die hierin een rol spelen, was dit een omvangrijk project waarbij verschillende mensen en afdelingen betrokken waren. Ik was verantwoordelijk voor het samenbrengen van alle data die hoort bij een specifieke polis, maar verspreid opgeslagen stond in verschillende systemen. Mijn rol achterin de keten was belangrijk om ervoor te zorgen dat de data van elke polis compleet was en dat de juiste data uit de verschillende systemen werd samengevoegd. Vervolgens ontving elke klant een gepersonaliseerde email met een link naar een persoonlijke landingspagina waar de jaarpolis op een veilige manier te downloaden was. Tot slot hebben we de gehele keten in kaart gebracht om uitval tussendoor te signaleren; deze personen kregen dan later alsnog een papieren polis in de brievenbus.

### GEEN DAG IS HETZELFDE

Buiten dit zijn er natuurlijk nog veel meer leuke en interessante mogelijkheden bij DELA. Zo is er een innovatieteam druk bezig met allerlei verschillende datascience en big data projecten, zoals een chatbot voor op de website en het voorspellen van telefoonverkeer richting het klantencentrum in een bepaalde periode. Bovendien biedt DELA mogelijkheden om jezelf te ontwikkelen, zowel op technisch als op persoonlijk vlak. Zo heb ik soft skilltrainingen op het gebied van communicatie en beïnvloedingsstijlen gevolgd, maar ook verschillende inhoudelijke trainingen. Zo heb ik me verder kunnen verdiepen in SQL, proces mining en architectuur binnen de IT. Deze variëteit aan projecten en de dagelijkse werkzaamheden zorgt ervoor dat geen enkele dag hetzelfde is bij DELA.



**FYC19-3 PUSHPIN**

# THE STORY OF PUSHPIN

**D**o you all know the feeling when you are sleeping so tight in your warm, cozy bed and then all of sudden your alarm goes off because you have to get ready for your lecture? Well, Sanne hates those moments and one of the hardest things for her is getting out of bed on the early Monday morning. That is also why she missed the foundation of our first year committee. This is Sanne van de Ven, she can be very chaotic. Fun fact: Sanne is crazy about cheese. Her favourite drink is limoncello.

**TEXT** FYC 19-3 PushPin

We started with a group of 7 people. It was only a few days later that we already had a new member (Of course: who doesn't want to be a part of such a great group?!). His name is Danny and luckily for us he wanted to join our FYC. Because who else would have taken care of the drunk texts the night before we have a meeting to guarantee everybody will be there? Or make sure we get the real 'Bossche bollen' from 's-Hertogenbosch during our meetings?

## FUN FACT:

Did you know Danny's right foot is bigger than his left one? His left shoe size is 41 while his right one is 42. Danny's favorite drink is a Bacardi-cola.

After Danny joined, we had formed a group of 8 people, but we could feel there was something missing. And there she was: Barbara Werner Francisca Elizabeth Maria de Graaf, ready to make sure we were complete. The icing on the cake! Barbara has a very imaginative mind with some pretty weird, but mostly great ideas. She is known for her puns: if you need someone to make you laugh, she's your girl! Her favorite drink is a beer.

## FUN FACT:

She is obsessed with her rabbit which she named Hondje.

Then there is Tim. And Tim, well Tim is just Tim. Everyone loves Tim. Tim likes to have fun. Tim is smart. Tim is easygoing. Be like Tim.

## FUN FACT:

He has an alter ego named Tanne. His favorite drink is a beer as well.

Of course every committee also needs someone who takes care of the money. Who else would be more perfect for this than our one and only Joost! He is deliciously himself, that is worth something for sure. But Joost, he is differently geard. His favorite drink is captain cola.

## FUN FACT:

Joost is too late at almost every meeting even though he lives in Luna? (Which is like a 2 minute walk from where we gather).

She is great with her keyboard, she knows how to use a pen, and she adds a lot creativity to our committee. She is our secretary. She is Sanne (de Wit)! . Not only does she take care of the minutes, she is the one who designed our logo and does almost everything else that asks for a creative mind. Her favorite drink is a beer.



### FUN FACT:

You can wake Sanne in the middle of the night for avocados (I dare you).

What would our committee have become without our fantastic chairman? Janne is always very positive and she ensures that everyone has a great time. When it is necessary she can also take the lead and make sure that we pay attention. This can be a hard job sometimes since we have a lot of fun and it can be difficult to switch back to paying attention. And her favorite drink is Malibu cola!

### FUN FACT:

Janne misses the top of her pinkie.

One of the people who has a lot of fun is Alex. He is a really friendly person and I guess that is why he sometimes totally misses the clue of a meeting, because he is too busy socializing. This might also be the reason that we are not at the top of the FYC scoring yet, because Alex is the one who should make sure that our earned points are correctly passed on to Sjoerd. Okay just kidding, Alex is doing great. His favorite drink is a beer.

### FUN FACT:

Our committee is a bit multicultural since Alex is partly Spanish.

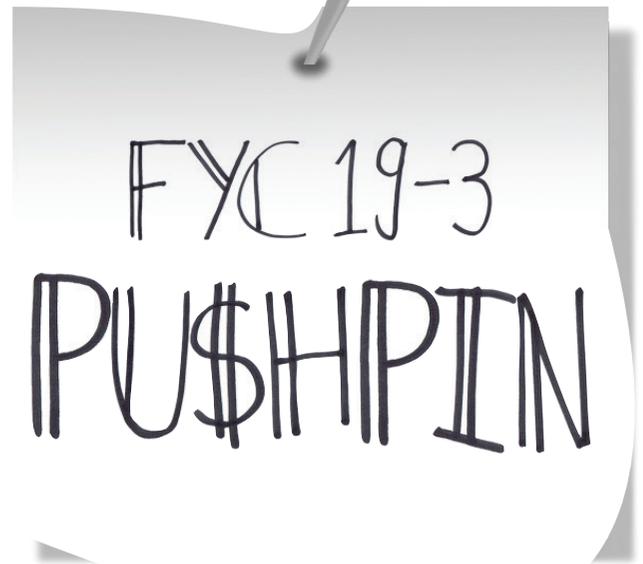
Last but definitely not least we have Joni. Joni brings some calmness to the group which is exactly what we need. She is one of the kindest people around. Joni is always in for doing something fun and is never negative about anything. Her favorite drink is ice tea.

### FUN FACT:

Joni's name should be pronounced as 'djoni' but almost everyone does this wrong. It took us a very long time as well to say her name the right way.

At this moment we have been together for approximately 4 months. To be honest, when I just looked this up, I was kind of shocked. It certainly doesn't feel like 4 months. I guess it is true what they say: Time really does fly when you are having fun! The first weeks we were mostly settling. We were still getting to know each other and everything around the committee. We had to come up with all basic things like a name, color, clothing, activity, etc. By now we have already spent quite some time together and we started planning our activity, which is the next subject I would like to tell you a little bit about.

Unfortunately I cannot tell you which date you have to save in order to attend this amazing event which you obviously do not want to miss. What I can tell you, is that we are going to do our very best to ensure everyone will have a great time. Are you competitive, a team worker, social, curious or creative? Do you like to play games, puzzle or gather with entertaining people? Do you just want an evening to get-away and drink some beer? The FYC PushPin-activity is your place to be! Don't hesitate and make sure you and all of your friends will be there. We are looking forward to seeing you all at our activity!



A close-up, high-angle photograph of a person's face, focusing on the right eye and forehead. The skin is fair and shows some texture. The eye is dark and looking slightly to the right. The background is blurred, suggesting an indoor setting with windows.

# WILLEM

*O* hai, didn't see you there.  
Don't be scared. I'm Willem,  
pleased to meet you. I guard stuff  
left unlocked, like profile pictures,  
wallpapers, or Supremum  
centerfolds. Did you know it's best  
not to leave stuff unlocked when  
unattended?





# FROM NUTCASE TO GEEK CHIC THE HISTORY OF THE NERD

Someone who enjoys learning and does not adhere to social norms is often called a nerd. That is, if you take the definition of nerd as provided in *Urban Dictionary*. According to the *Dutch Van Dale*, a nerd is someone who enjoys learning, using his/her computer and is out of step with most everyone else. But where does the nerd come from?

TEXT Nadym van Schaik

The first recorded appearance of the word nerd is from Dr. Seuss's book *If I Ran the Zoo*. This is a children's book from 1950, which follows a child named Gerald McGrew. When he visits the zoo, he finds all animals boring, and if he were to run the zoo, he would set those animals free and go search for more bizarre and exotic ones. Examples of those animals are a Tizzle-Topped Tufted Mazurka, a Deer with Horns-That-Are-Just-A-Bit-Queer and the nerd. The nerd isn't described clearly, and only appears in the following sentence: *"And then, just to show them, I'll sail to Ka-Troo/And Bring Back an It-Kutch, a Preep, and a Proo,/A Nerkle, a Nerd, and a Seersucker too!"*

The Online Etymology Dictionary (an online dictionary that describes the origins of English-language words) dates the first use of the word nerd back to 1951. It used to be a slang under US students, and is probably an alteration of the word nert. Nert is slang from the 1940's, meaning something similar to "nut" or "nutcase", and overall describes a stupid or crazy person. Around the same time, the word started to be used as teen slang in the area of Detroit. The term nerd was used to describe a uncool and unhip person, and was interchangeable with words as "drip" and "square".

## NURD, GNURD AND THE NERD

Around 1965, nerd was more widely used, and commonly connected with people who were quite the bookish intellectual type. However, nerd would often be written as nurd (or gnurd at Massachusetts Institute

of Technology). Students attending MIT or similar institutions were known for wearing backward clothing styles and outmoded hairstyles, such as the crewcut. Around the same time, NBC network was broadcasting the *Star Trek* television series. However, they didn't believe in its success, and thought only 12 year olds were watching it. After some faulty Nielsen Rating numbers, NBC decided to cancel *Star Trek*. Bjo Trimble, her husband John and *Star Trek* creator Gene Roddenberry started the Save *Star Trek* campaign. The idea was to reach out to all *Star Trek* fans and ask for their support and have them send handwritten letters to Morton Werner (head of programming for NBC-TV). In the end, the three had to ask fans to stop writing letters, since NBC had come back on their decision to cancel *Star Trek*. This campaign has become the first instance of successful mass activism for an agenda favorable to nerds. From this moment on, the nerd culture treats fandoms as something to be pursued.

On January 15th 1974, the television series *Happy Days* aired. The show is set in the 1950s and follows a teenager and his family. The character Potsie, who is socially clumsy, not very bright and a bit gullible, was called a nerd by his friends and acquaintances. However, by today's standards, he isn't much of a nerd, but mostly a square person. A year later, the first national home microcomputers were announced, and an American humor magazine *National Lampoon* published a poster which would define today's nerd

stereotype. **0** In 1977, personal computers reached the mass market. Computer and electronics experts were recognized as a social class, and often the term nerd was used to describe them. In the following years, computer innovators achieved wealth and became household names. Bill Murray and Gilda Radner formed a duo for *The Nerd*, which appeared in *Saturday Night Live*. They looked, spoke and had the personality of nerds. Bill Murray explained later that the general public never saw nerds enjoy themselves, or really get funny. Their stereotypes weren't all about the cheap jokes, they were real humans being with a real heart. They paved the way for the TV nerds we know today.

## NERD PRIDE AND TV NERDS

The movie *Revenge of the Nerd* released in 1984, and people with technical interest started to use the word nerd as self-description. This was the beginning of a "nerd pride" movement. A decade later, the nerd pride movement was well established. The term nerd switched from a disdain meaning, to one of respect. During the rise of the nerd pride, many TV nerds made their appearance. First of all, we have Screech from *Good Morning, Miss Bliss/Saved by the Bell*. He had a lot of the classical nerd traits: super smart but not very cool. He was very aware of the fact that he was a nerd, which was quite unique for a character of that time. Screech was kinda weird and eccentric, and both characteristics can be found in many TV nerds that followed him. In 1989, the show *Family Matters* launched. The character Urkel was a nerd pushed to the maximum level: suspenders, high water pants, clumsy, glasses, awkward and smart. He became the star of the show, and his popularity encouraged the appearance of more TV nerds. In the same year, Lisa Simpson appeared on TV. She was much younger than the previously mentioned nerds, and had to come to terms with being a nerd. This was the first time a show addressed the feeling of isolated intelligence when you're you.

