

S T U D Y A S S O C I A T I O N

G E W I S

 **SUPREMUM**

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**THE
FUTURE
ISSUE**



EDITORIAL

We have crossed the half-way mark of the redesign volume with this issue of the *Supremum*. The *Future Issue* is here to extend the line of milestones.

EDITOR IN CHIEF Stephan van den Berkmortel

One redesigned issue sets a standard, two set a direction, but three issues together make a tradition that ultimately re-establishes the *Supremum* in our association. With the present of the *Supremum* taken care of, it is time to look at the future of our committee and the magazine. What better moment to do so, when next year we will be celebrating the 50th volume of the *Supremum*.

Fitting in this setting is a quote from Orwell's 1984:

"Those who control the past, control the future."

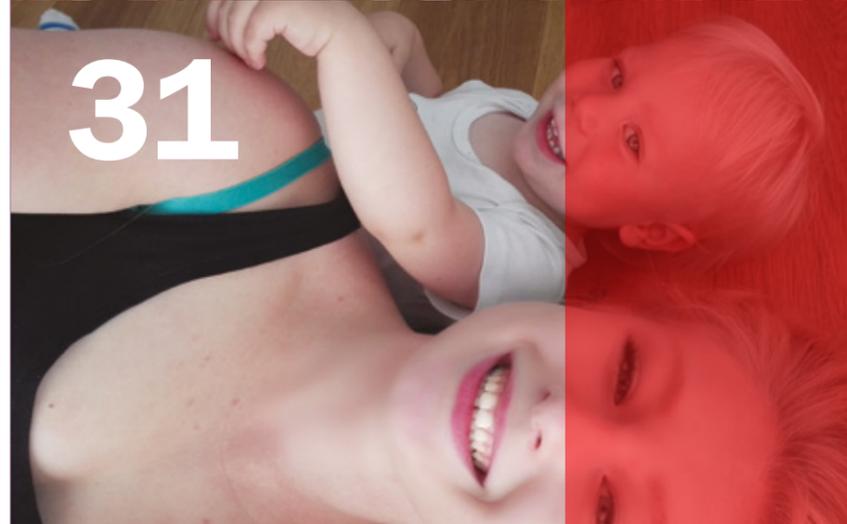
In a less dramatic fashion, it suggests to look at the past in order to foresee what the future might hold. Outdating our current association, the history of the *Supremum* is rich indeed. In the early years the magazine served a great purpose financially, even surviving the hiatus in a study association between GEWIS and Sunya. Now GEWIS is rapidly growing and social media are taking a dominant role, the *Supremum* is more free than ever to take on new purposes.

This brings me to my future view of the *Supremum*. It is a view that I believe is shared with many members, with the *Supremum* being a magazine where articles are technical, fun to read and show how much effort we all put into our association that defines GEWIS to what it is today and will be in the future.

How much of this will actually become true, only time can tell.

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CHAIRMAN'S NOTE

It is already the third chairman's note I am writing and it is still hard to pick the right topics to write about. There are so many great events and experiences I can talk about, unfortunately we can only go over a few of these events. In this chairman's note I would like to look back at some recent activities and look ahead to some of the upcoming activities.

TEXT Leroy Visser

Starting with two very special events, of course I am talking about the Symposium and the Gala. The symposium got kicked off by a great speaker, a famous mathematician: James Grime. He talked about how Mathematics was used in a CD to recover from damage, which touched some basics of security. Besides his great talk, I enjoyed his reaction on receiving a gift even more. I have never seen a man happier with a bubble blower in my life.

A few days after the Symposium it was time for the biggest event of the year. The gala, where all members were welcomed on a beautiful blue carpet. We had some delicious food and a fantastic openings dance on beautiful live music.

Furthermore, Quartile 3 was the start of the most busy weekend activity season GEWIS has ever seen. Of course some of the activities are well known, like the GEDWAAL weekend and the GEPWNAGE LAN, but we have also seen a few new weekend activities already. Like the ATHENA city trip to Bruges and the GELIMBO Lustrum weekend to Maastricht. I am already looking forward to the upcoming weekends and I hope they will be of great success as well.

Quartile 3 was also the first time our freshmen organized some big activities. Starting with Hit that hit, which was a wonderful music quiz. Apparently, we were so enthusiastic that the next day the board got questions from many TU/e employees about what the hell we were doing. Most of them saw the fun in this event. Besides this event, we also had an amazing

party. The theme was gender in the blender and many of you took this way too serious! All and all, a great evening which will not be forgotten.

This quartile the board presented a candidate board, whom are all enthusiastic to make GEWIS even better. At this moment, they are collecting a lot of information and they are drafting a board policy. I am already looking forward to their vision of GEWIS, and which areas they want to focus on.

Last chairman's note, I reviewed some of our board policies and now I would like to add one more point. We have been looking in many ways to get our software project from the ground. Many people are enthusiastic, but lack the time to make a long term voluntarily commitment. We have found a way to make a good start, by working together with our department. GEWIS is now a costumer of a Software Engineering project, which is the final project for computer science students. I hope this will lead to a great start and a new system.

Looking back at all these activities and moments, I can only be proud of GEWIS and all the members whom are organizing all these wonderful events! Fortunately it is not over yet, we have a lot more great events to look forward to.

PREDICTION OF THE FUTURE AND FUTURE OF PREDICTION

Information is travelling towards us at different speeds; we receive information originating from very different instants in the past. A student reading Euclid's Elements receives more than two millennia old information. The sun we see is the sun from about eight minutes ago.

TEXT prof. dr. ir. Barry Koren (interim dean)

Whereas the past is very present, the future is definitely not. Zero information from the future reaches us in the present. The prediction of the future has always been a challenge to mankind, and it still is. Newton made a very innovative contribution to our future-prediction capabilities. He was the first to describe the future motion of masses - the orbits of the planets in our solar system in particular - in the form of mathematical formulae: differential equations. Given the location and velocity of a mass at some instant in time, time integration of Newton's equations of motion (analytically or numerically) predicts the motion of that mass.

Since a few decades we succeed to predict the future of all kinds of complex processes with increasingly higher accuracy and over increasingly longer time intervals. Tomorrow's weather can be predicted with high accuracy and efficiency. Even next week's weather can be predicted quite well already.

Our future personal health, national economy, world climate, and many more processes, phenomena and systems, can be predicted better all the time. More and more disciplines get their own computational branch now. Besides computational physics, we also have computational chemistry, computational biology, computational finance, and more. I would not be surprised to see the rise of computational psychology or sociology.

We owe last decades' strong growth in future-prediction capabilities to the longstanding continuous growth in accuracy, efficiency and robustness of computational

algorithms, and to the likewise continuous growth in speed, memory and cost-effectiveness of computers.

Predictions may still seriously fail though; remember last presidential elections in the USA. Many processes are inherently uncertain. In the prediction of processes with lottery features, however, significant progress is being made these days as well.

At the recent Conference on Computational Science and Engineering, organized by the Society for Industrial and Applied Mathematics (SIAM), besides the latest developments in time-integration methods, there was a lot of attention for the research topic "uncertainty quantification". Uncertainty quantification deals with the incorporation of stochastics into computational methods. It enables predictions that do not over- or underrate the reliability of computational results: certainty quantification in fact. Often the basic ingredient for uncertainty quantification is a large amount of stochastically distributed input data; computational science meets data science. We see an increasingly fruitful interaction between analysis, scientific computing, stochastics, statistics, data mining, visualization, and more.

Given above developments, our future life is becoming less and less unknown. Hopefully though, it will never become as predictable as a planet's orbit.

March 12, 2017



EDUCATION FIRST!

As of writing this, I have had the position of educational officer of the association for about ten months. It is a very nice and informative experience to fulfill this function. Nevertheless, in a few months someone else will take over. I would like you to take a sneak peek in the work of the educational officer.

TEXT Patricia Vossen

UNIVERSITY BUSINESS

I often have meetings with educational officers of other study associations of the TU. Together with these people I speak about university issues with important people, such as the rector magnificus, the deans of the bachelor college and graduate school, and with the university council. During these meetings topics are discussed that are important for all students. Examples are the basic courses, the growth in students, the internationalization and much more.

IN DISCUSSION WITH THE RECTOR MAGNIFICUS

Once a year, the rector magnificus of the university joins a meeting with students from a certain study. During these meetings, students can give feedback on what they think about certain subjects concerning their education. The number of places to study at the university, education related business, but also subjects concerning the entire university are examples of these subjects. Before a meeting like this takes place, the educational officer searches for suitable students to join this meeting. These students are then invited to join and inform the rector about actual concerns. In this way, the rector finds out where improvements are required that are important for more studies. I always think it is important that people like the rector show interest in opinions of the students directly.

WITHIN THE FACULTY

For the educational officer, it is useful to join meetings with the faculty council and the faculty board to receive useful information about the actual topics concerning our students and GEWIS-matters. For the

different studies within the faculty there are several program committees. During their meetings, they discuss course surveys and certain issues about courses and teachers. The educational officer is present at these meetings to give advice, for example concerning complaints I received from students. I also pass on information I received from other meetings.

STUDENTS

The most important aspect of my function is to be there for the students. I make sure old exams and summaries are gathered and put on the GEWIS website. Also, there are 'kringgesprekken' every quartile for every study year for both Mathematics and Computer Science, which are organized by the educational officer. During these 'kringgesprekken' we eat lunch together and give direct feedback to the teachers of the courses which are taught during that quartile. All students are welcome to join these meetings to tell teachers about the pros and cons about the way courses are taught and the content of the course. Hereby I call upon all students to go to the educational officer if you have any complaints about courses, teachers or any other education related topic. That way I can either try to solve the problem myself or point you in the right direction to whom you should go.

Last but not the least, there is the student council. This is a committee of GEWIS that discusses important matters in education. The student council consists of only students that are interested in improving education. The educational officer is the chairman of this committee.

FUTURE BOARDMEMBERS?

The department council is a group of elected students and staff that form the official counterpart to the department board. Much like in a city council the board has to ask our advice on many topics before putting regulations in place. On some topics the board is even required by law to have our backing. But most of all we discuss the future of our department with the board and try to help them making decisions that are best for the department.

TEXT Rik Schepens

In this piece I want to talk a little about a certain task we often performed lately, and has a large effect on the future of the department. Every time a new member of the department board is about to be appointed by the university board the department council is asked to put together a committee and give a final advice before the appointments is made.

The committee has the task to see if the candidate will have the necessary trust and support within the department to carry out his/her tasks as a member of the department board. For the university board it is way harder to determine this, than it is for a department council. So the law requires us to perform this final step. And all of this has to be done with complete confidentiality.

The committee usually has around 5 members, consisting of both students and staff from the department council and usually also has one or several advisors from outside the department council. These people have several meetings to discuss the candidate and his/her support within the department.

First of all the committee meets with the candidate itself and tries to determine how he/she will try to fill in their role as part of the department board. This is done with help of the profile that is made in advance. With the background-knowledge the committee gains in this meeting, they now have some meetings with some people in key positions in the department. These people are chosen by the committee, and they are

often spread throughout the department in various functions, to try to make it as good of a representation as possible.