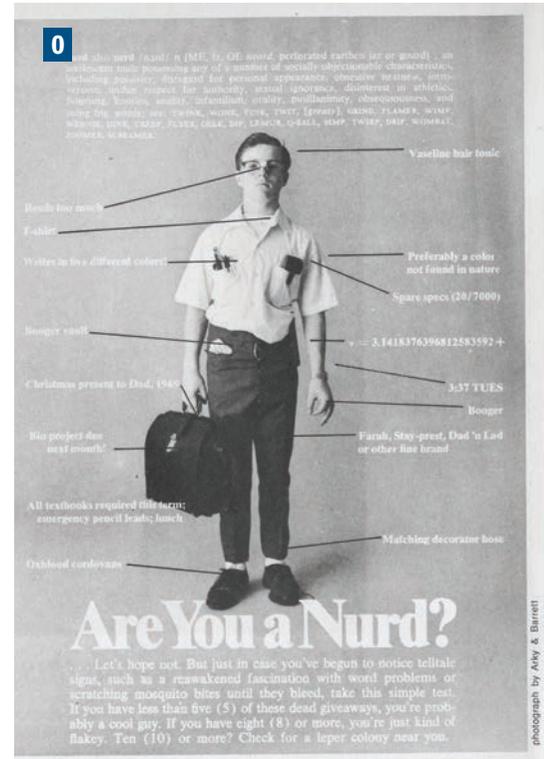
Carlton is the closest nerd to Potsie, and appeared in *The Fresh Prince of Bel-Air*. He is extremely square, especially when you compare him to Will Smith. He did well in school, but overall, tried too hard. However,

his obsession with singer Tom Jones and his iconic dance was as nerdy as it could get. He also steered the nerd away from the typical wardrobe of nerdy glasses and high water pants. *Friends* aired in 1994, which has Ross as the nerdy character of the show. He loved science, dinosaurs and ka-ra-tay (karate). For the first time in the history of TV Nerds, Ross got all the girls, constantly. He became TV's first nerd sex symbol and led the geek-chick craze. He showed what happens to nerdy kids who grow up and move to New York. Many shows today have nerdy characters who are able to hang out with the "cool" people, while still being nerdy and having their obsessions.

## THE RISE OF TECHNOLOGY

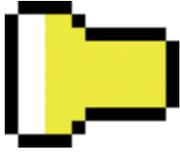
The World Wide Web popularized the mass usage of personal computers and computer networks. Ordinary people started to create websites in large numbers, and hence produced the beginning of today's internet culture. The terms nerd and geek were used to describe people who devoted their time and energy to fandoms. The Japanese term *otaku* appeared around the same time anime fandoms were brought to America. The geek-chic craze entered fashion, and high-fashion designers started to create nerdy clothing for both sexes, including the high water pants. In the beginning of the 2000's, the .com stock bubble burst, which marks the end of the computer revolution. The computer business became just big business, not a representation of the success and coolness of nerds. It removed some of the excessive glamor that people built around nerds for the previous decades. The first iPods began to appear, and the association made with this technology is one of entertainment rather than business.

In 2006, the British Sitcom *The IT Crowd* launched. The show follows the fictional Reynholm Industries



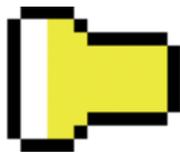
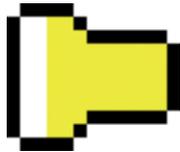


and revolves around three staff members of the IT department: coding genius Maurice Moss, work-shy Roy Trenneman and relationship manager Jen Barber, who knows nothing about IT. Both Moss and Roy are described as standard nerds by the owner of Reynholm Industries. They are despised, ignored and considered losers by the other staff of the company. One famous set of lines of the series is when Roy picks up the phone and starts each conversation with "Hello, IT. Have you tried turning it off and on again". Another sitcom that launched around the same time is the American series *The Big Bang Theory*, where every character but Penny is considered a nerd. This series is the epitome of mainstream nerd culture. Both shows are compared to one another, since they are both the nerdy sitcom of their country but have achieved a big following overseas.



“ ... women are needed in the computer industry ... ”

One might argue that *The Big Bang Theory* waters down the definition of the nerd. It takes a couple of popular items within the culture, but glosses over all personality of the characters. A character that improves on that is Abed from *Community*, which launched in 2009. Abed is more than someone who likes Star Wars: he is unable to truly relate to his friends, quite intelligent, and possesses mad observation skills. You could say that he portrays the most complicated, somewhat dark, but overall honest nerd we've seen on TV so far. However, his possibility of being such a great nerd character was created by all nerds before him that broke down all nerd boundaries.



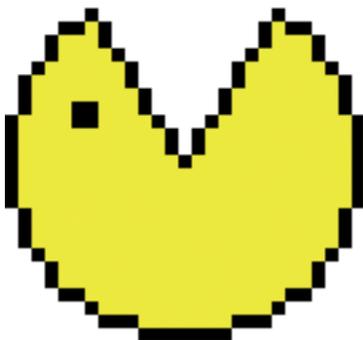
## TODAYS NERD

Expo's such as Comic Con have grown immensely over the past few years. They became the center of various fandoms which were associated with nerds. People became more aware of this branch of the nerd culture, and it became common for people to call themselves

nerd or geek based on their fandoms (rather than the skills they possess). More opinion pieces were published, criticizing the mass nerdification that took over the world. Shows like *The Big Bang Theory (US)* and *The IT crowd (UK)* brought the total image of the nerd including its facets to mainstream public. The terms nerd, geek, dork and dweeb became to differentiate, and Venn diagrams were made to show the differences.

Terms such as Brogrammers became to appear in the early 2010's, showing a side of nerd we didn't see before. It started in the greater tech industry, mainly in Silicon Valley. The term Brogrammer represents a "sociable or outgoing programmer" and are mostly stereotypically masculine men. A The New Economy article describes Silicon Valley as "a frat house where drinking and womanising are suitable pastimes for young tech luminaires". The article also featured what it takes to be a Brogrammer, according to a thread in Quora. Popular responses were: "Lots of red meat, push-ups on one hand, while coding on the other, sunglasses at all times, a tan is important, popped collar is a must. It's important that you can squash anyone who might call you 'geek' or 'nerd' and that you can pick up girls, but also equally important that you know the Star Wars movies by heart, and understand programming ideas, like recursion and inheritance." An unfortunate consequence of this subculture is the effect on female participation in computing. According to a research published in Fortune, 27% of woman cited workplace culture as a reason for leaving jobs in the tech industry. The number of women in the computer industry has decreased over the past three decades: from 33% around 1990 to 27% today. Stuart Rose is the creator of the app Beamlly, a pink social app for TV-loving women. He explains that the majority of his audience is female, and making the app pink will not help to attract more women. However, adapting to the needs of the existing users will. But to do that, women are needed in the computer industry to do so.

Source: <https://www.theneweconomy.com/technology/silicons-sexist-brogrammer-culture-is-locking-women-out-of-tech>





**FYC19-1 GEDOE**

# WE'RE ALL IN THIS TOGETHER

*T*aking weird pictures, making awful jokes and eating frozen bitterballen during meetings, it's all common business for us! We are First Year Committee GeDoE, short for 'GEWIS Does Evolve'. You have most probably seen us at GEWIS wearing our extremely fashionable and stunning purple clothing. We are a diverse, multinational group of first-years who share the same passions, such as Pop and Rock music, making pizza and our undying love for Ryan from High School Musical. I guess you can say that in a way, we're the biggest HSM- fanclub currently existing! We also have some interesting functions...

**TEXT** FYC 19-1 GeDoE

Everyone has a function in our FYC. For example, we have two snack managers who help the hungry GeDoE members when necessary (which is always). Furthermore, we have a secretary, a vice-secretary and a vice-vice secretary. However, the secretary is also the vice-vice-vice secretary and so on - therefore we can say that they are modulo 3, or Z/3Z.

As a First Year Committee we have been organising an activity for GEWIS. We thought about having a karaoke night, which will (obviously) be available for all GEWIS members. It's a perfect night to have fun, sing some ridiculous songs, dance until your feet hurt, drink a beer (or more) and get to know each other better. Since GeDoE is all about having a good time and making lots of fun, we thought this would be the perfect activity to loosen up a bit! To show our unity within GeDoE, we will also sing at least one song all together. It's still a work-in-progress activity, but we hope that we'll be able to announce all the details very soon!

Since we'd like everyone to get more acquainted with GeDoE and its members, allow us to introduce ourselves!

Rens (Vice-Vice-Treasurer Z/3Z): "I'm Rens Hoogendorp, I study mathematics, and although some would argue I have the least important role in GeDoE, I beg to differ. I, as well as the others, consider myself the moral

support of the group! Even though, for unknown reasons, I'm often not physically present at activities (I still regret not showing up to the High School Musical marathon), I'm always in everyone's hearts! I guess that in a way, I'm the most essential member of the entirety of GeDoE."

Sergiu (Vice-Treasurer Z/3Z): "\*thick Russian accent\* Hello. My name is Sergiu Druga and I am from Romania. I am first year student at university Eindhoven. I do bachelor computer science. I am in GeDoE because everyone is equal and it reminds me most of communism. Thanks to me, GeDoE is international and I guess that's why they made me vice-treasurer which is 'the second most important role' within our committee."

Elwin (Treasurer Z/3Z): "Hi, my name is Elwin Huiden. I am, like most people in this article, in my first year of the bachelor applied mathematics. Besides studying all day, I play table tennis on a high level. Since I am the treasurer of GeDoE, I handle the most important thing: money. Believe it or not, we are all very poor, which is not the worst thing, but just means we can't relate to Ryan as much as we want. As far as studying goes... anyway! Who is next?" P.S. don't believe the end, the second movie is the best <3

Tessa (Vice-Vice Secretary Z/3Z): "I'm Tessa van Beers, the vice-vice-secretary of GeDoE, which is basically



the least important role of all. I study Mathematics and Computer Science. You may also know me as the pun queen: everytime I make a 'bad' pun, it spontaneously gets quiet. It's a cool trick. My passion is singing and hugging, so if you bump into me in the corridors or at GEWIS, please feel free to sing a song with me or let me hear your bad puns."



Noa (Vice-Secretary Z/3Z and snack manager #1): "My name is Noa Bliet, the first and best snack manager and vice-secretary of GeDoE. I'm currently in my first year of the Applied Mathematics bachelor program. The most fun thing about being part of GeDoE is having great times with all our members and getting to eat the snacks that Milan and I bring to the meetings. I'm also the only one brave enough to stand up to our cruel chairman also known as 'the dictator'. It might seem like we always fight within GeDoE, but very deep down we all love each other a lot."

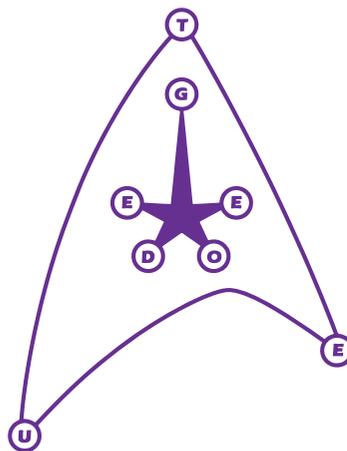
Aimee (Secretary Z/3Z): "I'm Aimee Smarius and I am the one and only real secretary of GeDoE. I am in my first year (obviously, since we are a first year committee...) of Applied Mathematics. Besides making the minutes of our meetings, I am, together with Noa, responsible for all the brasbrieven. Apparently brassen is something our members really like. I love to dance in my spare time so that will come in handy in our (second) activity, which is still to be announced!"