In these meetings the committee may ask them questions like; "Do you think the candidate has the personality attributes required to be a board member?", "What are your previous experiences in working with the candidate?", "What kind of policy gets you excited/ afraid if the candidate would execute it?", "What do you think is the biggest challenge we will have as a department during the next couple of years? And what do you think the candidate is capable of handling this?"

All of these meetings are completely confidential, so neither the committee or the people heard in this process may elaborate on the candidate's identity. Nor is anyone allowed to share specific concerns certain people have. And after some internal discussion, the committee comes with an advice for the university board about the candidate. Mostly on whether or not the candidate has sufficient trust and support within the department to take place in the department board. But often also some slight remarks are made on how they came to the conclusion, and some advice is given on crucial steps during the start of this person's new job.

**The process as described may change at any given time, and thus does not provide guarantees for future instances.*



STUDENTENRECEPTEN

ALWEER BIJNA WINTER!

Op het moment van schrijven, maart 2017, zou je kunnen zeggen, zeker ook gegeven de prachtige lentedagen die we momenteel beleven, dat het pas net voorbij is, maar zodoende is het dus ook weer in de toekomst. Laat ik beginnen met een lijstje van dingen die bij mij opkomen als ik denk aan winter: Juist ja, sneeuw, schaatsen, vallende mensen, kou en dat soort ongein. Maar gelukkig brengt de winter culinair gezien leuke dingen met zich mee, want de winter is een perfect moment voor heerlijke stamppot!

TEXT Vincent Keltjens

INGREDIENTEN (VOOR 3-4 PERSONEN)

- » 1 tot 1½ kilo aardappels (kruimige- of stamppot aardappels)
- » 400 tot 600 gram andijvie
- » 250 gram spekjes
- » Een flinke scheut melk (~150 ml; zie methode voor indicatie en redenatie)
- » Een klontje boter
- » Nootmuskaat, peper (en optioneel zout)

OPTINEEL, MAAR AANGERADEN VOOR ERBIJ

- » Mosterd (bijvoorbeeld Grey Poupon of een andere Dijon mosterd, of iets naar smaak)
- » Optioneel voor ernaast:
- » Zilveruitjes
- » Augurken

Één van mijn favoriete stamppotten is andijviestamp met spekjes (ook wel bekend als spekandijvie).

Stiekem is deze uitspraak niet helemaal waar, want wat nóg lekkerder is dan andijviestamp met spekjes, is raapstelenstamp met spekjes, hetzelfde principe, maar raapstelen (een lentegroente) is iets minder bitter dan andijvie en zorgt voor een wat frisser resultaat. Dus overal waar andijvie staat, mag je vervangen door raapstelen in de lente!

De combinatie van lekkere gestampte aardappels, semi-rauwe andijvie en knapperige uitgebakken spekjes was voor mij als kind altijd een waar genot als mijn moeder dit klaarmaakte. Naast dat het onwijs lekker is, is het ook nog eens super makkelijk te maken, ook op grotere schaal, en kost het ook niet zo veel geld.

METHODE

1. Kook de aardappels gaar, normaliter duurt dat een minuutje of 20.
2. Bak ondertussen de spekjes uit en warm de melk op, probeer dit te timen zodat dit klaar is als de puree af is. Warm liever te veel melk op dan te weinig, want warme/lauwe melk is echt super lekker om gewoon zo te drinken.
3. Was en snij de andijvie in grove stukken, of pak een zak voorgesneden andijvie bij de supermarkt, die hebben immers een goede grofheid en maakt het koken lekker lui.

4. Als de aardappels gaar zijn, maak je de puree door de aardappels af te gieten, de boter en een gedeelte van de melk toe te voegen en te gaan stampen. Gebruik de melk om de smeugheid van de stamppot te bepalen. Breng het op smaak met (zout), peper en nootmuskaat.
5. Voeg de spekjes, inclusief vet, toe en roer dit door de puree.
6. Voeg nu een flinke hand andijvie toe en roer dit door de puree. Door de warmte van de puree slinkt de andijvie waardoor je de volgende hand erdoorheen kunt doen. Rinse and repeat, totdat de verhouding naar wens is, of de andijvie op is.

Het is dus belangrijk om ervoor te zorgen dat je melk en spekjes warm zijn, want deze helpen het compenseren van de temperatuur van het gerecht tegen de rauwe groente. Als het klaar is kun je ervan genieten, het liefst met een flinke klodder mosterd en als je ervan houdt wat zilveruitjes en augurken.



Infimum: Strange or funny quotations from a teacher, a student or faculty member. Here you can find infima sent to the Supremum committee. inf.gewis.nl

Tom: "Wat is dat Send Nudes? Ik zie het zo vaak staan de laatste tijd!"

Rik R tegen Kutjeroen: "Hoe gaat het met je afstuderen?"

Kutjeroen: "zullen we het over piemels hebben?"

Bart (op 25 januari): "Wow het is echt al bijna 2017."

Ingmar: "Mag ik ook heel gefascineerd naar die lolly kijken?"

Mitchett: "Ik vind deze Turkse pizzameneer wel heel fijn."

Iemand: "Wat is 16 + 11?"

Mitchett: "Juf!"

Schijvesjaars maakt een verkeerde opmerking:

Schijvesjaars: "Sorry, ik wist dit niet."

Darwin: "Maakt niet uit, je mag je kut voelen."

Stefan Habets: "Ik heb geen zolderkamer, ik heb een penthouse."

Laura K: "Ik zal vooral niet te veel denken denk ik hoor."

Tamara naar Bart: "Je hebt echt een mooie D."

Celine Senden: "Ik krijg op Facebook een melding: 'Gefeliciteerd met vriendendag!'"

Landa: "Is dat een ding?"

Celine: "Blijkbaar. Maar het is toch elke dag vriendendag? Als je dat maar één dag per jaar viert heb je geen sociaal leven."

Sjaars Susan tegen Sjaars Tom: "Jij hebt een flesje bier kapot laten vallen..."

Sjaars Tom: "Ik ook!"

Yanelle: "Welkom bij GEWIS, waar sociale mensen buitenstaanders zijn!"

Flikflooi Feddema: "Ik kan heel vrouwelijk dansen."

Wout zoekt in een lijst namen een projectpartner.

Wout: "Hmm, het zijn wel heel veel buitenlanders..."

Bettina Speckmann: "People suck. Algorithms are better."

Teun D: "Werken met Matrices op twee krijtborden schiet echt niet op he? Je bent de hele tijd aan het vegen."

Jet B: "Je weet hoe die Indiërs praten, zo schrijven ze ook."

Jeffrey M tegen Schijvesjaars: "Het zou vreemd zijn als jij een kind kreeg met een Aziaat, is dan opeens een soort van Justin Bieber met spleetogen."

Yoram: "Ik wil graag een woonkamer. Maar ik wil er geen mensen in!"

“ Mag ik ook heel gefascineerd naar die lolly kijken? ”

Jeffrey M: "Soms moet je accepteren dat je geen antwoord krijgt."

Nadym: "Maar da's vervelend!"

Jeffrey M: "Ja, jij toch ook!"

Tom Sjaars: "Vinz claimt dat hij geen porno kijkt."

Jeffrey M: "Ik claim ook dat ik studiepunten haal, maar he..."

Saskia H: "Hoe laat is het?"

Arend V: "Je draagt een horloge."

Saskia: "Oh ja."

Kijkt op horloge...

Saskia: "Een klok is eigenlijk net een eenheidscirkel."

Sjaars Rick: "Leon, jij hebt echt goed borsthaar!"

Simon: "Oh god, waarom kijk ik ook als ie dat zegt?"

Tijdens het gebruiken van snapchat-filters:

Sjoerd: "Hij herkent jouw gezicht niet."

Twan: "Ik heb ook een lelijk gezicht."

Tijdens 'EJC Feest 1'-meeting:

Rick: "Dus we gaan iets met drank en piemels doen?"

Naomi H: "Wat is taakbeheer?"

Vinz: "Is de Hizmet Strijp?"

Schijvesjaars: "Wat voor dier heeft een geheugen van ongeveer 10 seconden?"

Max: "Bram"

Schijvesjaars: "Ja?"

Schijvesjaars (Ongeveer 10 seconden later): "Oh wacht dat was je antwoord"

Tom: "Ik heb dit boek alleen gekocht omdat het zo lekker ruikt."

Question during the lecture: "Why are you suddenly summing over n instead of over m?"

Rui Pires da Silva Castro: "I was running out of chalk."

In de kantine is er heldere rundvleessoep.

Twan: "Het is geen heldere soep als er allemaal paprika in ligt hè."

Teun D (in Helix): "Metaforum is chill, waarom is niet alles Metaforum?"

Arend V: "Stel je hebt een string, en die wil je omdraaien..."

Georg Prokert: "Sinus van n ligt tussen -1 en 1 in.

Hoewel ik al een hele hoop calculus tentamens heb nagekeken waar dat niet zo is..."

“ Ik zal vooral niet te veel denken denk ik hoor. ”

Bobby B: "Hij was toen jarig en 6 dagen later werd hij geboren."

Sjaars-Rick: "Met wat kun je het beste je bh opvullen?"

Amber M: "Dit is het vorige uur."

Bettina Speckmann: "Give me two more slides and some math."

Sjoerd Rienstra: "Dat gaat over de Bachelor toch? Ik geef helemaal geen vakken in de bachelor."

Studenten: "Complexe analyse toch?"

Rienstra: "Oja!"

Lucy V: "Twente is toch een provincie?"

Vinz: "Is dat Flügel in je broek of ben je gewoon blij om mij te zien?"

Vincent Huisman: "Ik ben gestopt met mijn studie!"

Marloes van Lierop: "Oh?"

Vincent Huisman: "Ja, studieschuld is belastingaftrekbaar."

Vinz: "Vinexwijken, zijn die vernoemd naar die raamdingen?"

Rick: "Nee, dat is Velux."

Meeloopkiddo van Rick: "Maar ben je nu bi of lesbisch?"

Meltem: "Dat weet niemand."

GEWISSENSCHAFT

BUILDING A GLOBAL IDEA EXCHANGE

New York City, the year is 1878. It might not ring a bell, but it is in this time and place that a great invention was made, essential in the development of online trolling, of shouting to people over text messages, of misspelling LaTeX commands and German words in general. I am, of course, talking about the invention of the shift key. The invention of the shift key was a small but essential step in the development of modern communication. The electrical typewriter followed in the 1920s, mainstream fax machines in the 1970s, the POP-protocol for email in the 80s.

TEXT Bor de Kock

Apart from revolutionizing efficient communication, these innovations have had a big impact on the way the human race exchanges ideas and concepts. In 1976 evolutionary biologist Richard Dawkins wrote a book called *The Selfish Gene* in which he describes the way ideas and behavior spread from person to person within a culture or society, not only through writing or speech, but also through rituals or traditions. In his book he explains that the way these ideas spread is very similar to the way genes do: they are prone to natural selection. They self-replicate, spread, die out, and mutate, just like genes do. He also invented a term for such a cultural idea or phenomenon: memes. So how did this theory grow from a piece of biology-related literature to the internet phenomenon memes are today?

In the 1990s the internet was evolving from a communications exchange developed by the military and academic world to a commercial and widespread network like we know today. Even though this was before the birth of modern social networking sites, the usage of newsgroups and other discussion forums was becoming more and more popular.

In his 1994 essay *Meme, Counter-meme*, Wired-author Mike Godwin explains that he noticed a pattern: the way ideas and behavior spread through online communities seemed very similar to the way Dawkins'

memes spread through real-life communities and cultures. During only a short period of time, it became immensely popular – even normal – to label ideas or users as “similar to the Nazis” or “Hitler-like”. Godwin describes that this infectious idea, that leaped across the web from mind to mind, reminded him of Dawkins’ theories. It was, he said, “like a viral meme”.

Godwin decided to start an experiment. Every time he saw a Nazi reference, he posted Godwin’s Law: “As an online discussion grows longer, the probability of a comparison involving Hitler approaches 1”. The experiment worked: soon other users started posting the Law in response to Hitler comparisons. It even mutated to other forms. The idea he describes is the essence of modern meme culture: exchanging ideas, concepts and forms, and watching them evolve over time.

So is this what the internet was meant for? On one hand you might say that it isn’t. The current exchange of image macros, viral videos and outright weird pictures is far from the noble vision of academic collaborations and world-bettering concepts. On the other hand: the spread of the internet meme is one of the purest forms of exchanging thoughts and ideas in the world. Will meme culture lead to new inventions, global peace and a new world-wide-web-induced golden age? We can only see what the future will bring.

HALF WAY

After seven months, and having left five more, in some way I have already reached the top of my year as an exchange student here at the TU/e, so from this moment I can say that it’s being a wonderful experience (weekly assignments apart).

TEXT Diego Ambite

At the beginning I thought that, coming from a big European capital, I was going to have plenty of time to carry on with my studies and chill for a year before graduating. I was right partially, it is a calm city, but I never stop, not for a moment. I fell in love with Strijp-S which is a 2 minutes’ walk from my home and I really enjoy most of the events which take place there. Every Saturday I go to have *kibbeling* for lunch at the market of Woenselse Markt. Once every other day I find myself having dinner in some friends’ house and only returning home after midnight. Of course, the weekly *borrels* are an appointment I can’t miss and I enjoy it so much. But the most surprising one, for such a lazy person as I am, is that I am spending a lot of time in the Eindhoven Students Sports Centre. Not even I could’ve predicted a few months ago, that I would be taking so many classes that some days I feel myself dying after all the exercise.

“ I have been able to expand my knowledge in a way that would be impossible if I were not an exchange student. ”

So it is quite rare to find a day just for chilling with nothing to do but to count how few words in Dutch I have learnt. But what I enjoy the most is meeting people from all over the world. It’s a wonderful way to understand different perspectives and how the world

really works outside of the country where you have been born and raised. In this way, I have been able to expand my knowledge in a way that would be impossible if I were not an exchange student, because at my home I used to focus on my exams and meeting with my friends and my girlfriend. I remember how surprised I was when I arrived in September by the amount of other international students here at the TU/e. This is not only the result of the high level and reputation of the TU/e but also for all the facilities that a country as The Netherlands offers to the foreigners and being nothing less than the best non-native English speaking country in the world, what makes it so easy for us foreigners to live the day to day life here.

When I was asked to write an article for *Supremum* about my experience as a foreign student here at the TU/e, I was also told that the theme for this edition is the future. After these seven months I really think that this confluence which takes place here in the Netherlands between a society which has adopted a foreign language that wasn’t part of its history or culture in order to be more open to the rest of the world at the same time that it maintains its roots and which is not afraid of sharing it’s educational system with students from all over the world, in my opinion, is how future starts.

The most common expectation among students regarding their future is to graduate and get employed by a nice company. But there are several different paths a student can take to determine their future. Alex Dings, one of the founders of BitSensor, took a different path and decided to stop his studies to focus on his start-up. Supremum had an interview with Alex to get to know more about the start-up, how it changed Alex's path and what he learned from it.

TEXT Anja Syring

ASKING THE RIGHT QUESTIONS A BITSENSOR INTERVIEW

HELLO ALEX, A LOT OF STUDENTS MIGHT ALREADY HAVE HEARD OR READ ABOUT BITSENSOR SINCE YOUR OFFICE IS LOCATED ON CAMPUS. BUT WHAT DOES YOUR COMPANY ACTUALLY DO?

Currently it takes companies 9 months to find out that they have been hacked; we changed that to 50 milliseconds. We developed a security solution with a new approach to detect and block hackers. Using a plug-in to gather data and information about the input of the application as well as what happens with the data inside the application and what comes out. This data gets analysed by BitSensor to create detailed real-time hacker profiles used to block hackers precisely and deliver better security.

SO YOU ARE DEVELOPING A NEW APPROACH ON SECURITY – HOW DID YOU GET THE IDEA FOR IT? HOW DID YOU DECIDE TO START BITSENSOR?

It all started with Ruben, my co-founder. He has been hacking companies like LinkedIn, Marktplaats, Kickstarter, etc. for several years. When he was able to break in, he contacted the companies and they never noticed that he even tried to break into their system. He was the first to hint them at what he had been doing in their system. Improving a company's security by trying to break in over and over again is not efficient and with that mindset he developed a new security technology. At one point he wanted to take it further by creating an actual company out of it - that is where I came in.

AFTER YOU MADE THE DECISION TO FOUND THE START-UP, WHAT WERE YOUR NEXT STEPS? HOW DID YOU TURN YOUR INITIAL TECHNOLOGY INTO AN ACTUAL COMPANY?

In the beginning we were just trying to get in touch with people that might be interested in helping us to find out if our idea worked as a product. Because of that we met the CEO of Elastic who helped us and even invited us to the States. But we also got a lot of publicity

through some competitions we participated in; we were chosen as the most promising start-up in the Netherlands and also as one of the top 10 most promising start-ups worldwide, both by IBM. This helped to get in touch with people in the first place. Right now we don't need media attention anymore in that sense, but we are going through networking to see who could be interested in our product and then we just call them, tell them about the issues we solve, and hope we get a meeting with the CISO.

WHAT WAS THE MOST CHALLENGING FOR YOU AFTER YOU STARTED THE COMPANY?

For any start-up in the early phase it is important to keep asking questions. You can't make a product and after three months release it into the market, only to find out that no one wants or even needs it. So you start asking questions to the people you think are your customers. When asking all these questions, you might receive a lot of negative answers towards your product and this might be very demotivating. You believe in your solution, but other people might tell you otherwise, and you must take it as a lesson; can you shape your idea to fit the need? For BitSensor it was relatively easy because the technology was exciting enough, but looking at other start-ups you can see that some are really struggling with this. For any founder I think that is the most difficult one.

IT IS NOT ALWAYS EASY TO CONTINUE WORKING ON YOUR PROJECT WHEN YOU RECEIVE NEGATIVE FEEDBACK. WHAT IS YOUR MOTIVATION TO KEEP GOING? DID YOU ALWAYS WANT TO START A COMPANY?

I have always imagined me having a start-up at some point. But what mainly drives me is that I really like working on projects and taking them to the next level. Usually I jump on a project, reboot it and bring it to the next level. At that point it is also enough for me – I don't need to be there for the whole lifespan of the



project. If it is solid and I did my job well, then I can also leave and let it continue on its own. A good team is also important to me. With BitSensor it is not only about taking a project and bringing it to the next level but really raising it from the very first steps to something solid. Therefore lifespan is longer but also the changes are way more rapid.

YOU SAY YOU DON'T HAVE TO BE WITH PROJECTS FOR THEIR WHOLE LIFESPAN. WHAT ARE YOUR PLANS FOR THE FUTURE – FOR BITSENSOR AND ALSO PERSONALLY?

BitSensor is not going to be a family business; I'm not going to be there my whole lifespan. The idea is that we just got investors on board - in general it really depends on the investors but a start-up has most ideally a lifespan of five years. Therefore five years from now it would be ideal if the company could be sold. After that Ruben and me but also other people in our team become interesting targets for companies, assuming we did a good job. I see how people who work for us make a huge growth. By building BitSensor but also by working as a developer in our team you learn so much. But we are still looking for new developers. We work with continuous development and continuous integration; developers write code, it gets tested and pushed live. For any company it is interesting to work in that manner and a lot of large companies want to adopt it but they actually haven't yet. It is a very cool way of working for our developers, since their code has a direct impact on the product.

But the question was what I want to do next? That really depends on what comes up. But I can already say that I don't want to jump on the next start-up because I really need to believe in the idea, like I do in BitSensor.

HOW DID YOU MANAGE TO COMPLETE THE PROCESS IN ONLY THREE WEEKS?

The investors really believed in the technology but we again focused on asking the right questions. This showed the investors that we are interested but also that we are busy validating. That is important and I think that is why they believed in us. Everything we represented as well as our decisions has been thought through.

WE HAVE NOW HEARD ABOUT SEVERAL DIFFERENT TOPICS YOU WORKED ON; ALL OF THAT SEEMS LIKE A BIG WORK LOAD. HOW DO YOU KEEP YOUR BALANCE BETWEEN WORK AND FREE TIME?

It is indeed a big workload, when I was studying I already worked many hours for university, had some voluntary work and thought my workload was huge. Since I started working on the start-up I think if I go back to studying it will be a lazy life. But how do I keep my balance? The one thing I give up on is sleep. I mean I am not perfect at all so there are also things I'm not doing well. I'm easy to excite about anything that I consider cool and my friends are important. So if anything pops up I'm the one to put effort into it, I'm the one to help someone out or to bike over to someone's house at 1 o'clock at night if they need me. That is the way I like to live but that is the major downside of having a company. It is something I love but it is also another set of deadlines and goals I want to achieve. I'm basically overloading myself with goals and I need to watch out that I don't do that too much. I manage that with proper planning. It is hard work but it is also not too bad if you plan.

HOW DID YOU APPROACH THE INVESTORS? DID YOU HAVE ANY EXPERIENCE IN INVESTMENTS?

First of all we have advisors in the market that help us but we also read books on the process and on the terms. There are so many different terms and it is important that you know what you are talking about when meeting a possible investor. It was also important to get investments at the right moment. People wanted to invest in an early stage but at that point we didn't need money. That is also an important decision as a start up - when are you giving up equity in exchange for money. But three weeks before the end of last year we started negotiating with the interesting people we got in touch with and three weeks later we finished the process from deciding whether we want an investment to actually getting it. To put that into perspective, normally that takes between six to eight months. We asked many investors for the shortest round they have ever seen for a company in that stage and none of them had seen such a short cycle before.

THINKING BACK - IS THERE SOMETHING YOU WOULD HAVE DONE DIFFERENTLY IF YOU WOULD HAVE KNOWN BEFOREHAND?

In the first year of validation we targeted the small and medium enterprise market. We saw that the budget for these things was very project bound and people were hesitant and not ready to spend money on security. So the sales process was really long and in sales terms this was lost effort. But again we asked the questions and thought about how to get something positive out of the situation. We took the data we collected from the client and improved our product based on that data. Even though the sale didn't go well we turned it into a living lab for us and it worked out in the end. We validated that this market is not our target but this could have been done quicker. That is what we try to do with all negative situations if we receive a negative response we want to know why it is negative. Can we predict this negative response the next time? Is the reason for the negative response something we can address? Asking questions is key, because you can learn so much from it.