Milan (Vice-Chairman Z/2Z and snack manager #2): "Hi, it's Milan and I'm most definitely the primary snack manager in GeDoE. I am also a first year student,

but I am currently studying computer science, contrary to the majority of the group. GeDoE is a great way to let off some steam, let out what's on one's minds as well as making fun of our chairman (we love him really). In my spare time I play the cello in physics lectures and I also enjoy doing magic."

Robin (Chairman Z/2Z): "Last, but certainly not least: My name is Robin Abdulrahman, and I'm the chairman of GeDoE. Like most members of GeDoE, I study mathematics. Although everyone likes to call me a dictator, I can promise I'm not! If I had to describe myself as chairman, I'd say I lead the meetings strictly, yet fair, really! You guys really should stop doubting me, I'm trying my best, okay? Like everyone else, I'm a huge High School Musical fan. Thing is, for some reason everyone keeps comparing me to Sharpay, which I really don't like. I'd describe myself more as a Ryan."

Should it not be clear by now: we are a bunch of sophisticated and enthusiastic students which is highlighted by our love for High School Musical (in Robin's unpopular opinion the 3rd one is the best (Milan agrees as well)). We have agreed that, once a month, we get together and watch all 3 movies in a room of  $10m^2$  (just kidding we would never do that. I mean it's not like we have done so already). Of course, we hope to make our love for these stunning visual, brilliantly scripted, plot twisting movies more apparent at our activities. How, you might ask? Come and see at karaoke night! We hope to see you all soon :-)



# PUZZLE ELLIPS

*Ellips develops high quality optical sorting systems (software and hardware) for grading fruits and vegetables. In collaboration with machinery manufacturers around the world, we ensure the processing of food streams is effective and efficient.*

## FRUIT PUZZLE

Our puzzle consists of the following series of fruits and vegetables. Which piece of produce are we looking for?



You can send your answer to [contest@ellips.com](mailto:contest@ellips.com). The first 3 solutions will win a special beer package.



*Infimum: A strange or funny quotation from a teacher, a student or faculty member.*  
Here you can find infima sent to the Supremum committee via [inf.gewis.nl](http://inf.gewis.nl).

**Boudewijn van D**: "If you Google XES, probably you will get back 'did you mean SEX', because Google knows what you usually look for."

**Ysabelle**: "We vragen mannen waar gaatjes zijn?!"

**Lisan**: "Wat is het tegenovergestelde van demonteren?"

**Koen**: "Er is geen discussie. Een tomaat is: ..."  
*\*Tegelijkertijd\**

**Tim**: "Groente."

**Koen**: "Fruit."

**Niels**: "Ik ben rechtshandig maar ik schiet met links."

**Thomas**: "Ik schiet met midden."

**Sanne**: "Ja ik denk dat dit echt wel fijner is voor de machine".

**Luca A. (lecturer)**: "Even a picture of Trump, who has no information at all, is information."

**Student**: "How can I create a good dataset for myself?"

**Teacher**: "You have to ask Tilburg. They have experience creating their own data."

**Illona H**: "Mijn computer was stuk. Toen zette Ava het scherm aan en deed ie het weer."

**Sjoerd tijdens het SNIc**: "Deze robot praat meer poep dan Meeles."

**Ingmar tegen Kevin**: "Je gaat eerst adten, en dan pas de dobbelsteen zoeken!"

**Daniëlle**: "a is niet priem, p is priem."

**Aart B. tijdens Combinatoriek college**: "Now we have a house town and kitchen polynomial." -> Aart B

**Bouke**: "Wij kunnen niet zeggen dat we bij Fortuna Sittard of zo hebben gespeeld."

**Teun**: "Ik heb wel gedroomd dat ik mijn debuut mocht maken voor Willem II!"

**Arend V**: "Ruben begon echt met zijn brood te zwaaien alsof het Mjölknir was."

**Illona H**: "Ik was ook ooit voorzitter!"

**Ilse**: "Uhm Illona je bent nog steeds voorzitter."

**Mark R**: "Deze kussen is een soort van deken."

*Het sneeuwde tijdens de tentamenweek.*

**Maureen**: "Kut Piet Paulusma!"

**Ruben N**: "Piet Paulusma is ontslagen."

**Maureen**: "Ja, acties hebben gevolgen."

**Sjoerd**: "Zouden jullie als oudere jaars dit tegen sjaarzen willen spelen?"

**Ingmar**: "Ik haat sjaarzen!"

**Jasper tegen Kevin**: "Ik weet het verschil wel, ik haat je gewoon."

**Ralph**: "Ik mag toch lije dat er prosecco bij het ontbijt is!"

**Rik R**: "Ja maar het vogelbekdier is ook wel de tomaat onder de zoogdieren."

**Ruben B**: "Ik moest eerst 5 trappen op voordat ik de lift had gevonden."

Mike S: "Remco van de Hofstad die aan het begin van Kansrekening zegt: jullie gaan de Centrale Limiet Stelling leren, dát heet SPORshadowing."

**Verbeek**: "Kevin, ga kutcode schrijven."

**Stepah**: "There is no i in family!"



# GRANDMA'S KNOWLEDGE

## GRANDMA'S APRICOT PIE

**W**hen I think of my grandma, I immediately smell the typical scent of home-grown food, since in her always busy place there was food simmering on the stove all day long. From very early in the morning, she was busy preparing the meal for that day, while she was also cleaning the house and gardening in her kitchen garden. Multitasking! This dedication to cooking resulted in those always delicious good-old-time meals with that special grandma taste, which I am sure most people will recognize, although it will be a different, personal taste for every one of us. All grandmas just seem to have this magical knowledge of cooking which has been passed down for generations. Although my grandma is unfortunately not with us anymore, her knowledge in all kinds of ways is still here, and so also lives in this recipe.

**TEXT** Celine Senden - GETAART

### INGREDIENTS

#### DOUGH:

- » 500 g flour (+ some extra)
- » 1 sachet baking powder
- » 250 g butter (my grandma always used either "blue band" or dairy butter (roomboter))
- » 250 g white caster sugar
- » 2 sachets vanilla sugar
- » 2 eggs

#### FILLING:

- » 1-2 jars of apricot jam or apricot pulp

#### UTENSILS:

- » Oven (225 °C)
- » Baking mould (baking tray (bakplaat), pie plate (taartvorm) or round baking pan (springvorm))
- » Rolling pin (or winebottle)

Start by weighing off the ingredients for the dough. You can knead the dough in a bowl, in which case you put all ingredients for the dough in the bowl and knead, but I prefer doing it the 24-kitchen-Rudolf's way and just use the kitchen counter (or other thoroughly cleaned surface). This works as follows; create a circle of flour (pour the flour onto the surface and use your hand to make a circle of it) and spread the baking powder over this circle. This flour circle will act as a dike for your so called wet ingredients (in this case eggs and butter). Put all other dough ingredients (butter, sugar and eggs) inside the flour circle. You should end up with something similar to what is shown in the first picture.

Now use your fingertips to first mix the ingredients in the middle, and thereafter start adding in flour from the circle bit by bit.

**TIP:** Start by using one hand when mixing the (wet) ingredients in the middle and only start using your second hand when you already added a good deal of the flour and the dough starts getting drier and less sticky

Keep mixing the ingredients until they become a dough that binds together and knead this into a ball.

**TIP:** Do not panic if the dough stays lumpy (klonterig) in the beginning, this is normal. Just continue kneading everything together and it will end up being a nice ball of dough.

**TIP:** The wet and sticky parts of dough that will not leave your fingers can easiest be removed by pouring a little bit of flour onto your hands and rub like you are washing your hands and the flour is soap.

Now the dough is finished and it is time to start rolling it out.

**TIP:** If you do not have a rolling pin (deegroller), you can also use a (preferably full) wine bottle.

Take somewhere between 1/3 and 1/2 (depending on the size of your baking pan) of the dough and make this into a smaller ball. Pour some flour on your working surface and also cover your rolling pin in some flour. Now roll the smaller ball of dough out into a circle that is slightly bigger than your baking pan, carefully pick it up and make it cover the bottom and part of the sides of the baking pan.

**TIP:** In case your dough is too sticky/soggy (klef) to roll it properly, which can happen because your hands made it too warm during the kneading, you can let it chill in the fridge for a bit to cool it down. If you choose to do this, ensure that you cover the dough when you put it in the fridge, otherwise it will dry out!

After you succeeded in creating the bottom and sides, it is time to fill the pie with the jam or pulp, before finishing it with dough strips in a kind of grid pattern on top. Cover the bottom of the pie with jam/pulp to taste and spread it evenly. I used 1½ jar of jam, but depending on your preferences on the sweetness of the pie you can use some more or less, as long as you make sure that the bottom is fully covered, but the jam does not overtop the dough on the sides.

The last step is adding strips of dough on top of the pie. This is also a good moment to preheat the oven to 225 degrees Celsius. Take the remaining ball of dough and roll it out like you did before for the bottom. Use a knife to cut out strips of the right lengths and put those one by one on the pie, preferably alternating in direction (horizontal and vertical).

**TIP:** Do not make the strips too wide and do not put them too close together, because they will expand in the oven and grow towards each other (like mine did too much, which is a pity, since the strips are meant to create nice looking little squares of visible jam).

**TIP:** Depending on the size of your baking pan, it could well be that you have some dough left over after this step. This will not be enough for another pie of the same size, but you can use it to make other delicious things such as a mini pie or coconut pie crust! It can even be stored in the freezer for later use. Whatever you do, do not throw the leftover dough away, because wasting it will definitely not get grandma's approval! Put your finished masterpiece in the 225 degrees Celsius pre-heated oven for about 20 minutes.

**TIP:** Use this time to clean the mess you made! (If there is any of course. For me it is never the question whether I made a mess, but how bad of a mess it is. Oops.)

When time is up, check whether the pie is indeed done and take it out of the oven. Let it cool, remove the baking pan, and possibly decorate your pie with powdered sugar. I chose to sprinkle the outside ring with powdered sugar, which I did by laying a small plate upside-down in the middle of the pie and then sprinkling the powdered sugar. Additionally, you could decorate the pie even more by laying a circle of slivered almonds along the line where the powdered sugar ends. Enjoy the taste of grandma's sweet baking skills!

With writing this recipe being my last actual GETAART task, I hope that I, as an "ouwe taart", have inspired a new generation of GETAART members, just like my grandma inspired her successive generation with her cooking procedures and recipes like this one :)



0

*The dough ingredients inside the circle of flour.*

1

*The finished product*





# THE OREGON TRAIL

*You have died of dysentery. Many people know this sentence, fewer know what game it is from, and even fewer have actually played The Oregon Trail. Now, I can say I am part of the final group of people, but I can't say my life hasn't actually gotten any better because of that.*

TEXT    Henk Alkema

The Oregon Trail is, in fact, the longest running video game series of all time. The first game came out in 1971, 10 years before Mario made his first appearance, and one whole year before Pong came out. The original game was written by Don Rawitsch - a student teacher teaching history - and two friends. It was written for the HP 2100, a computer so old and obscure that the best picture of it you can find online is a picture of the cover of its manual. The intention of the game was to teach the students a bit about the real life Oregon Trail, the trail followed by 19th century American settlers going from east (Missouri) to west (Oregon). However, the game became an instant hit among the students. Eventually, Rawitsch was recruited by MECC, an organisation creating educational software, leading to a grand total of 19 games throughout the years.

trusty wagon and oxen traveling along the road. Once in a while, something bad will happen. You might simply lose some days, or people get sick and die. The rivers you will try to cross are the bane of your existence. You have the choice between fording the river (simply walking through), and caulking your wagon (turning it into a makeshift boat), depending on both the width and the depth of the river. No matter your choice, things are likely to go very, very wrong. The reason the game is so extremely boring is simple: on easier difficulties the game is too easy, on harder difficulties you have no choice: the only worthwhile strategy seems to be racing to the finish line. However, this means you have almost no money for anything else, so you buy 1 set of spares of everything, throw the rest of your money on the counter to get some bullets, and then hunt enough food during the first few days to last the trail. Then, you wait. And do some multilinear algebra exercises.

## THE OREGON TRAIL

1985 - MS DOS



Easy (banker): 1 try. Medium (carpenter): 1 try. Hard (farmer): 1 try.

Death count: drowning (1x), snake bite (1x), syphilis (3x), dysentery (2x), measles (2x), typhoid (1x).

The first game I actually played is the seventh game in the series, and the first version for Microsoft DOS PCs - Microsoft Windows was published only later that same year. Input is done by typing numbers and answering Y/N-questions. The hunting game is the only exception, using the space bar to shoot, and the numpad to aim. The game itself is, for modern standards, incredibly boring. You will spend most of your time looking at the main screen, showing your

## THE OREGON TRAIL 5TH EDITION

2001 - MS WINDOWS



Possible difficulty levels: too many to count. Death toll: even worse.

The fourteenth game in the series isn't much of an improvement. It is exactly what you would expect of a 2001 game: the first developers had started creating slightly-less-terrible GUI's, but for modern standards it simply yells 'made in a week by one programmer who never designed a UI before, using only publicly available art'. The hunting minigame now consists of

pointing and clicking horribly repetitive animations of animals on just as repetitive static backgrounds. Apart from this, the game has gotten more... well... just more of everything. While this theoretically is exactly what this game needs - after all, my main critique of the original game is that it is too simple - it does not work. At all. The reason why is simple: it has gotten more complicated, not more complex. Instead of simply having some sets of clothing, you can now have sets of clothing, shoes, socks, long underwear, mittens, coats, and scarves, to name a few. The same goes for medicine, food, and every other type of item you could possibly have. To compensate for all these layers upon layers of boring micromanagement, the waiting times have been severely shortened! On the other hand, that means you can't squeeze in some multilinear algebra exercises anymore. A shame, because those exercises are definitely more fun than playing this game.

## THE OREGON TRAIL

2011 - Wii



Nope. Nope, nope, nope. The Supremum doesn't pay me enough to play this monstrosity that dares call itself a game for more than fifteen minutes. The controls are unresponsive and illogical, the 3D graphics somehow manage to look worse than the 1985 sprites, and instead of simply waiting during traveling, you have to play a stupid minigame where you dodge bad stuff and collect good stuff. I am completely fed up with The Oregon Trail series. Let's play something fun instead! Let's play...

## THE ORGAN TRAIL: DIRECTOR'S CUT

2013 - MS WINDOWS



The Organ Trail can best be described as The Oregon Trail in modern times, with zombies. On steroids. The game, I mean. Some of the zombies as well, I suppose.

Seriously, watch your back for those shy zombies. Anyway, every single state is about to be nuked, except one place: Safe Haven, on the other side of the country. You still have to juggle your supplies: instead of wagon tongues and axles breaking down, you will now be carrying spare batteries, mufflers, and as much gasoline as you can find. Rivers being deadly are a thing of the past (after all, a car won't float); you now have to fight or sneak your way through zombie hordes. The graphics are of medium quality, but intentionally so, as a loving nod to the graphics style of the older games.

There are three things that carry this game to heights unattained by the official games. First of all, it features a simple upgrade system. You can upgrade both your car and learn some skills yourself. Sure, you can still take the shortest route possible, but what to do when that one super useful upgrade or skill is just one detour away? Since you always know in advance which skills are in the next few possible destinations, this makes planning your route effectively much more important, and fun. The second improvement is the random encounters. Breaking the monotony of the rest of the game, they throw you into the weirdest situations, from having dinner with an elderly lady and her zombified family, to having to shoot your own team members because they were bitten and you don't have the medkits and food to keep them from turning. The third and final improvement, is the enormous quality increase of the minigames. When every bullet counts, walking around a map picking up supplies while zombies are scuttling towards you suddenly becomes a lot more interesting. As a bonus, you can also unlock new vehicles by playing the game, which keeps it fresh for a bit longer than the other games. All in all, it is easily the best game on this list. And I was finished doing those multilinear algebra exercises anyway.

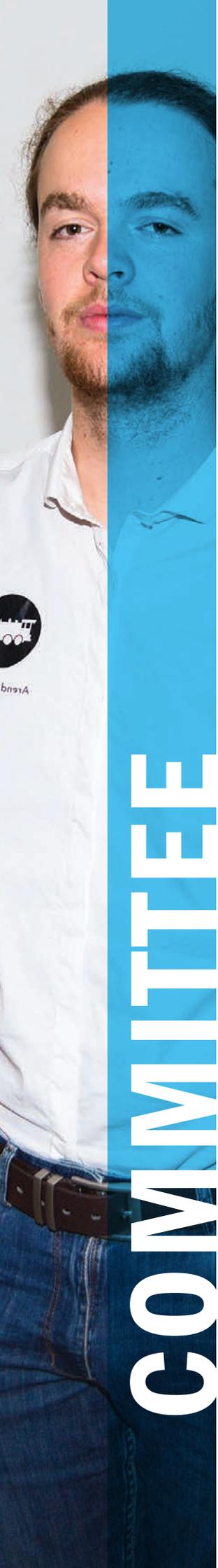


0  
The Oregon Trail - 1985

1  
The Oregon Trail 5th Edition - 2001

2  
The Organ Trail: Director's Cut - 2013





# TRAINING-ON-PAPER: RISE AND SHINE

*It's Monday morning; you are barely ten minutes late and you hope that the lecturer didn't start yet. You don't want to disturb the lecture but you just couldn't get out of bed this morning. This experience was way too familiar to the members of our committee. We wondered why students were often struggling to get up and whether we could give them a few tips. Turns out you all were quite interested in this, we almost filled the lecture room and even The Cursor came to report on it.*

TEXT Arend Verbeek - TRAIN

## FIRST OFF, WHY EVEN SLEEP?

Why sleep? The easy answer is of course because you get tired, but why do bodies get tired and why is it important to get enough sleep? Scientists still don't know the answers to these questions, but during the past decades they slowly discovered that sleep is arguably the most important behavioral experience we have.

An average person spends 36% of their life asleep, and this is not a waste of time. It is important to realize that you don't 'turn off' while you're asleep. Some parts of your brain are even more active when you are asleep than when you aren't. Our sleeping patterns are controlled by two competing networks of chemicals and electrical signals in the brain. During the day, neurotransmitters released by our hypothalamus, which lies deep within our brain, keep our cerebral cortex (the outside of the brain) alert and primed for consciousness. When you use energy during the day adenosine builds up in your brain which increases the levels of melatonin when it's time for bed. Your brain also has a biological clock, a special part of your brain that synchronises our sleeping pattern with the day and night cycle of the earth. Light sensitive cells in our eyes feed signals deep into that brain region. This control switch tells us when to feel sleepy or awake.

Though many parts of sleep are still a mystery, one of the favorite theorems is that we sleep for the sake of restoration. This also makes sense: while you sleep, your body has time to fix and restore itself. This is even more important for parts of your brain like the prefrontal cortex. For example, when you've got sore legs, this can get fixed while you're awake; you just sit down and give your legs time to rest. This is very different for your prefrontal cortex; even when you're very relaxed, that part of your brain is still busy with a lot of things. The only way for the prefrontal cortex to relax is when you're asleep. You could view sleep as a way in which your brain gets rid of the neuro-garbage you accumulated during the day.

There are a lot of positive effects of sleep. Studies show that your creativity and memory are boosted after a good night's sleep. Sleeping well both before and after you study is important for your brain to process the new information effectively. Studies have also shown a large correlation between sleep deprivation and illnesses like obesity and diabetes. When you're sleep-deprived you're more hungry and less able to control yourself. Also, sleeping well is important to prevent stress, as we discussed in our last training-on-paper.

## HOW MUCH SLEEP DO YOU NEED?

A large portion of the world's population is sleep-deprived. In ancient days, before artificial light, people would go to sleep not long after dusk and rise at dawn,



but this all changed with the invention of the light bulb by Thomas Edison. Edison believed that sleep was for the weak and that because of his invention, humanity would be able to get rid of this laziness. When you are surrounded by light just before you go to sleep, your biological clock thinks it is day. The quality of your sleep will be a lot worse. An average person needs between 6.5 and 7.5 hours of sleep each night. Teenagers, whose brains are still growing, need more than that. In puberty, your sleeping patterns shifts. Teenagers have a biological disposition for staying up late and sleeping in, but of course, because schools start as early as 8:30, teenagers get five hours of sleep on average instead of the advised nine.

Less than six and more than eight hours of sleep are considered unhealthy for an average adult. This is on average, though. How much sleep you need differs a lot from person to person. If you're able to wake up without using an alarm clock, you can be sure you're getting enough sleep. Your biological clock can wake you up at just the right time if you have a consistent sleep rhythm. A great way to test how much sleep you actually need goes as follows: Count back 7.5 hours from when you need to rise plus fifteen minutes to fall asleep, and go to bed at that time. Do this consistently for three days. If you wake up just before your alarm, you've found your ideal schedule. If not, go to sleep fifteen minutes earlier the next days, and try again. You can also use an app for this.

#### HOW CAN YOU WAKE UP WITH MORE ENERGY?

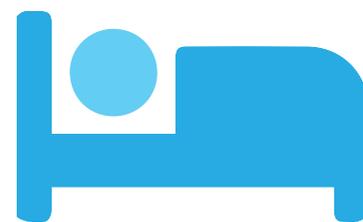
There are a lot of tricks you can use to increase the quality of your sleep. I am sure many of you are already familiar with these, but I will summarize them anyway for the sake of completeness. When you go to sleep, make sure your room is as dark as possible. It is also important that your room is not too hot. You sleep better when the bedroom is cool. Stop using screens an hour before you go to sleep, light from screens has a lot of blue in it, which tricks your brain into thinking it is daylight. Things like caffeine and alcohol are also quite bad for your sleep. Caffeine works longer than you expect, so for better sleep quality you'd better not drink caffeine after noon. Alcohol sedates you a little

bit and some people use it to fall asleep faster, but this is not very effective, because it also decreases the quality of your sleep. The same is true for sleeping pills.

When you go to sleep, it is also important that you're sleepy enough. You need to build up a big enough sleep deficit to actually be able to sleep. So being physically active during the day and not being lazy help out as well. However, do not exercise just before you go to bed, because then the adrenaline will keep you awake. Also, try to make sure that you have a sleeping ritual, this way you can prepare your body for bed more easily. Your ritual should have regularity, so try to go to bed at about the same time each night. Try to get physically and mentally relaxed before you go to bed. You can achieve this by using meditation, breathing exercises, or things like walking and light reading.

Your sleep consists of different stages which cycle about every 90 minutes. When you're lightly sleeping, this is called REM sleep for rapid eye movement, because at that stage your eyes move very fast under your eyelids. When you fall asleep, you will first sleep very deeply, then after about an hour you will go into REM sleep, and then the cycle repeats itself. Each cycle, your deep sleep takes less time and you spend more time in REM sleep. In the last cycle (on average the fifth one) you spend the last hour in REM sleep. This is the ideal time to wake up. If you wake up during deep sleep, you'll feel way more tired. Therefore, in some cases you will feel more rested when you sleep six hours (four cycles) than seven hours (4.6 cycles). Contrary to popular belief, the sleep deficit you build up by missing one cycle can be caught up by sleeping six cycles during another night. Because sleep works this way, it is also very important you do not snooze. If you're pulled out of your deep sleep after ten minutes, you will only feel more tired.

I hope you can use these tips to sleep more effectively. If I am honest, I find it hard to do all these things right myself. I always thought that sleeping was the easiest thing in the world, but after this lecture I realized I might be wrong. Things like going to bed on time regularly ask quite a bit of discipline, but I have noticed that these tips can help a lot if you consider them a little. Good night everyone!