TALKING ABOUT THINGS THAT ARE LESS FUN TO DO IN A COMPANY? WHAT WAS THE HARDEST DECISION?

I think it comes back to the early stage and the question: will this work out? In the beginning there is a constant cycle of validation. You might come across so many negative responses and you have to focus on positive things to get out of it. Otherwise it really makes you doubt if you should have continued with your study. At this point I'm still learning, I'm asking the questions, getting the right answers even though I'm getting wrong answers. That helps but there always is the question 'should I have continued studying'. Right now it is easy because the answer is no; I would have missed all of it. It was maybe not the hardest decision but it was the most impactful.

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The Bitsensor team in front of their office in MultiMedia Paviljoen





AME

AME is an independent developer and manufacturer of high quality electronic products located in the top technological region of the world (Brainport Eindhoven).

Our goal is to create innovative products that exceed customer expectations. We accomplish this by integrating product development and manufacturing and keeping a clear focus on the product and its function.

Driven by technology, we strive for the best solution combining the disciplines of electrical, mechanical, software and industrial engineering. Through creativity, passion, ambition, motivation and a highly educated level of our employees AME secures its goal of being a profitable company.

EXPERIENCE OF TIM HERMANS

TEXT Tim Hermans - AME

COMPUTER SCIENCE - EMBEDDED SYSTEM (FORMER TU/E STUDENT WHO STARTED THEIR CAREER AT AME)

During my graduation period at AME I spent my time working on the model-based design of an Intelligent Thermostat. In this project, I modelled and simulated a thermostat, including its environment, and deployed it to an embedded controller in order to test and verify the performance in practice. After my graduation I was invited to come work at AME in the RD&D department as an embedded software engineer. My first project was a continuation of my graduation assignment and offered me the opportunity to integrate it into a product which can be found on today's market.

The latter is one the main reasons I enjoy my time at AME, being able to also be part of the production and

integration of the finished product in the field. Combining this with the opportunity to work in experienced multidisciplinary project groups on a wide variation of projects makes AME an enriching experience for me. Every new project offers a new challenge and forces one to learn new techniques and dive into the inner workings of a new application to eventually develop a new high-quality product.

CAREER

AME is a fast growing organization full of career opportunities. Our ambitious and experienced team of professionals is always looking for more talent. If you are interested, you are most welcome to apply for a job or take a look at our opportunities by visiting our website, www.ame.nu/career.

Infimum: Strange or funny quotations from a teacher, a student or faculty member. Here you can find infima sent to the Supremum committee. inf.gewis.nl

Dobin: "Ik voel me net een Vinz."

Vinz over treinstel 8713: "Als je een beetje fantasie hebt, staat er 17-3."

Bart: "Als je 20 bier op hebt en helemaal aan de andere kant staat wel."

Tutor over Engelstalige presentatie: "So which of the 2 groups is going to present first?"

Bart H: "We said 'hoedje' so your group has to go first."

Wesley tegen Ingmar: "Als je me vandaag onder wilt spuiten met saus mag dat wel."

De oma van Tamara W: "Nou, trek maar uit wat je uit wilt trekken."

Bart H tijdens 'Never have I ever': "Nog nooit heb ik mijn moeder Goldstrike zien adten omdat ze dacht dat het ranja was."

Meltem: "Ieder meisje is hetero, totdat ze mij tegen komen."

Ysabelle Bloemensjaars: "Niet nadenken, gewoon slikken."

Lloyd: "Stefan, kop of munt?"

Stefan H: "Ja."

Wesley: "Romy, ik wil jou!"

Bart tegen Wietske: "Kan ik je interesseren in de kamer van Gijs?"

Leon: "Ze moesten alleen de bruidegom nog zoeken, of de bruid, ik weet eigenlijk nooit welke de man en welke de vrouw is..."

Renee H: "Dan ben jij wel heel erg lang 17 geweest."

Dante: "Ik ga twee tosti's maken, ook een voor Chantal om het goed te maken."

Ysabelle: "Maar ze hoefde toch geen tosti?"

Dante: "Ja, dan geef ik toch een gebaar, maar heb ik wel 2 tosti's."

Landa (kijkend naar de lustrum-bellenblaas): "Waar moet dat balletje in?"

Jet B: "Ja dat vraag ik mijzelf ook weleens af!"

Wietske over een foto waar ze op staat: "Volgens mij is deze gemaakt door Wesley... Ja, daar was ik bij!"

Max L: "Ze wil dat mijn kleine mannetje omhoog blijft staan."

Tim: "We hebben godverdomme ook dat godverdommese ketelklassament bij de godverdommese Wervingsdagen gewonnen!"

Wesley, wijzend naar Stanley: "English please!"

Tim: "We godverdomme also won the godverdommese ketelklassament at the godverdommese Wervingsdagen! Did you get that?"

Stanley: "Something godverdomme."

" We said 'hoedje' so your group has to go first. "

Tobin: "Henk-Jan, we gaan niet tongen!"

Niekie: "Als je bij de consti bent dan heet je toch Pedeng?"

Tom W: "Maar met alleen een jasje zie je eruit als een I.V.V-er."



BOOKS ARE BACK!

Books are back! Bookstore profits are increasing for the second year in a row and a new e-book download service is born every few seconds (or so it feels). As a passionate reader, I want to find out what the future is in paper books.

TEXT Pim Booij

I have been reading for as long as I can remember, I do not know how many books I've read although my guess would be in the thousands. Over the years I have created a collection of nearly 300 books and that collection keeps expanding every month. Since long before I started spending tons of money on these bundles of words the library has provided me with nearly every book imaginable and I do not know how I'd have spent all these years without reading.

Some of my favourite things to do is walking into a random bookstore, looking at the cases filled with books I have and haven't read (yet), talking to the lady behind the counter and then going home with a book that smells new to lie down with on the couch and to plunge into a new and unexplored world. I hope many of you recognize yourself in this and if you do you will probably have encountered the same problem as me, there are fewer and fewer bookstores.

To make my point I first have to explain the Dutch law on the fixed book price. It might sound weird but our government decided in 2004 that the price of all books and sheet music published in Dutch and Frysian meant for sale to the public should be kept artificially high. This to prevent price competition and to improve the broad availability of a wide range of books. This means publishers can publish less profitable books with fewer problems. The fixed price for all books, the exceptions and the exact rules regarding this law can be found at boekenprijs.cvdn.nl.

The first time I heard of this strange law, that has counterparts in about half of all European countries, was six years ago in my favourite bookstore at the

time. I was complaining about the high prices of the Dutch books compared to the English ones, when the old lady that worked as a cashier told me. We had an interesting conversation that lasted for at least an hour, when my mother called me to tell my dinner was getting cold. The thing I remember most is that she told me that when this law would be undone most independent bookstores, like hers, would close in a few years, due to price stunting of online stores like bol.com and big franchises. Small stores cannot afford to do this because of the high costs of rent and employees.

To misquote a famous saying by Johan Cruijff: "every advantage has a disadvantage", expensive books lead to fewer sales. At age 15 my English was at a sufficient level to start reading English books. So when I found out that they were cheaper than the books I used to buy, automatically implying I could buy more books with the same amount of money I had earned by working at the supermarket, the decision to switch was easily made.

I am not the only one to make a decision like this or a similar one. The first e-readers come from before the year 2000, but they did not become popular until after the introduction of electronic paper in the Sony Librie and the enormously popular launch of the Amazon Kindle in 2007.

E-books are cheaper because they do not have to be printed on paper and they do not have to count for the transport costs. According to the SMB (stichting marktonderzoek boekenvak) the e-book sales account for roughly 6.5 percent of all book sales. A number that

has been growing for the last couple of years. Nearly every time I travel somewhere I see someone reading a digital book on a specialised e-book reader. And even though I prefer actual paper, I too like the fact that I can take as much books with me as I want, whenever I want and wherever I want because they all fit in my pocket.

Just like Netflix and HBO did with video streaming subscriptions the Dutch libraries, Amazon kindle and Scribd, among many, have started an e-book subscription service where you pay a certain amount of money each month to read unlimited e-books for a time, after which they become unreadable to prevent piracy. Some services even specialise in functional illiterates, people with dyslexia of those that do not want to read the books themselves using audiobooks.

These services are growing rapidly, with some English services already approaching 1 million available books for download. I believe (and hope a little bit) that in the near future all our books will be both published on paper and in .epub format as it fits our current lives.

The number of bookstores has dropped 20 percent between 2007 and 2014, from just 1000 to nearly 800 in 7 years. An in my opinion unwanted side-effect of the digitalization. But good news is on the horizon. Since then the amount of bookstores has grown. Some stores not only sell books anymore but also boardgames, magazines and comics. Some even have complete coffee corners in them to provide the customers with an immediate place to start reading their new acquisition.

The law on the fixed book price does more good than it does bad in my opinion, bookstores have the ability to stay opened without having to battle large enterprises. The total number of physical book sales might have dropped since the 20th century, but those sales are settling. Apparently there are other people like me preferring paper over screens. And even though e-books are booming business I do not think that my secret dream of having a private library with cases filled to the roof and a set of comfortable arm-chairs next to a hearth is completely in danger. Books are back, back from never having been gone!

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A closer look to this pile of books shows that it is actually formed as a chair.

The Iron Throne appears to have a new brother.





STUDYING ABROAD

Greetings from Japan! As part of my CSE/DSE graduate program, I decided to perform an internship at a company abroad. The company I ended up at is Fujitsu Laboratories, the research section of Fujitsu, a large IT equipment and service provider (think IBM, HP, Accenture, etc). I want to take this opportunity to talk about my experiences with both the internship itself and the preparations for the internship.

TEXT Marijn van Knippenberg

One of the major reasons for deciding on an internship was the desire to focus more on the areas of research that I am really interested in, instead of doing semi-random courses to fill out my study program. Another reason was the fact that I had an entire quartile in which I had no courses, since I had already taken all the interesting ones the year before. This provided the perfect situation to expand the horizons of my study program beyond the confines of the university, and indeed beyond our little country.

While I was orienting myself, I discovered that a fellow student had recently performed an internship at Fujitsu. Since Japan is an excellent destination, I asked this student to approach Fujitsu to gauge interest. This ended up being a great decision, since I was able to come into contact with their Artificial Intelligence Platform Project team. This team is working on automating the application of Machine Learning algorithms, amongst other things, and was very interested in taking in a foreign student for two months.

After a long, and sometimes frustrating, period of preparations, I left for Japan after the exams of the second quartile, and moved into a company dormitory close to the office. Though it is on the small side, it is furnished, and fully paid by Fujitsu. On top of that, Fujitsu also paid the flight and public transport to and from the airport. The office is located just outside Tokyo, which means that each weekend consists of exploring the never-ending supply of sights and

experiences that the city has to offer. The company dormitory is home to several other foreign students, so there's always someone around with weekend plans.

Japanese company culture took some getting used to. Outside lunchtime, the office is extremely quiet, as everyone focuses solely on their work, even though the work space is shared by some 50+ people! While I worked a standard 8-hour workday, as set down in my internship contract, most of my Japanese colleagues put in numerous hours of overtime, and it is not unusual for people to go to the office on Saturdays and sometimes even Sundays.