# FRATERNITY

## SPOILER ALERT

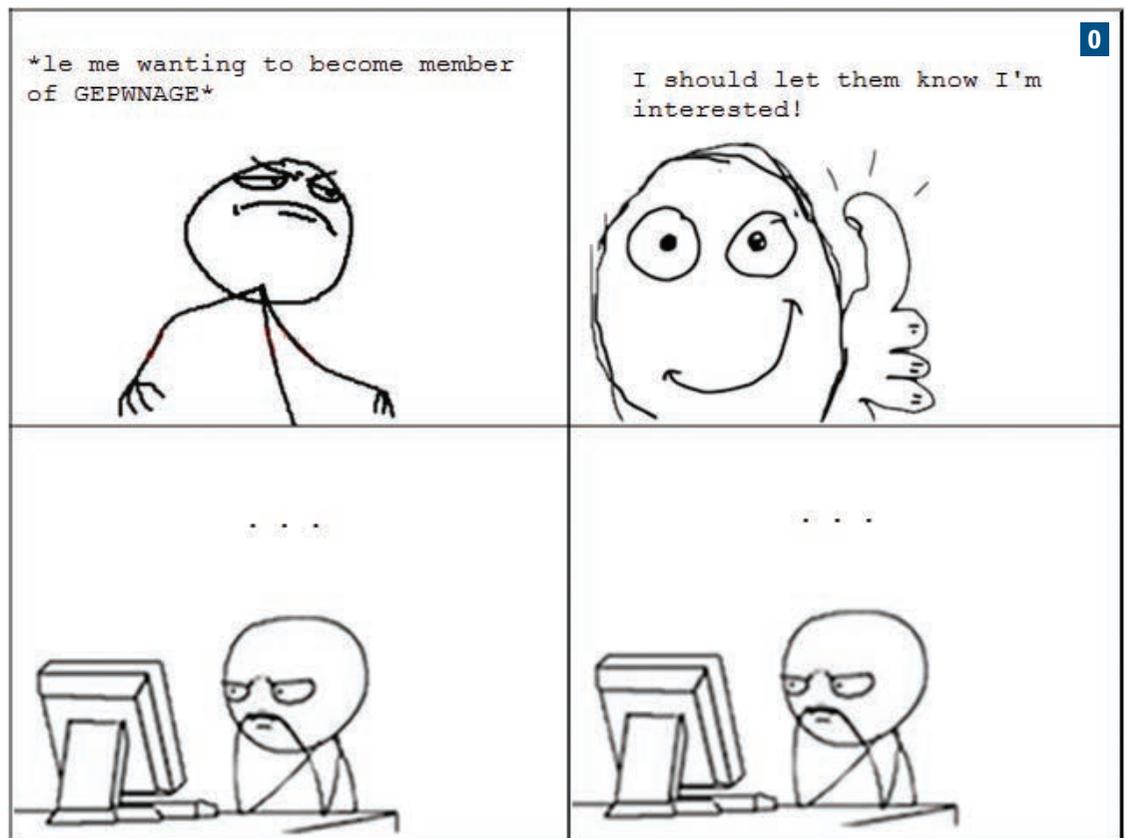
**A** SPII letters are the means for aspiring members to formally express their interest in becoming a member of GEPWNAGE. Once they have been to a GEPWNAGE meeting or two, non-members with aspirations are encouraged to find a creative way to formally make their aspirations known to GEPWNAGE. This usually involves some nerd-sniping (give an interesting problem to a few nerds, and they will drop everything to work on it, see <https://xkcd.com/356/>), but could also be creative in a different way. Over our ten-year existence, we have received quite a few of these letters...

**TEXT** Mitchel Brunings & Pieter Kokx

Being creative can be very hard [citation needed]. One ASPII letter we received perfectly explains this initial phase of 'trying to be creative' [0]. More often than not, however, aspiring members show their creativity in the form of some sort of encryption. Once we receive an ASPII letter, we read it and we decide on a response. This may take a while, or if you made it too difficult, may never happen. Of course, this response is at least as convoluted and creative as the original letter.

### OBFUSCATE ALL THE THINGS!

Encryption of ASPII letters takes many forms. An interesting example is a banana we received, which was a complete ASPII letter [1]. Believe it or not, the digital file contains a complete ASPII letter, and (if you decode it wrong) even a decoy letter. If searching tall grass for Pokémon is more your style, you may also be able to find them in circular Gallifreyan, a language from Dr. Who [2].



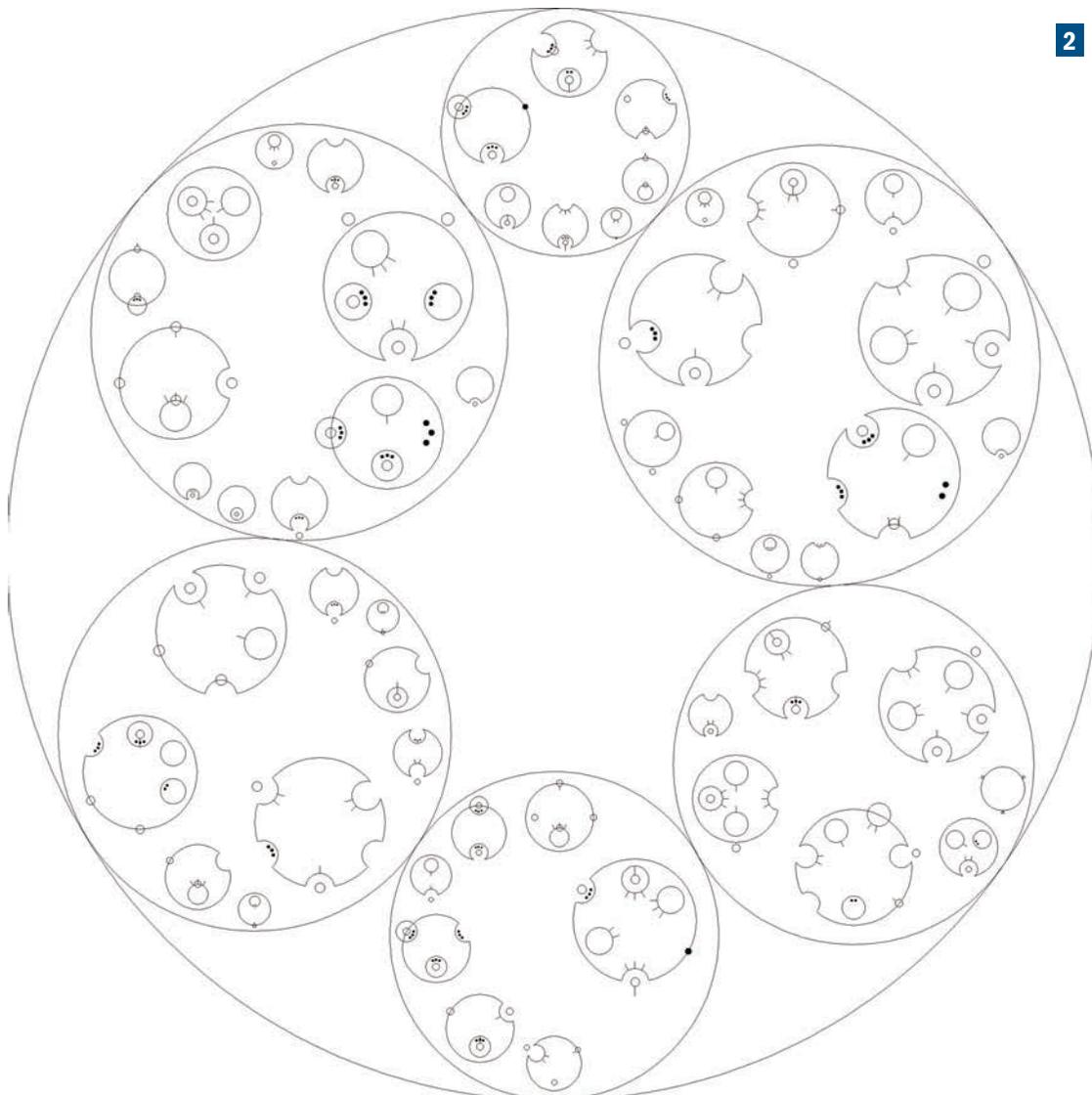


## UNRESOLVED ISSUES

As we have hinted, sometimes we receive letters that are too hard to decrypt quickly, even for us nerds! Like the letter Henk sent when he wanted to become an ASPII: He had split his letter into ten parts, and encrypted each part with a tougher algorithm than the last. Fortunately, we managed to decrypt enough of the letter to understand what it was about and sent

him a fitting response. And look! Now he's a full member! ... But we still haven't decrypted all of his letter... Oh well  $\sim\_(\smile)\_/\sim$

Another very special letter we received came from the unlikeliest of sources: I.V.V! They've sent us a four-page letter containing very few letters, instead consisting mostly of numbers [3]. We haven't made a lot of progress on this letter yet, as our typing skills are not quite up to par (read: we don't like typing lots of numbers). However, a cryptic letter like this sent to us can only mean one thing: they want to become a member of our fraternity! But before we can send a proper reply, we have to decrypt the letter, so that our response is on the same level as their original letter. We will also have to figure out if and how one fraternity can become a member of another, but we will cross that bridge when we get to it.



0

An actual (part of an) ASPII letter in the form of a ragecomic

1

ASPII Letter

2

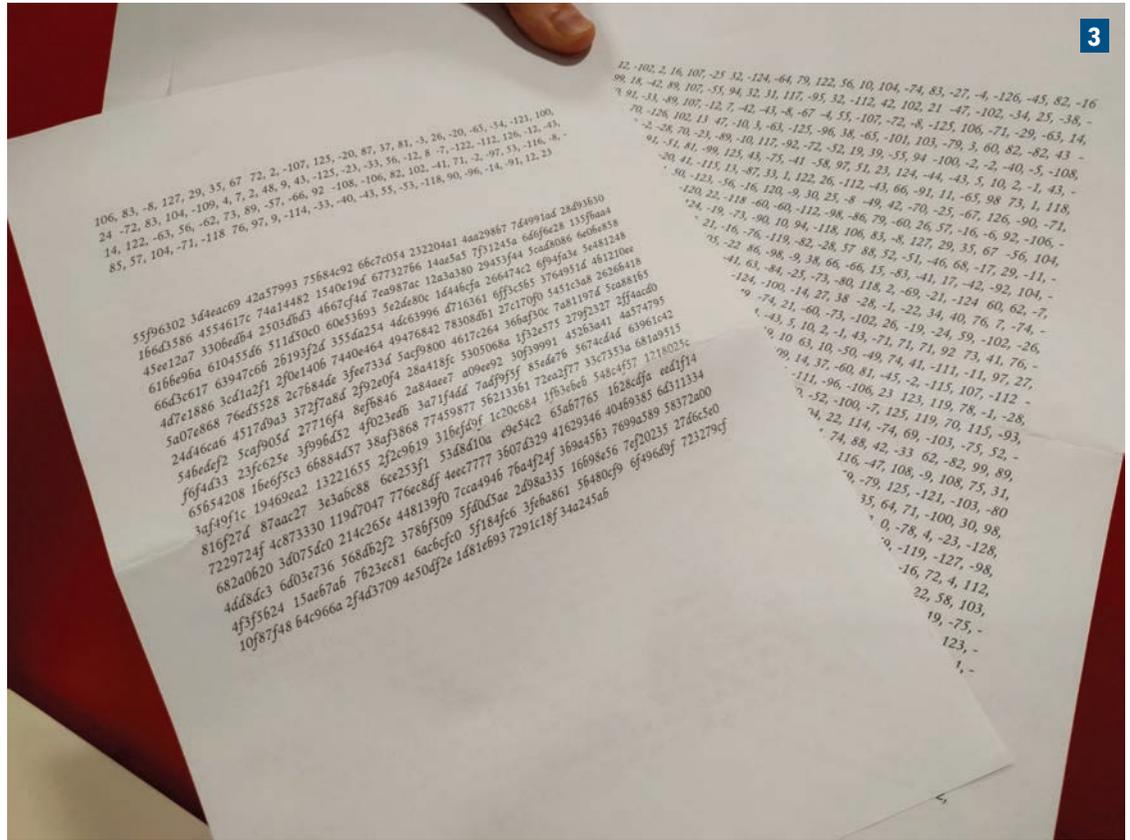
Find the Pokémon!