“ It's time to be even more pro-active! ”

In my project, I work on automated hyperparameter optimization in machine learning. Data analysis is big business these days, and universities cannot keep up with the ever-increasing demand for data scientists/miners/analysts. An interesting area of research has sprung up to fill this gap, one which focuses on automating any and all of the steps involved in data analysis. I spent my days searching for methods to apply machine learning algorithms without the interference of humans. Data scientists build up experience during their work, which allows them to select and discard algorithms/methods/techniques quickly and efficiently. Translating this intuitive

approach to an automated system is quite a challenge, and there is still plenty of research to be performed in this area.

Language, as expected, can sometimes be an issue. While most people in the office can grasp at least basic English, the same cannot be said of the average person on the street. Luckily, the universal language of pointing and gesturing works most of the time. And if all else fails, there's still Google Translate. The average Japanese person is, in my experience, very interested in interacting with foreigners, but is often too shy to do so, although that can quickly change as soon as some amount of alcohol consumption is involved. Particularly fun are the various "nomikai", work-related eating and drinking parties that usually devolve into after-parties and after-after-parties. As everyone loosens up, it is the perfect moment to get to know your colleagues a bit better.

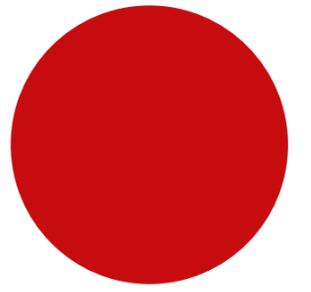
Japan is in many ways a country of contrasts. Traditional wooden temples surrounded by concrete high-rise buildings are not an exception as much as they are rule in the densely-populated Tokyo area. The Japanese are a reserved people, seeped in their local tradition, but they will gladly talk about their culture and customs when asked. While Tokyo itself has many sights and experiences to offer, it is only a small part of a country that has many other things in store. If you are near Tokyo, I can especially recommend the various inns in the Izu province to the south-west. There, you'll find natural hot springs to relax in, with spectacular views of mount Fuji, Japan's most famous mountain. If you ever visit Japan, the most important thing to remember is to engage with the locals. They can point you to many locations, sights, restaurants, and other activities that you can't find by following an internet guide. More so than in the Netherlands, each province has its own distinctive flavor in both food and culture, so traveling around is definitely worth the effort.

I can strongly recommend taking part of your study program outside of the university, either through study at another university or by means of an internship.

The experience you gain by putting yourself in a new environment is priceless, and will undoubtedly aid you in your future career. Generally, teachers will also be happy to help you set up an internship, since it helps them strengthen connections, and setting up new connections. I am a strong proponent of taking your studies abroad, so I'd like to impart you with some tips to help you get started.

The most important thing about setting up an internship abroad is to start early. There is nothing worse than your internship planning turning into a mess because you didn't get your visa in time. To start, determine the general direction of research you want your internship to be about. Next, start contacting teachers. Many university staff members have useful contacts with both companies and universities abroad. If you are a graduate student, or soon will be, the seminars that are organized by the various research groups are a nice opportunity to get into contact with the right teacher, and maybe to find an interesting project. Of course, you can also directly contact the teacher of your favorite course to try getting things rolling. If you are not sure who to approach or what direction of research to take, and you are an (upcoming) CSE student, you can talk to Joaquin Vanschoren or Nicola Zannone, who are the internationalization coordinators for CSE. In any case, you can always contact your study coordinator for help.

Once you have a university or company lined up, it's time to be even more pro-active! There are many reasons for the entire process to be slowed down, such as misdirected e-mails, wrongly submitted application forms, and people who just happen to be on vacation. Therefore, it is very important that you get things sorted out and take responsibility as soon as possible. Once the schedule is set and you have your traveling figured out, all that remains for you is to make a good impression. Print business cards, prepare gifts, and study the local culture. Anything that makes a good impression will help you in your work abroad. If you have any questions regarding my experience at Fujitsu Laboratories, or going abroad during your studies in general, feel free to approach me at GEWIS.





MIND-BLOWING CHANGES

As everybody knows, behind every important person there is an entire team of experts to make sure that things do not walk into the soup. Even Barack Obama did not write his own speeches. This is perfectly natural, so GEWIS adopts this strategy as well. Therefore, our External Affairs Officer has a committee supporting them, called €4. You might think you know us (or not, then please read on! (and also if you do know us)), but a lot has changed in the last year for us. So, we would like to tell you something about the past, present and future of this committee.

TEXT Levi Prikken
Ralph van Ierland
Marloes Boswerger

MARLOES

Just before I started as a board member, €4 was resurrected by Stephan. The idea was that the External Affairs Officer could use a sounding board every now and then. So, the members in this committee were quite experienced GEWIS'ers. They helped organize the excursion for first year Computer Science students, emailed companies to gauge their interest in providing a program and accompanied students on the day itself. The committee was useful, however, most of the times the result of our meetings was a list of action points for me. So, it did not reduce my workload in any way. Near the end of my year as a board member, it became clear that the task of External Affairs Officer was a bit too large for one person. After informing themselves of effective ways to do this, Levi and Eva then decided that the committee had to take on an additional task:

the contact with companies. This way, a company has one contact person for (hopefully) a couple of years, while reducing the workload for the External Affairs Officer(s). At the moment, I am still a member of €4, but as I have had it with company contact, I only voice my opinion every now and then and make sure Levi gets his share of action points.

“ Behind every important person there is an entire team of experts to make sure that things do not walk into the soup. ”

RALPH

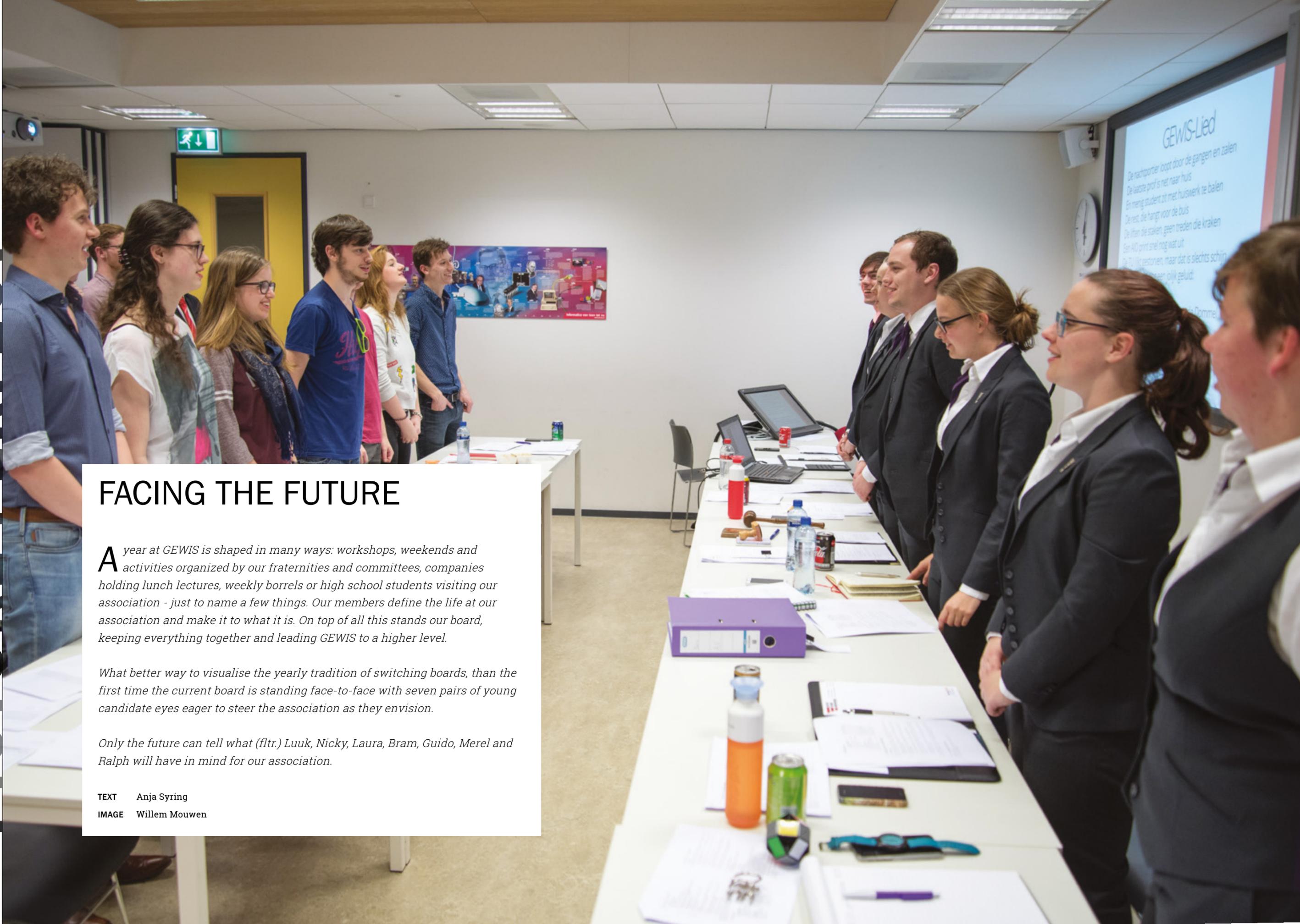
From this year on, the structure and purpose of €4 is different and a new bunch of inexperienced people (including me) joined the committee, ready to step into the big world of companies and their recruiters. The committee now consists of an experienced group of people, advising the External Affairs Officer (like it used to be before) and the new members who will learn how to execute some of the work the External Affairs Officer used to do on their own. Since GEWIS is growing, the number of interested companies is growing as well. The number of lunch lectures are growing, just like the amount of people attending them. The External Affairs Officer is yelling for help and this is why we are supporting them with the company contact. Each new member is now being linked to two or three of the companies GEWIS works with. They will take over (most of) the contact with those companies and make sure there is a good collaboration. For these companies the External Affairs Officer is mainly coordinating, instead of actually executing. One of the main advantages here is that companies will have at least one familiar face for a long time, which might make a long-term collaboration easier. Regardless of the changing of External Affairs Officers each year, there will be a steady committee for some steady contact.

LEVI

The start of the new set-up was the motivation to get the External Affairs Officer's function back to one person. Unfortunately, a new structure for a committee does not grow on trees. You must think about the new set-up yourself together with your fellow committee members to get a good design. Some tougher parts were for instance the mailbox. You want to have a place where all the emails, from the companies €4 members communicate with, gather. While also notifying that member, they got mail. We found a solution that covered both problems, by introducing new mail aliases (<naam>.c4@gewis.nl) which went to the €4 mailbox, but also to the person's personal mailbox. Next came the part of giving the new members a grip on collaborating with companies. This was achieved by giving a €4 training, which was given by Stephan, Marloes and myself. Each presented a different part of the External Affairs Officer's job. How to talk and mail to companies and how to handle GoudGlans (the administrative program). Next to that, the new members needed to know how to execute products that GEWIS offers to companies. To avoid them having to ask every time what they need to do, we wrote tutorials on how to execute the products, but also how to produce a contract or invoice. In these last months of my board year, the finishing touches will be executed, so next year the new External Affairs Officer can handle the job on their own, with the support of €4.

Where €4 started as a sounding board, it is now turning into an executing committee which will gain a lot of experience in contact with companies and their activities. The External Affairs Officer and the committee both will learn a lot from each other and work in synergy to set up nice and interesting activities and connect our students to companies of their interest!





FACING THE FUTURE

A year at GEWIS is shaped in many ways: workshops, weekends and activities organized by our fraternities and committees, companies holding lunch lectures, weekly borrels or high school students visiting our association - just to name a few things. Our members define the life at our association and make it to what it is. On top of all this stands our board, keeping everything together and leading GEWIS to a higher level.

What better way to visualise the yearly tradition of switching boards, than the first time the current board is standing face-to-face with seven pairs of young candidate eyes eager to steer the association as they envision.

Only the future can tell what (fltr.) Luuk, Nicky, Laura, Bram, Guido, Merel and Ralph will have in mind for our association.

TEXT Anja Syring

IMAGE Willem Mouwen



QED - MEMOIRS OF A PHD

At the moment of writing, I am about to send the final version of my PhD thesis to the printer, marking the (start of the) end of my time as a PhD student. Hence, I figured this would be a nice opportunity to reflect and spend some words on what has kept me busy these last couple of years.

TEXT Britt Mathijssen

At the moment of writing, I am about to send the final version of my PhD thesis to the printer, marking the (start of the) end of my time as a PhD student. Hence, I figured this would be a nice opportunity to reflect and spend some words on what has kept me busy these last couple of years.

It all started about four years ago, during my master project, when I needed to decide what to do after graduating. I had never been too afraid digging deep into mathematical theory, as long as there is a connection to real-world applications in the end. Therefore, I told myself that I would only start a PhD if I'd find the 'perfect' project that could capture my attention for four years. Then, out of the blue, my master supervisor got funding for a PhD project that would combine the mathematics behind queueing networks with real-world data. And so it happened.

So what does it mean to be a PhD student? Well, you are supposed to spend most of your time doing research. In the first year, this means doing a lot of literature study to get acquainted with the state-of-the-art of the research field. Once you have picked up some speed, you develop your own ideas and theories about the topic, write a nice paper, try to get it published, either fail or succeed, and repeat. This process you iterate until you have gathered enough to compile a thesis. A summary of mine is included on the right.

I understand this work description sounds rather tedious. Indeed, it takes some persistence and determination to go through the ups and down that

are inherently connected to PhD life, including the dreaded mid-PhD crisis (do I really want this?) and the stressful last year (thesis, thesis, thesis); you may ask my office mates for the many times I have bumped my head on my desk. Luckily, there are plenty of distractions from research. For starters, there's teaching, an obligatory part of the PhD job, which I personally very much enjoyed. Also, work hours are rather flexible, so no one will be offended when you quit early for the VrijMiBo at GEWIS, to drink away the sorrows with your fellow PhDs.

But the thing I liked most about my PhD has been the great amount of work-related travelling that I have been able to do. As a young researcher, you're encouraged to present your work at international conferences. Apart from hearing about all the latest advances in your area of research, such gatherings are great for setting up new collaborations and socializing with fellow PhDs. In my case, this has brought me to awesome places, such as Australia, the United States and Israel.

So, what's next? The only thing left to do before I can call myself 'doctor' is surviving the public defense ceremony in May, during which a committee will be asking torturous questions based on the contents of my thesis. Even though I very much enjoyed the freedom, travelling and extension of student-life that come with doing a PhD, I realized I like to be closer to practice after all. Hence, in a few weeks I will start my new job at CQM and finally say goodbye to TU/e after some great nine years.

ASYMPTOTIC DIMENSIONING OF STOCHASTIC SERVICE SYSTEMS

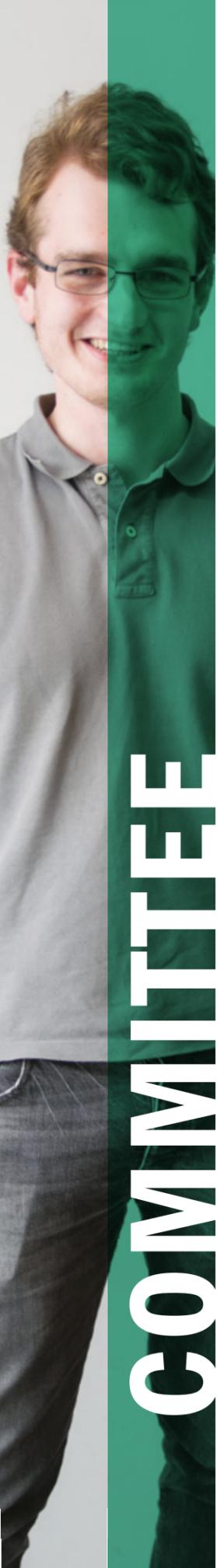
Stochastic service systems are practical settings in which users compete for time of some pool of scarce resources. Classical examples typically describe environments in which physical queues are formed, such as passport control at airports or check-out lines in supermarkets. Also, in virtual environments service systems appear in the shape of call centers or server farms. Due to the limited availability of resource capacity and randomness that is inherent to the associated arrival and service processes, congestion plays a dominant role in such systems. As a result, an important question is how to match demand with capacity, to ensure that customers experience satisfactory service levels (e.g. short waiting times), while the often expensive resources are efficiently utilized. The main focus of my PhD project is to investigate simple capacity allocation, or so-called dimensioning, rules that strike the right balance between these two seemingly conflicting goals, particularly in realistic settings with large arrival and capacity volumes.

On an abstract level, all of these examples can be thought of as being composed of customers and servers. The mathematical research area that studies these kinds of interactions between customers and servers and their congestion-related issues is queueing theory, an applied part of probability theory. With the help of queueing models, the performance of a wide range of real-world service systems can be accurately analyzed and optimized through the many analytical and numerical techniques that have been developed over the last few decades. However, as the scale of the system increases, these conventional methods fail due to, among other reasons, computational complexity. Moreover, little insight is gained through numerical solutions. Therefore, when studying large-scale systems, it pays off to consider asymptotic approximations of the system instead.

In our case, an asymptotic approximation of a queue prescribes the performance as if demand and capacity simultaneously tend to infinity, according to some relation. These approximations prove to be particularly useful when the service system is heavily loaded, i.e. the servers are busy almost 100% of the time. Think of this as taking a helicopter-view of a traffic network during rush hour, in which congestion obviously plays a role too. On the ground, you can observe individual vehicles, all with their distinctive characteristics, such as size, speed and driving behavior. High up in the air, though, the influence of each of these peculiarities is negligible compared to the scale of the network and hence vanishes in the bigger picture. Even more so, the continuous flow of cars can almost be regarded as acting as a fluid, rather than discrete moving objects. This is the central idea behind heavy-traffic approximations of large-scale systems: scaling queues, i.e. 'zooming out', in an appropriate way, reveals the dominant behavior of such systems, stripped from any irrelevant details.

Not only do heavy-traffic approximations aid the qualitative understanding of large-scale service systems, they also provide a basis to answer dimensioning questions. That is, how much capacity s do I need when the system faces arrival volume R , particularly when R is large? A simple yet elegant rule-of-thumb arising from asymptotic queueing theory is the so-called square-root staffing rule (SRS) $s = R + \beta\sqrt{R}$ for some positive constant β , and is largely based on the famous central limit theorem. This easy-to-use dimensioning principle is popular with operations managers, because, as R grows large, it ensures that customers experience virtually no wait, while servers are highly utilized. The dimensioning scheme in which R and s simultaneously grow large according to SRS is therefore also known as the quality-and-efficiency driven (QED) regime. Moreover, the performance of systems in the QED regime can easily be tuned through one parameter β , rather than the combination R and s . Since the QED regime holds such nice properties, it has been the main focus of my PhD research.

Due to its simplicity it is widely applied in practice and gives robust results across many applications, even for Nonetheless, reality throws in many difficulties that require customizations of associated capacity rules. For instance, what happens if you are uncertain about your estimated arrival volume R ? Is the SRS also applicable to the small to moderate-size systems? How can we modify the SRS in case the service system experiences arrival pattern with variations throughout the planning period? And what happens if the service system is in fact a network of queues? These are just a few of the issues I have tackled in my PhD research.



HOW TO DISMANTLE AN ATOMIC BOMB

While preparing for the Study Tour by the South African Far Foreign Adventure (Saffa) Committee we regularly came across oddly fascinating, unusual and fun trivia about South Africa. We would like to share our findings with all the members of GEWIS in the SUPREMUM edition up until we embark on a Study Tour to South Africa in 2018.

TEXT Armand Duijn

During a Security Masterclass, Arjen Kamphuis commented on South Africa's nuclear past. Apparently, South Africa is the only country in the world that has voluntarily dismantled its nuclear weapons. This made me wonder, was this done out of altruistic motives or was there a more dubious reason behind this noble cause.

THE NUCLEAR JOURNEY

South Africa's nuclear journey began in 1948 when it established the Atom Energy Board. Its task was to oversee the mining and trade of the nation's abundant uranium reserves. The abundance of uranium in South Africa naturally made it an interesting partner for other countries that were also exploring nuclear technology. One country that was particularly interested in South Africa's uranium was the United States. As a result, both countries signed a 50-year collaboration agreement in which South Africa agreed to sell its uranium reserves to the United States and the United Kingdom. South Africa continued to expand its nuclear program by building its first nuclear reactor in 1965. This reactor, called SAFARI-1, was fueled by highly enriched uranium (HEU). The HEU was provided by the United States under the Atoms for Peace Program. The United States established this program to spread knowledge on nuclear technology throughout the world. However, the United States stopped providing HEU in 1975 due to the sanctions that were placed on the Apartheid-regime. Nevertheless, South Africa continued to expand its nuclear program by

constructing a second nuclear reactor, SAFARI-2, and in order to obtain the HEU that was required to create a nuclear weapon they also built an enrichment plant.

FROM PEACEFUL TO MILITARY PURPOSES

Since other countries were increasing their expertise with regards to nuclear technology and the production of HEU, the South African minister of mining De Wet secretly approved the development of nuclear explosive devices for what was claimed to be "peaceful purposes". It would be part of the Peaceful Nuclear Explosives (PNEs) program which had been conducting research since the 1960s on the economic benefit of using nuclear technology in mining. However, by the time Botha was elected Prime Minister in 1978, the emphasis of the program laid heavily on military purposes as opposed to the peaceful purposes which had been advocated by De Wet. Throughout the 1980s, South Africa continued to expand its nuclear arsenal by one device every 18 months. Yet, in 1985, Prime minister Botha decided to limit the production to just seven devices after a policy review. This meant that the development of advanced devices was ceased and the production of HEU was cut back.

FROM MILITARY PURPOSE TO NO PURPOSE

At this point, South Africa's nuclear journey was coming to an end. Finally, in 1989, the newly elected president De Klerk issued a mandate to completely terminate the nuclear weapons program and dismantle existing facilities and weapons. By 1993, all devices

had been dismantled and the government had passed the Non-Proliferation of Weapons of Mass Destruction Act. This act stated that South Africa would abstain from further development of nuclear weapons.