3

The ASPII letter from I.V.V

4

An ASPII movie in printed form



3

### ALTERNATIVES TO ENCRYPTION

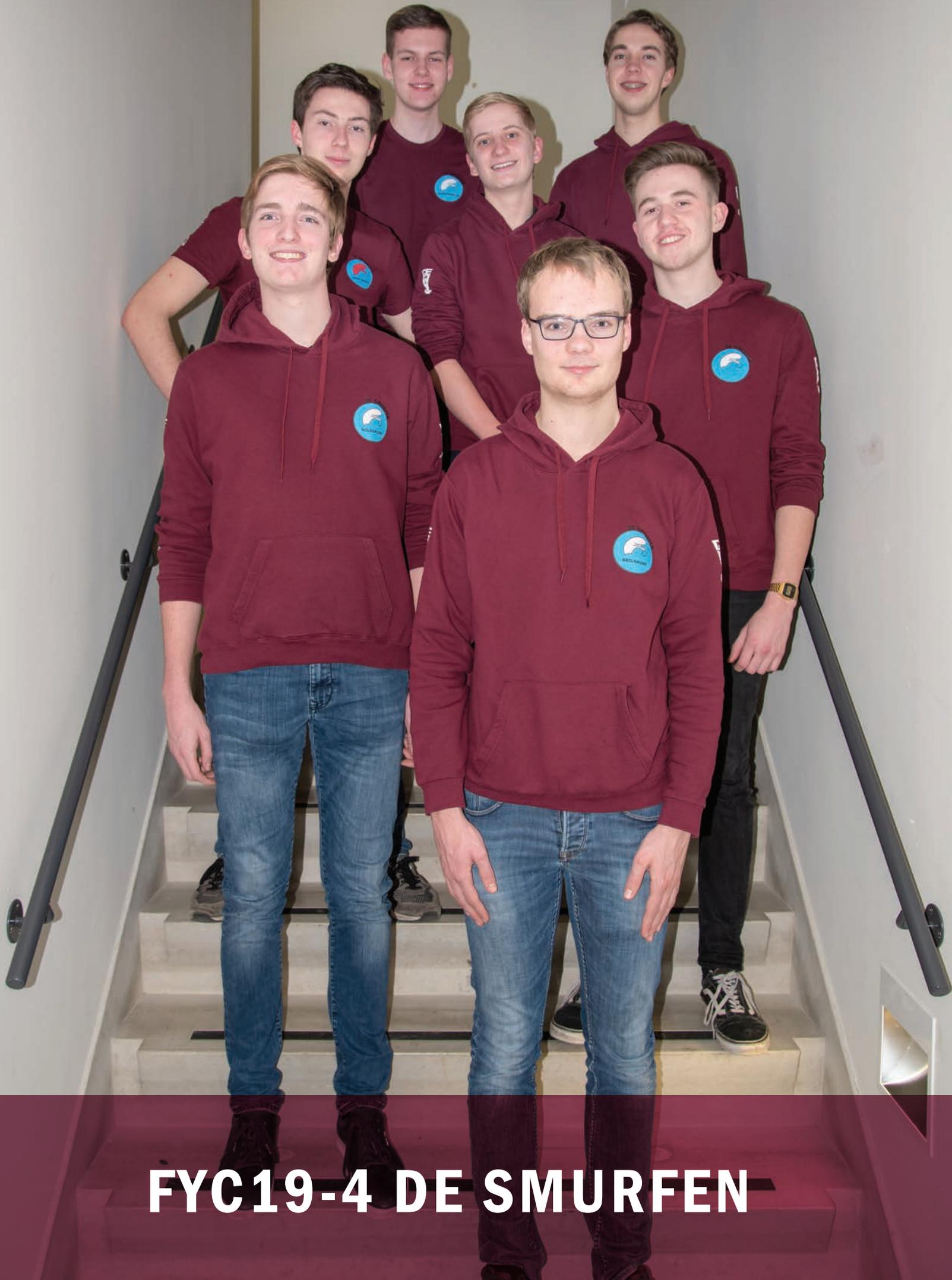
Of course, if encryption isn't really your thing and you still want to become a member, you will need to find some other way to indicate your interest. Aside from the rage comic we've shown earlier, we have received ASPII letters in the form of cookies (we accepted them all), code (we ran it all), and a movie (we printed it all (We *printed* a *movie*!?! (Yeah. [4])). Of course, some

people (like one of the authors of this article) are too lazy to make a proper ASPII letter, and simply jot down some words on a napkin.



4





**FYC19-4 DE SMURFEN**

# A DAY IN THE SMURFEN VILLAGE

*It was a Thursday morning, the sun was out, birds were chirping and the weekend was almost there. Everything seemed nice and quiet, but not in the Smurfen village. The Smurfen were in a hurry because a meeting was taking place this very afternoon. All the Smurfen should have read the agenda, sent by our mayor Tristan Tummers, by now. Tristan belongs to the elite class of our village, he drinks wine at borrels and makes a lot of trips abroad. He will be leading the meeting and is the face of our village. This meeting would be a very important one because the Smurfen were going to discuss their upcoming event.*

**TEXT** FYC 19-4 de Smurfen

The Smurfen had met each other during the Introweek. This is an event organized by the older Smurfen for the Smurfen that had just graduated from Smurfenschool. During this week the Smurfen 'parents' would create a bond between their younglings by playing games and feeding them excessive amounts of alcohol. This is necessary because many of the graduated Smurfen don't know each other that well, as was the case with generation 19-4 of Smurfen. Some knew each other from Smurfenschool, but most of them were strangers to one another.

Only 10 minutes were left until the meeting would start. Our secretary Martijn Kessels, among the Smurfen better known as Brilsmurf, had just arrived. He is most commonly found in the library, checking our mail, publishing minutes of past meetings et cetera.

In the distance we could hear a really expensive car approaching the town hall. That must be Tom Jacobs, our Goldsmurf. He is the one responsible for the money of all the Smurfen. During the upcoming meeting he will be present to write down all the expenses needed for the upcoming activity and later on he will publish them for all the Smurfen.

The meeting had begun and everyone was present, or well... more or less present I should say. Spartan Smurf, Niels Gorter, was there via a video connection. He, as a computer scientist, found it very inefficient to go to every meeting himself and therefore he built a robot. This robot had a screen and a camera attached to it so he could attend every meeting from his home, so he didn't have to leave his work. Spartan Smurf was always busy designing websites and creating programs. What sounds and looks like wizardry from Gargamel himself, is a piece of cake for Niels.

As with every meeting, Grote Smurf asked whether anyone had something they wanted to add to the agenda. Thijn van den Bergh, who doesn't have a Smurfenname yet because he wasn't on time with registering it because he overslept, said he had come up with a great idea while sleeping. Thijn can be seen as the designer of our village. He has designed the logo for generation 19-4, created a very own 19-4 clothing line, and now he wanted to present his new idea to us. He didn't want to reveal all the details yet, but he promised that it was going to be a very exclusive item that everyone would be able to use and enjoy for the upcoming years.



After we had determined our final agenda, we came to the action points. Every meeting the Smurfen get certain tasks that they have to complete before a certain date. If they don't finish their task in time, Goldsmurf will send them a fine.

Eventually, we came to the point of discussing the event. What were we going to do? Where and when were we going to do it? How much was it going to cost the Smurfen community? All the Smurfen were certain about one thing however: it was going to be fun for everyone and the whole village would be excited to join the activity.

The end of the meeting approached and all the important things that were on the agenda had been discussed. This is the point where Tristan asks all the attendees whether they want to say anything before he closes the meeting. One of the important things this meeting, of course, was the borrel. Every Thursday evening, the village organizes a social drink in the local pub where all the Smurfen can socialize and enjoy drinks. Every Smurf that attends a meeting has to let the group know whether or not they are going to attend the borrel. During these borrels it has become a tradition to wear the exclusive Smurfen clothing line, that is how one can recognize a Smurf. We are very open and are always willing to have a little chat with everyone.

The meeting had been closed and the borrel would soon start. Just like with our clothing it has become sort of a tradition to score some kebab at the town square. Smurfen often gather here before the borrel to eat something and go to the pub together. It is at the social drinks and activities Smurfen meet members of the community and make friends. Over the past few months we have attended a Halloween event, chess event, poker event, and many more.

This borrel would be a funny one, because one of the Smurfen would have to sing a smurfensong. The Smurf that has to do this is Kaassmurf, Lennaert Besten. His Smurfen sweater had been gebrast after the 'Sinterklaasborrel' and in order to get it back he has

to write and sing a smurfensong on one of the borrels. It might not seem like it, but Kaassmurf can be considered the smartest amongst us. He did what seemed impossible to most of us: he passed Set Theory & Algebra AND Analysis 1 in one go!

Sleepysmurf, Tim Hiemink, was also there. Tim is the reason Thijn doesn't have a fitting Smurfenname. He comes from the lands unknown to most of the Smurfen. We were in shock when Sleepysmurf described the lands he came from. Where he comes from they don't know worstenbroodjes and there is no such thing as carnaval, they call it the Randstad. Luckily he now has a place here in our village, where he is able to adopt the traditions from our region. There is one thing he will probably do for the rest of his life however. Because everyone is always busy with their jobs where he comes from, they don't have time to prepare a proper slice of bread. That's the reason why Sleepysmurf doesn't take the time to slice his bread and just quickly puts some cheese on it.

And last but not least, there is Stampsmurf, Randy van der Steenhoven! He carries this name because he is the party animal of the village. His house sounds like a construction site, due to the heavy bass coming from his music. He loves the hardcore scene and proudly presents his taste of music at parties. Stampsmurf also loves jokes and really loves to let other people laugh. In his spare time he also goes back to the Smurfenschool to help the upcoming generation of Smurfen to graduate.

It was 19:00 and the borrel had ended, everyone left the local pub and went home. With this, an end had come to this chaotic yet fun day. This day perfectly describes the Smurfen. During the day they are hard-working community members, they organize events, have meetings, and do all sorts of paperwork. At night they work on their social lives, they attend parties, activities, and make friends!





# SUPERHEROES

**L**et's face it, we have all wanted to be a superhero at some point in our lives. In my pursuit of finding my superpower, I have done my fair share of stupid things. I once ran into a stationary car, thinking I could drive a bike with my eyes closed. Later, I jumped off the roof of our garage and sprained both ankles in the process. I have even failed at the least physically demanding superhero task. Attempting to get the girl, I have been rebuffed every single time! Despite these setbacks, I still wanted to be a superhero, which meant that I had to keep searching for my superpower.

**TEXT** Erik Takke

My heroic quest has been made considerably easier by – and I hate to say this – puberty, of all things. It has allowed my brain to develop a bit, which means I can now reason about the outcome of experiments beforehand, instead of having to find the answers the hard way. This ability is so powerful that I am able to rule out having *any* superpower, period. It will require some miracle to get me to be superhumanly good at something. And yet, I have high hopes that it will happen one day. Until then, we might very well discuss how that superpower might manifest itself.

For the biggest part of my life I have been filling my brains with a lot of knowledge. I mastered the art of walking, I have a basic understanding of how to tie my laces and last week I finally didn't make that big of a mess during dinner. On top of that, I have spent the last 16 years of my life studying history's most useless facts, two dead languages, and all the juicy equations mathematics has to offer. So yes, I have gotten pretty good at studying and getting smarter. Its arguably the thing I am best at. Chances are that if I get struck by magic lightning, my superpower will manifest itself in super smarts. Hold up. Maybe that would be my superpower; just knowing the answer to *everything*! Wouldn't that be amazing? Think of all the great things I could do with that!

Before I get ahead of myself, I have to clear up what I mean with *everything* first. Let's assume that *everything* means everything that is non-

circumstantial – for a lack of better words. So, I would know the answer to every exam question ever made, whether there are alien civilizations out there in space and most important of all, I would know about all the weird things *you* have done in your younger years in order to find your superpower. However, I could not tell you what hand your brother has when you are playing a game of poker and neither would I be able to tell you the winning numbers to the upcoming lottery. Not that I would really care for that. Telepathy is boring anyway.