“ Was this done out of altruistic motives or was there a more dubious reason behind this noble cause. ”

THE REASON

But why did South Africa voluntarily dismantle its nuclear weapons? Well, the reason behind this unusual decision is still disputed to this day. Some say it's because the Apartheid-regime did not want nuclear weapons to fall into the hands of a non-white government. Following the complete dismantlement of the nuclear program, the ANC, an anti-Apartheid movement, did indeed become the largest party by a landslide. However, former President De Klerk has claimed otherwise. In 2012, he explained his decision and stated it was based on a personal and strategic conviction. According to De Klerk, the world had drastically changed since the creation of the nuclear program and therefore nuclear weapons were no longer needed in South Africa. Initially, South Africa was threatened by the looming influence of the Soviet Union in Southern Africa and was suffocating economically due to the UN sanctions which were imposed upon the Apartheid regime. This caused the government to realize that they were isolated and most daunting of all, in case they were attacked, they were completely on their own. Therefore, the nuclear program was seen as an effective deterrent. However, to deal with the growing political unrest surrounding South Africa and economic threat directed towards South Africa, the government had devised a three-phase protocol. Depending on how imminent the political or economic threat was, the South African government would set one of the three phases in

motion. The first phase was the least severe and was simply to deny the program's existence all together. If the first phase failed and other countries continued to threaten South Africa, the second phase was to secretly reveal the existence of the nuclear capabilities to leading Western governments. Lastly, if the previous phases were unsuccessful bringing about the desired result, the South African government would resort to displaying its force through a public disclosure or a nuclear test. However, after the diminishing Soviet influences in the late 1980s, the nuclear arsenal became redundant and an obstacle for improving international relations. Countries were becoming weary of South Africa's constant denial of its nuclear weapons, although the uranium enrichment plant and the various nuclear testing sites pointed towards their existence. Thus, in an effort to improve the countries international standing, De Klerk decided to terminate the nuclear program and publicly acknowledge the nuclear weapons. Or so he claims...

CONCLUSION

On the one hand, we have a former President confessing that the dismantlement was due to the changing times in which nuclear weapons were no longer necessary as South Africa was no longer threatened. However, on the other hand, one can argue that the pressure by the International Community and the UN Sanctions was what was ultimately decisive in bringing out the abolishment of the Apartheid-regime and nuclear disarmament. Or if one were to dwell on more dubious reasons, was it because the white rulers of the Apartheid regime did not want nuclear weapons to fall into the hands to black South Africans if the segregations and Apartheid legislation were ever to be abolished? The real reason may never be known. But aside from all these conspiracies, let us learn one thing from this. That real security does not lie in increasing our power to destroy others, but it lies in our ability to live with others on the basis of peace and justice.



JOIN THE ARMY-POLICE

Whenever I think about my future I start to worry, as I do not know how I should accomplish all the big dreams I have. Therefore I will not only write about my own future, as I still have to figure that out myself. I will also write about the future of someone who thinks he has it all quite figured out; my 3 year old half-brother.

TEXT Eline Pasch

To write this article, I had to ask him a few questions about his future goals. Because I do not see him that often and he cannot focus on anything for more than a few minutes this “interview” took place while we were sitting in the car towards a restaurant. It, of course, took place in Dutch, as he only knows the names of colors in English. To be fair, he still tries to convince me that it is called lellow instead of yellow, because he thinks it sounds way funnier..

Because of those circumstances, I want to apologise beforehand about the random, translated quotes and the lack of unity in this article.

“ All of a sudden he saw a picture of Patty Brard. He looked at it and smiled. ”

During the specific car trip, I did not want to set an interview like situation, because I knew that he was not going to buy that. So when we drove past the local sky-glide airport, I started the conversation. I asked him where he wanted to fly to when he is older. He answered “Frankfurt”, without any hesitation. As this was nowhere near the answer I expected I tried to find out why he had chosen this particular destination. I asked him what he wants to do there. He told me that he just wanted to take a look there. When I wondered why he told me that it was “because banana’s are crooked”, which sounds really weird in English, but kind of made sense in Dutch.

I noticed that he did not really feel like talking about his future trip to Frankfurt, therefore I decided to change the subject. I asked him what he wanted to be when he is older. He said he wants to join the army-police, because then he could shoot and fight bad guys. I asked him whether he meant army or police, but that question did not make sense to him and he repeated “army-police”. Then he told me that he wanted to drive a car with a syringe attached to it, because it would fit his job.

I asked him why this would be needed according to him. Then he told me that it was because his mom also uses a syringe to save peoples’ lives. Which is true, as she works at the hospital. He then started to tell about “my job”. He stated that he wanted to join me in the fire truck one day. I was confused as I do not really know why he thinks that I know how to drive one. So I asked him whether he thought I drive fire trucks for a job, or whether he wanted me to do that. He could not really answer it, as he was confused that I could not relate to his fireman story.

To save himself from this awkward situation, he started to tell about “my brother’s job”. He told me that my brother helps to save pigs. He helps them when they are in need, he also washes, feeds and cleans them. Either my brother has a secret life where he takes cares of pigs or my half-brother has quite a big imagination.

After that, we arrived at the restaurant and I assumed that he was not going to say anything future related anymore. Fortunately, he proved me wrong. He started



to tell that he was going to marry his mother when he was older. After that, he is going to marry me and finally he would marry one of his female friends from his crèche. My dad then asked him if he would also marry his best friend, but he told us that he could not do that because he would not marry a boy.

“ He was going to marry his mother when he was older. ”

A few minutes later he was bored, so my father decided to give him a magazine to read in. My dad could not find anything appropriate, so he gave him a tabloid. My half-brother started to look at the pictures of the famous people and asked who they were. All of a sudden he saw a picture of Patty Brard. He looked at it and smiled. He told us that he was going to marry her as well. My dad responded on a very serious tone: “I would not mind if you marry your mother, sister or any boy, but I would never approve that”. My half-brother looked really disappointed and stared at the picture of Patty one last time before he decided to read on.

That was the last thing he told me about his future, but the few things he said made me realize something

important. The perspective someone has of the future is strongly based on their view of the world. My half-brother still has a very simplistic view. He does not have an advanced opinion, because he does not really know what future means to him.

Many of us, however, worry about the future way more, because we know the choices we have. We know that certain decisions may haunt us the rest of our lives. I often ask myself if I did not get too far in this “planning my future” thing. I know what I want, but any minor inconvenience that gets in my way to reach this goal will get me stressed out.

I think I could learn a lot from my half-brother’s simplistic view. His future goals are nowhere near realistic, but that might be a big advantage, as he will do the things he likes to do, instead of the things he thinks he should do to reach his goals.

My main future goal has changed after this interview. I realize that just want to enjoy the things I do instead of stress about future goals.



COMMITTEE

BOARD OR COMMITTEE?

It is an honor for us as Wervingsdagen Committee to be able to write a little piece for the Supremum. This may sound flattery, though it really feels as an honor, because of the following reasons.

TEXT Theo van den Berg

The Wervingsdagen Committee was established 36 years ago as a Committee of multiple study associations at the TU/e. This Committee slowly grew in their tasks and more study associations joined. Last year the articles of association changed. Because of our origin as a committee, the responsibility always lay with the people who supervised us. During the years this responsibility became bigger, and it was the only logical step to shift the responsibility to the people who actually executed instead of supervised. At that point the Committee officially became a board.

Now the question may arise, why is this important for us and how is this related to GEWIS? As said we are a committee of almost every study association on the TU/e, hence also of GEWIS. To emphasize that we are a part of the associations and need them and their input to make our events better each year, we want to keep the title Committee. An article in the Supremum is for us a sign of the connection with GEWIS and signs us that we are an important part of GEWIS.

When Wervingsdagen started 36 years ago, the first event we organized was the Interviewing Days (Gesprekkendagen). This event focusses on master students and has an orienting but also applying character. There is the possibility to have a one-to-one talk. Additionally, you can have a talk in a bit more informal setting in a company lunch or dinner. These are held with multiple students and multiple recruiters of a company.

Because of the success of the Interviewing Days, a second event was hosted. This event manifested itself as the Career Expo (Bedrijvendagen): a big career

market. During the years more small activities were added to the market. In the beginning there were lots of lectures from companies. But as the number of companies visiting the Career Expo increased, the number of presentations decreased and the event's focus shifted from presentations to a career market. This year an astonishing number of 148 companies were present. The main goal of this event is to give students the possibility to already orientate for their future career. Besides, it gives you more insight in what companies are looking for, so you can adjust your elective courses and master based on this information. Moreover, it gives you possibilities to search for an internship or a (part-time) job.

The last big event Wervingsdagen hosts nowadays is the Skill Sessions (Trainingsdagen). This is also the last event that has been established. It is fully focused on students and no companies are directly involved. During these days students can choose workshops and lectures from a big pool of options. The workshops and lectures are meant for students in all study phases. For example students in their master can attend a salary negotiation workshop and bachelor students Photoshop workshops. Aside from these big events, we organize multiple other smaller events during the year. The best known activity is the Kick-Off. We organize this event each year to start the registration period for the Skill Sessions.

This year we even organized a completely new event, called the Career Street. It helped students to prepare for the Career Expo with multiple stands. For example, you could get information about LinkedIn and how to dress for the Career Expo.

This year the new design of the Supremum was revealed at the aptly named Supremum Reveal borrel. We're still proud of how well it turned out and was received. Therefore we want to give a little insight into how the Supremum is created under the new setup with our five teams.

TEXT Maurice Knoop

When a new edition is being created, the mailing team is the first one up. They ask around who would like to be a guest writer for the new edition. Additionally, they make sure that our information on who is writing how many pages is up to date. While the mailing team is reaching out, the writing team start writing. As soon as we know that someone is writing for the Supremum, the imagery team scrambles to get a high resolution picture of the author, such that all author pictures have the same style. Additionally, they provide images related to the article if the design requires this.

The resulting article is then sent to the quality team. They check for spelling errors and also check the quality of the article as a whole. Low quality articles are rejected, high quality articles are featured. Using the provided articles, the design team constructs the Supremum. They make sure that alignments are correct, and that the Supremum looks good overall. If an article is featured, more time is spent to make the article look how the author wants.

This whole process takes about 11 weeks. To speed up the process, the writing team has to provide their articles about 3 weeks before guest authors have to. This way the design team doesn't have to wait until the very end to start designing.

Hopefully this has taught you a thing or two about the Supremum. We're always looking for reinforcements, so if you're interested in joining any of these teams or you want to write a piece, please let us know at supremum@gewis.nl.

AN INTRODUCTION TO THE SUPREMUM





WHIPLASH

There have been great directors in the past such as Stanley Kubrick, Sergio Leone, Alfred Hitchcock and many others. Often times people fondly remember these directors and their movies and wonder which of the directors working today will be considered one of the greats in the near future.

TEXT Arjen Sijtsma



In my opinion there are many great candidates such as Wes Anderson and Christopher Nolan, however there is a new kid in town. Damien Chazelle has officially put his stamp on the movie scene with his latest film *La La Land* which has already received six Academy Awards and seven Golden Globes. I have already watched *La La Land* in cinemas twice and can't recommend it highly enough, however this won't be the movie I'll be putting my critical eye on at this time. No, I would like to talk about *Whiplash*, the second movie in Chazelle's oeuvre.