So what could I actually do with all that knowledge? Would it actually be fun? I can imagine that at first it would be exhilarating. I could finally prove to you that the earth has only existed for 6000 years, that  $P \neq NP$ , and that God exists. I wouldn't have a problem writing my masters dissertation. There wouldn't even be a point to writing it, since it would be hard for me *not* to get rich. On top of that, I would have all the tools necessary to win every argument ever. That would be amazing right?

But that is probably where the perks end. There is a limit to the number of things you as mortal human beings would understand, let alone be interested in hearing from me. At some point you would get bored listening to me and so would I. On top of that, I would actually be one of the few superheroes for which it is even *impossible* to get the girl. Every potential relationship would be killed by my superpower – there

would be nothing they could tell me that I didn't know already. I can't imagine friendships staying alive for long either.

To make matters worse, it might actually become pretty dangerous for me. As soon as it becomes common knowledge that I have the answer to everything, there will most certainly be organizations that would like to extract all that lovely information. Chances are that I'll be abducted and put in some secret U.S. government agency's think tank. That is, if the Russians don't beat them to it.

As if this hypothetical was not hypothetical enough, now assume that I could keep all the information to myself, not let the world know my secret and live a normal life – have a chance at getting the girl. All that information I would have inside of me would be a bomb that could destroy civilisation if it were to explode. For as long as humans have existed, it has been the curiosity for the unknown that made us push the limits of everything we are capable of. It has been the unanswered questions that made us develop ourselves and our understanding of this world. Civilisation is what it is today because of the unknown. Taking all that away by providing the answer to *everything* would take the fun out of it. There would be nothing left to research, nothing left to uncover, nothing left to be curious about. Maybe, there would be nothing left to live for.

Take a look at yourself. Your life likely revolves around studying and gaining knowledge. Either you have just started, or you have a couple of years under your belt already. All the knowledge you obtain here or elsewhere will aid your success in the fast pace world we live in. It is the knowledge you gather now that provides the basis for understanding the unknowns of tomorrow. You are going to obtain the knowledge we don't yet have and shape the world with it. Your life will revolve around knowledge. Do you see how incredibly powerful having all knowledge would be? Do you really see it?

I can tell you that I have lost the urge to become the ultimate know-it all. I don't want that superpower

anymore. However, I do not give up on my quest. I will keep obtaining knowledge, because there is still so much to learn. I would like to encourage you to do the same. Keep studying, get smarter, improve the world. Just make sure you don't study too hard – the consequences may very well be incalculable. If by sheer luck you actually find the solution to everything, promise to keep it to yourself. It will be a burden on you, but you have to keep the world in the dark about it. You have to let us stay curious. If you can promise me that, you are already a superhero in my eyes.



# MEREL & LAURA ON TOUR

## SNIC 2018: SINGULARIT

TEXT & PHOTOS Merel Pennekamp & Laura Kuntze

Every year, GEWIS visits the conference of the SNiC (Stichting Nationaal informatica Congres), which aims to stimulate interest in the knowledge of information and communication technology. On November 20th 2018, the conference took place in Haarlem. The theme of this year's conference was SingularIT, which revolves around 'the point where humanity will no longer know what is being calculated'. We joined the delegation from GEWIS to report on this informative and fun event.

### PHOTO 1

A bus was arranged to bring the GEWIS delegation to Haarlem. We had to wake up very early (07:30) but luckily the board brought cookies for breakfast!

### PHOTO 2

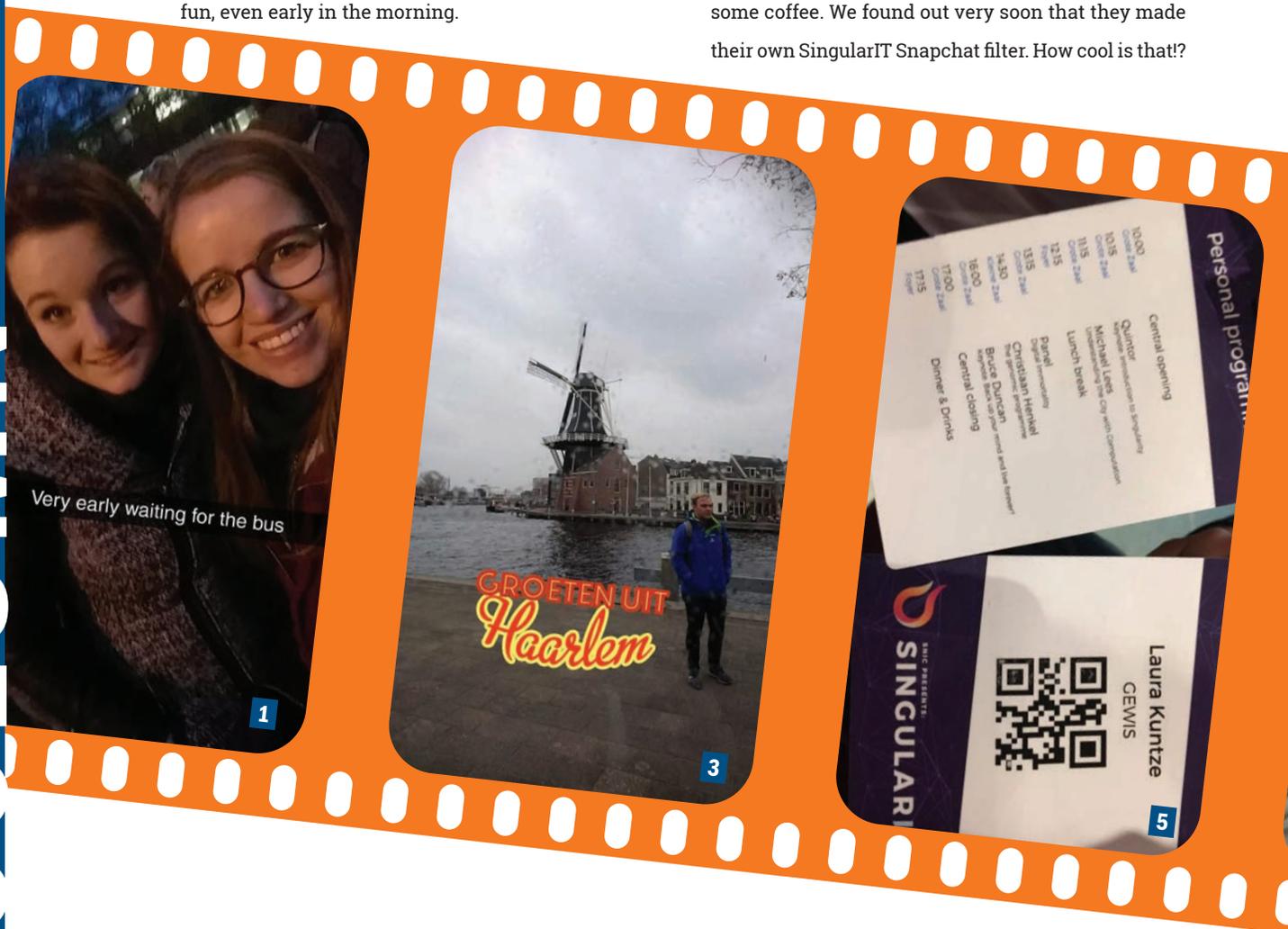
A bus ride with a bus full of GEWIS members is always fun, even early in the morning.

### PHOTO 3

After a long bus ride, we were welcomed in Haarlem by a pretty mill and lots and lots of rain. We couldn't wait to get inside!

### PHOTO 4

The conference started with an opening speech and some coffee. We found out very soon that they made their own SingularIT Snapchat filter. How cool is that!?



#### PHOTO 5

All attendees of the conference received a personal badge with their program on the back. It even had a QR code, so you could easily connect on LinkedIn with other people and companies #fjancy

#### PHOTO 6

A good conference means great goodies! Sjoerd was especially happy with his new socks. vv

#### PHOTO 7

During the day we could visit several lectures and panels. For example, there was a panel about digital immortality, where speakers discussed ethical questions such as: "will people actually make use of digital immortality?" This, and more talks can be watched back on <http://www.snic-singular.it>

#### PHOTO 8

Between the lectures we enjoyed a delicious lunch #HealthyFood



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PHOTO 8

Of course a conference is not complete without a company market. All companies were equipped with informative knowledge, prizes to win and goodies to collect. There was even a VR game to try out!

PHOTO 10

At this day, all interests were met: Laura followed a lecture about futuristic finances...

PHOTO 11

... while Merel learned about modern technologies used in the field of genomics.

PHOTO 12

#oops

PHOTO 13

We scored some more goodies at the company market, before we headed to the final talk of the day by keynote speaker Bruce Duncan and his robot Bina48 about creating a backup of the mind to live forever.

9

PHOTO 14

Bina48 is a social android based on a sampling of thoughts, memories, values and attitudes of a real woman named Bina Rothblatt. During this lecture there was an open Q&A with the audience and Bina48. Some interesting questions were answered by Bina48, such as: "Do you believe in God?", "What do you dream about", and "What do you think of Donald Trump?". We were glad that we could take a selfie with this wonderful, sassy robot woman.

PHOTO 15

After an impressive final lecture, we found the SNiC 2018 committee and got a chance to thank them for the wonderful day.

PHOTO 16

These conferences are a great way to meet up with friends from all over the country! Such as our friends from Inter-Actief!

PHOTO 17

We were treated like kings and queens with delicious dinners #YasQueen

12



15



Goodie goodie goodie^^

@finaltalkoftheday

13



17



MEER WISO

SNIC PRESENTS: SINGULAR 19



PHOTO 18

At the borrel, we kept stumbling upon more and more friends from Amsterdam, Utrecht and even Groningen!

PHOTO 19

Oh yeah, did we mention the gorgeous SingularIT Snapchat filter? <3

PHOTO 20

With our bellies filled with food, our bags filled with goodies, and our minds filled with knowledge, we were ready to head back to Eindhoven. Thanks to the SNiC committee! We are looking forward to the next conference.

A picture says more than thousand words  
– Laura and Merel



16



18



20



MEMBER

# IN THE SPOTLIGHT

**D**ear reader of the *Supremum*, before you look at my picture and think “what is the real life portrayal of captain caveman doing there?”, my name is Kostek Rodenburg and I study mathematics. While some people contemplate whether Kostek is spelled with a C or K when they have to write it down, I allow both permutations as long as the permutation with C is written down as  $\cos(t)e^k$ . Some people find me more cynical, and, well, they’re not wrong.

**TEXT** Kostek Rodenburg

I live in Tilburg at the moment, so I travel to Eindhoven by train every day. This means that I skip a lot of evening activities, because, like everybody, I need my sleep, and the last train leaves at 23:14. So, if you don’t see me around much in the evening, well, now you know why.

About one and half year ago, I started studying mathematics at the TU/e. That didn’t go so well, so half a year ago I decided to start a study in mathematics at the TU/e, for a change. For those who are getting a sense of déjà vu, well, you’re not wrong. Okay, let us start with why I would study mathematics, and then why I would study mathematics, because no type of humour beats repetition, although it is a bit formulaic, I know. For me, mathematics was the most interesting study, as I would like to do something in stochastics later in life.

Next to my study, I work as a 3D designer for 3DFormaDesign, a company that mostly sells 3D printed parts of those film projectors that actually have to use reels. I work about 3.5 hours a week, which is enough to finish up on all the work I get. We don’t have a printer on location, so all objects I draw are first printed somewhere else, after which the objects are mailed to us. Only then will we be able to see whether the drawn object is actually any good.

In my spare time, I’m absolutely drawn to music. I mostly listen to a band called System of a Down, a band that has mixed and matched many types of music

in various albums and where the vocalist is able to put emotion in every note he sings. I also listen to bands like Sabaton or Alestorm. Sabaton’s songs are mostly about war and battles and Alestorm is all about pirate metal. Whilst I enjoy listening to metal a tad more than other styles, I will listen to practically anything.

“ I started playing the game around 2014 and haven’t stopped ever since ”

However, *you* will most likely be able to find me sitting at GEWIS, playing cards, tabletop games, or playing smash with some other people. Of all the things that I enjoy doing, I enjoy playing Magic: the Gathering the most. Now why would I bring that up? Maybe because I could dedicate a whole paragraph to it, and well, I have already kind of begun. I started playing the game around 2014 and haven’t stopped ever since. This year I have even attended a Dutch tournament of the game and managed to get into the top eight of the 156 contestants, only to get stomped by the next opponent I encountered.

Now the next time you see a guy with the haircut of certain religious figure and the charisma of Jim Carrey, pull up a chair, come sit down, and let’s play a game of cards.



**FYC19-2 CARPE NOCTEM**



# FABULA DE CARPE NOCTEM

*The myths do speak that in the great city Antioch  
There once were forged a pair of items blessed by the gods  
The first a hand grenade with power that could have pulverized rock  
The second lighted up the streets and all its buildings dark façades  
A lamp that would make the smallest of nooks go bright  
And born to rid the gloomiest of hours of all its phlegm  
The men of the only true clan would sing a song by night  
That bore its name with where they to belong Carpe Noctem...*

TEXT FYC19-2 Carpe Noctem

## CAPITULUM I

Carpe Noctem finds its origin in Antioch around 300 A.D. where the use of street lighting was first recorded. This remarkable feat was made possible by the Great Light forged in Antioch. Many a man simply thought of these magnificent lights as a mere convenience, but there was a group of people who were capable of realizing the greatness of these lights. These few souls knew that the nights unique qualities could finally be grasped by the hands of mortal men. They would often gather in the hours of darkness and started calling themselves: Carpe Noctem, or Seize the night. The creation of the Great Light and Carpe Noctem would be the beginning of the era of light in the year 1 Anno Lucis.

Every time when the sun would begin her hours of rest and the lanterns would fill its place, the people of the Carpe Noctem would gather and cite the following credo: "Carpe Noctem vulputate enim nulla aliquet porttitor. Fringilla phasellus faucibus scelerisque eleifend donec pretium vulputate sapien". Followed by a night of drinking, chanting and seeing what is normally obscured by the sun's radiant beams. These ceremonies would strengthen the Great Light.

As the use of street lighting spread, so did Carpe Noctem. When Carpe Noctem reached Rome, the expansion increased exponentially via the Roman empire. As Carpe Noctem spread across Europe, the

Great Light found it harder to give light to all of its followers. To solve this, the Great Light created several lesser lights that were infused with its power. The lesser lights were distributed across all of mainland Europe. Carpe Noctem kept growing their way of light supported by the lesser lights, but in the year 1601 A. L. the growth suddenly stopped. Many speculations exist as to why this happened but one thing was for certain, Carpe Noctem started dying off. This caused many of the lesser lights to dim. The decline continued in the following century, until there were almost no more followers left. Many of the lesser light started dying off, all of them disappearing in the darkness, except for one: the lesser light situated in the city of Eindhoven was still shining. Thanks to the city's active appreciation of all the light in its borders, the lesser light was able to survive, but it too started to dim.

“ As the use of street lighting spread, so did Carpe Noctem. ”

## CAPITULUM II

As the Lesser lights started dying, so did the Great Light. To save itself, the Great Light contacted some of the last few of its followers, A group of nine students settled in Eindhoven. The Great Light send them on a

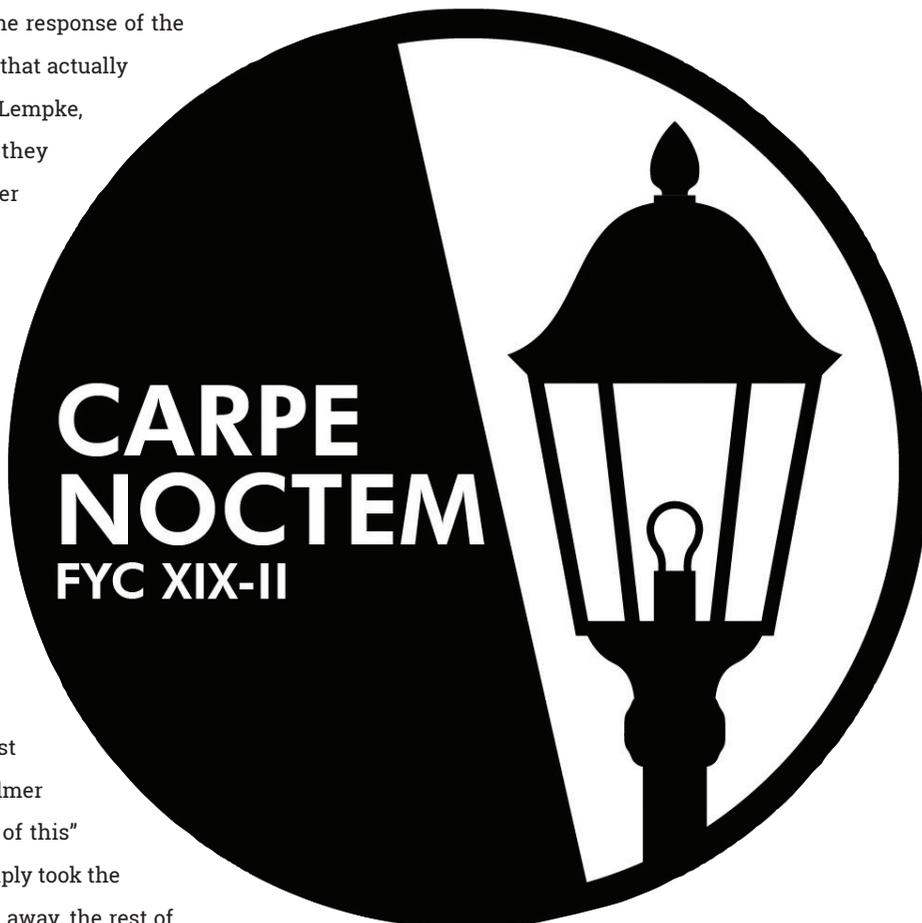


quest to retrieve the Lesser light in Eindhoven and return it to Antioch to save the Great Light. The Great Light sealed their destiny by proclaiming the nine students as the fellowship of the light. Guided by their leader Max “the leader”, the fellowship embarked on their quest by firstly finding the location of the lesser light. The light had settled in Eindhoven many years ago and its location forgotten. So, the fellowship embarked on a brainstorm session in the only manner that students know: by drinking beer, and lots of it, except for Stijn “the sober for involuntary reasons”. After many beer filled hours without any progress, Fanne “the one who is about to make a good point” correctly pointed out that drinking and thinking might not be the best combination. Since all the members were already quite buzzed, Robert “the one who is also about to make a good point” suggested that they would all go to Stratumseind, to make sure the night would not be completely ruined.

It was there at the beginning of Stratumseind that Pim “The one still somewhat able to think” had the realization that the lesser light might be in ‘t Lempke. After proclaiming these words, the response of the group was as follows: “Huh, yeah that actually sound logical”. After walking to ‘t Lempke, Paul “the arse” suggested that they should just burn the bar down. After being asked why, he simply shrugged. The fellowship walked into the bar and quickly saw the lesser light at the end of the bar, captured in a lightbulb and in the old hands of a bearded man in robes. The group approached the man, who introduced himself as the protector of light who goes by the name Tim. After being asked for the light, Tim said the following: “To get the lamp I carry, one must answer these questions three”. Jelmer “the one who wasn’t having any of this” wasn’t having any of this and simply took the lamp out of Tim’s hands and ran away, the rest of

the group following swiftly. Now outside, the group tried to break the lightbulb that caged the light. To no avail the group tried to smash the glass on the pavement. It was then that Samuel “the one with creative differences” said that the lightbulb was stupid and should just be sad. Those words rang the glass, releasing the light as the glass vanished into the void.

Now that the fellowship had retrieved the light, they had to return it to Antioch. A costly journey that was filled with many perils and much suffering, as they had chosen to fly with Ryan Air. Once in Antioch, the nine went to the Great Light. Jasper “The light point” presented the lesser to the Greater. The lesser light floated out of his and was absorbed by the greater light. The absorption created an immense flash, almost blinding the fellowship. The Great Light’s strength had returned. So, it was that in the year 1719 A. L. that all men could see again Carpe Noctem.



---

# Are you good at

- Designing?
- Mailing?
- Writing?
- Spellchecking?

Then the  **UPREMIUM**  
wants you!

The Supremum committee is looking for new members, if you are interested please contact us at: [supremum@gewis.nl](mailto:supremum@gewis.nl)

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# PRODRIVE TECHNOLOGIES PUZZLE - WIN A DRONE!

## PUZZLE

Suppose you have a list of  $n$  integers, each integer is a number from 1 to  $n$ , and each number appears exactly once in the list.

Take the value of the first value of the list, let's call it  $k$ , and reverse the first  $k$  elements in the list. Continue this procedure until the first value of the list is equal to 1.

The goal is to maximize the number of reversals you will do.

For example, assume the list is arranged as follows (first value of the list is to the left):

2, 5, 4, 1, 3

After swapping the first two elements, continue, resulting in a total of 6 reversals.

5, 2, 4, 1, 3

3, 1, 4, 2, 5

4, 1, 3, 2, 5

2, 3, 1, 4, 5

3, 2, 1, 4, 5

1, 2, 3, 4, 5

For this puzzle the values of  $n$  are 5, 10, ..., 125.

For each value of  $n$ , submit the order of the list gives the highest number of reversals.

## SCORING

For each  $n$ , you will get a subscore between 0 and 1. The subscore is calculated by dividing your best score by the best score of any contestant.

Assume you are the first to submit a solution for  $n=10$  with a score of 30. Since this is the only submission for  $n=10$ , it is also the best score currently submitted for  $n=10$ , resulting in a subscore of 1.0 points.



Another contestant submits a solution for  $n=10$  with a score of 34. Now your subscore is reduced to 0.88 ( $=30 / 34$ ).

Your total score is the sum of all of your subscores. This means your total score is between 0 and 25. The goal is to maximize your total score. Note that your total score is not fixed! As other people submit solutions your total score might drop, so keep an eye on the submission page.

## SUBMITTING

You can submit your list as a comma separated list of the integers.

You can submit multiple solution at once, by separating them with a new line. A newer solution for a value of  $n$  re-replaces the older solution for that  $n$ , but only when it is better, i.e. when the number of reversals is larger. This means that in a new submission you only need to submit the solutions for  $n$  where your solution is better than before.

To see the current standing, deadline and to submit your solution, go to: <https://prodrive-technologies.com/gewis>

## PRIZE

The two best submissions win a drone, among the other participants a third drone will be raffled!



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PUZZLE

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**G**EWIS is built on top of committees. Besides, Study Association GEWIS has several fraternities which contribute to the atmosphere and organize activities.

Find out more at: [www.gewis.nl/association](http://www.gewis.nl/association).

## FRATERNITIES



**ATHENA**  
ATHENA



**B.O.O.M.**  
Buitenplezier Op Onze Manier



**GELIMBO**  
GEWIS Ervaart Limburgse  
Initiatieven Met Bewondering en  
Ontzag



**GEPWNAGE**  
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Evenementen



**I.V.V.**  
In Vino Veritas

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Ideeën Teweegbrengen

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**FYC19-1 GeDoe**  
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**FYC19-2 Carpe Noctem**  
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**FYC19-3 PushPin**  
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**FYC19-4 de Smurfen**  
First Year Committee

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GEWIS'sers Ervaren BALLen MET  
Rigoreuze Precisie In Excentrieke  
Kups

**GEDWAAL19**  
GEWIS'ers Dwalen Waar Anderen  
Anders Lopen

**GEFLITST**  
GEWIS Fotografeert Leden In  
Toffe Situaties, Toch?

**GEHACK**  
GEWIS Ervaart Het Algoritmisch  
Code Kloppen

**GEILER**  
GEWIS Eet Ijsjes Lekker  
En Regelmatig

**GELIFT**  
GEWIS'sers Liften  
Ieder Fantastisch Traject

**GEMOLD**  
GEWIS'ers moeten  
overall leugens doorzien

**GETAART**  
GEWIS'sers Eten TAART

**GEZWEM**  
GEWIS Zeilt Weer Een Meter

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# SUPREMUM COLOPHON

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