In *Whiplash* Chazelle tells the story of a teenage boy Andrew who's dream it is to become the world's greatest drummer. In order to achieve his dreams he

enrolls at a music conservatory known for its very competitive jazz band helmed by Fletcher. Fletcher is no ordinary conductor and has a rather unorthodox style that does not always resonate with every member of the band. There's a lot more to this story than this, however part of the experience is not knowing what to expect. I'd hate to ruin this for anyone, but what I can tell you is that this is one of the most original stories I've seen in a long time. It's very well put together and unfolds masterfully with a lot of fun and unexpected twists and turns. Characters are very well defined and always seem to act according to their beliefs. Both Andrew and Fletcher are very interesting characters and their storylines interact beautifully. The dialogue itself is also very realistic and often appears as if it's been taken from everyday life. The script is also very well balanced as it's very serious at times but also funny when it needs to be.

“ You want to reach out through the screen and give him a helping hand. ”

Behind the characters of Andrew and Fletcher are Miles Teller and J.K. Simmons. Both characters were already interesting enough however the actors give them an incredible amount of depth. Teller really makes you feel for his character and when he is pushed to his limits you can't help but want to reach out through the screen and give him a helping hand. In any other movie Teller would easily have been the star

Release date	November 2014
Distributor	Sony Pictures Classics
Directed by	Damien Chazelle
Written by	Damien Chazelle
Music by	Justin Hurwitz
Genre	Drama
	Muziek
Running time	106 minutes
Budget	\$3.3 million
Cast	Miles Teller
	J.K. Simmons
	Melissa Benoist
	...

of the film, however it's extremely hard to pick favourites with Simmons in the supporting role. His character is a very strict music conductor and Simmons gives his all to portray this fact. If the actor is anything like his character than I would advise anyone to stay far away from him. However one of the best things about Simmons his act is that he always makes you feel as if there still is a human being hiding inside Fletcher. I would argue that with *Whiplash* both actors have come very close to reaching the top of their abilities, but I would hope that the future will prove me wrong.

What ties *Whiplash* together is Damien Chazelle with a directional style that is absolutely stellar. Although the movie may be slow for some, in my opinion the



pacing is very well thought out. The story progresses very steadily and there is never a moment where it feels as if nothing is happening. With the use of low level lighting Chazelle pulls you into every scenario and combined with the constant use of the drums this creates a sensation unlike any other movie. The drumming especially gets under your skin and the constant sense of tension this provides perfectly mirrors that which is present between the character. Even though the movie is not classified as such it most definitely feels like a thriller and I would personally rate it amongst movies such as *The Shining* and *The Silence of the Lambs* solely in terms of suspense.

“ The drumming especially gets under your skin. ”

Damien Chazelle has literally created a masterpiece and if I would have to point out a flaw I'd first have to watch it countably many times. However, *Whiplash* is so captivating that I would probably forget to look. The movie is extremely well directed with acting performances that are amongst some of the best I've ever seen. It features a unique story with an ending that's the cherry on top of the an already delicious cake. This movie is perfect in every sense of the word and gets a perfect five stars out of five.



Infimum: Strange or funny quotations from a teacher, a student or faculty member. Here you can find infima sent to the Supremum committee. inf.gewis.nl

Sjaars Rick: "Brabander zijn is als een geslachtsziekte!"

Dante (over zijn overhemd): "Dit vind ik oprecht, eerlijk, de fijnste soort kleding die er is, samen met ondergoed."

Het gaat over dildo's zo groot als een Dopper.

Dobin: "Ik wil ook een gratis Dopper."

Ava: "Je weet wel, die Disneyfilm."

Willem Mouwen: "Droomvlucht!"

Mitchett: "Jij weet ook hoe vaak ik jouw noten heb verkruimeld."

Dobin over Willem die een alias aanmaakt: "Waarom heb jij zoveel macht?"

Vincent B: "Er zijn per dag toch twee ochtenden?"

Op IRC, over de chatbot PWNAGE waaruit code verdwenen is:

<Gice>: "ik haal straks wel oude koeien uit een savefile Teun"

Meltem (over een baby): "Ze was zo evil, ik hou van haar."

Wietske: "Wat leuk, ik heb gerecycled medelijden!"

Vinz: "Hoe werkt mijn telefoon ook al weer?"

Ivo: "Als je het visueel ziet, is het nog grafischer."

Nadym: "Mannen zijn hele slechte vrouwen."

Wesley: "Had jij niet tegen Bor z'n cleavage aangekotst?"

Leroy: "Ja, respect voor dat trouwens!"

Daniëlle is bezig met het invoeren van een infimum.

Daniëlle: "What is your name, moet ik daar mijn naam invullen?"

Puck over vieze filmpjes: "Nou dat vind ik niet per se heel leuk, ik vind pus gewoon heel leuk."

WINFIMUM

The Winfimum is chosen by the editors as the winning, most funny, infimum.

Wesley: "Ik zou nog dingen doen voor BPS..."

Emma, terwijl ze een fles wijn opentrekt:

"Dat gaat niet meer gebeuren!"

Sent in by: Wally

Romy S: "Een masterclass, is dat niet voor master studenten?"

Aart Blokhuis: "Die P is gewoon mijn poes, en daar trek ik U en V uit"

Thijs L: "BIIIIER! Oh nee, dat klinkt zo alcoholistisch. DOOOOORST!"

Ruben heeft veel dingen gedaan.

Jeffrey M: "Hoeveel tijd heeft die man?"

Patricia: "Ja, nul.... Voor mij dan..."

Romy tegen Joris tijdens mondeling meeting: "Hij mag wel dieper hoor."

Willem: "Ger, kun jij al je studies nog opnoemen?"

Ger: "Zeker, ik begon met natuurkunde en toen... Hoe heet het ook al weer?"



Stepah: "Ik hou van gevuld, maar niet te gevuld."

Aukje: "Dat is in 60 van de gevallen wel en in 30 van de gevallen niet."

Marloes tegen Stepah: "Kun je Jos even knijpen, want volgens mij droom ik."

Na de diploma-uitreiking neemt Wesley zijn familie mee naar GEWIS.

Opa van Wesley: "Wat gezellig! En zijn dit allemaal studenten?"

Wesley: "Ja bijna allemaal wel."

Opa van Wesley: "Ok. Ja die jongen daar drinkt geen bier dus dat zal wel geen student zijn."

Chantal: "Nee laat het licht maar uit want het is warm hier."

Stepah: "Alex houdt van WHITE SPACE!"

In de ouderdagvergadering gaat het over brieven sturen naar de ouders.

Iemand zegt: "En dan moeten we al die enveloppen dichtlikken."

Willem: "Dat is toch best lekker?" Vinz: "Woow een auto! Die heb ik nog nooit gezien!"

Bart: "Ik heb best wel een lekkere achter-achternicht. En volgens de wet is dat gewoon legaal."

Twan: "Kijk naar me, ik ben geen ezel!"

Twan: "Ja, dat had ik gezien, Pieters tietten waren echt niet mooi!"

Sjaars Rick ijlt

Simon: "Ik vind het echt een slecht verhaal."

Rick: "Jonguh! Mijn verhalen zijn altijd goed! Ze missen alleen een clue..."

Ivo heeft apart haar: "Dat komt omdat ik met nat haar ben gaan douchen."

Job: "Als je zus een meisje was, zou ik haar doen."

Tim H: "Ik heb gehoord dat sommige mensen seks hebben als een van de twee ongesteld is."

Meltem: "Ongesteld zijn is geen reden om geen seks te hebben. Een echte kapitein vaart toch ook door een rode zee."

Joris (over modelleer project): "We zijn net bouwvakkers, je ziet ons nooit werken, maar elke keer als je kijkt is er weer iets gebeurd."

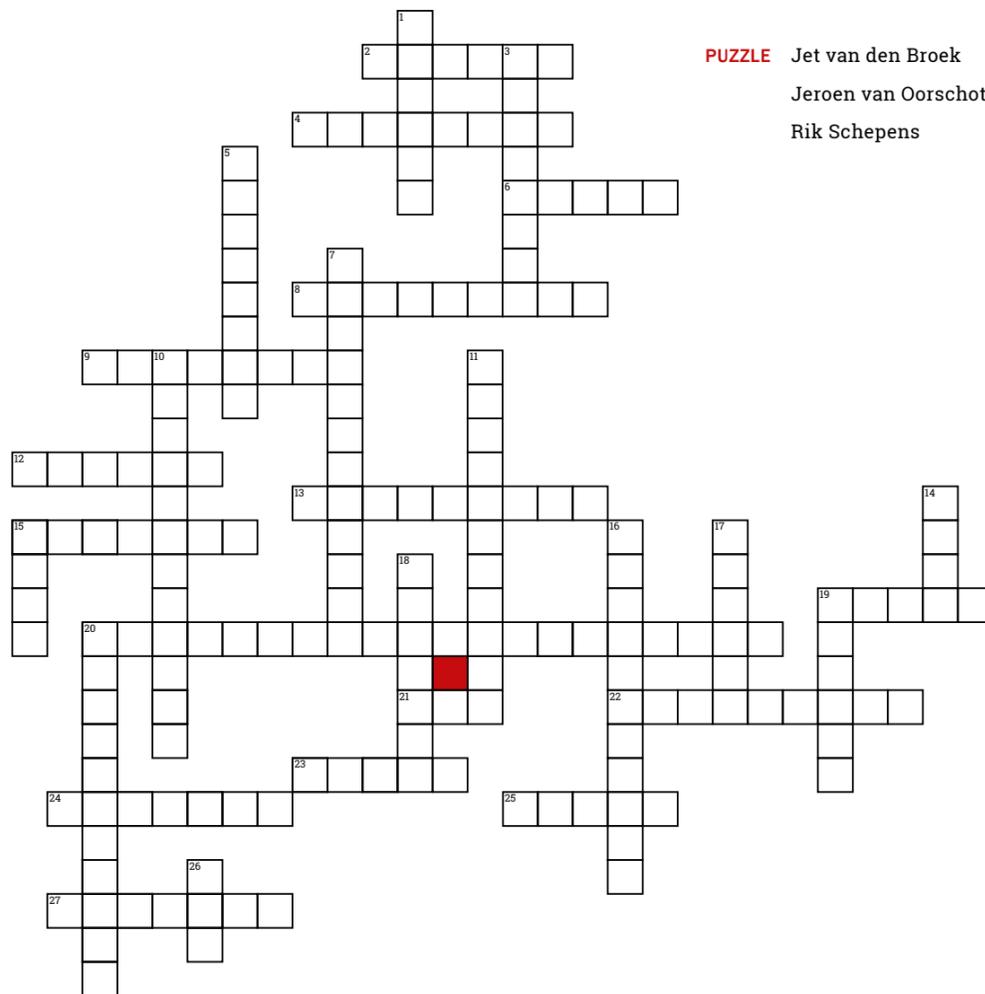
Lydia tijdens het eerste potje stressbal: "Ik snap niet waarom je hier dronken van wordt."

Lydia tijdens het tweede potje stressbal: "Ik snap nu waarom je hier dronken van wordt."

Dante: "Ik dacht al aan jullie kreunen-van-sociale-incapabelheid te horen dat het zo iets was."

Wiepking: "Dit ding druipt als de tyfus"

CRYPTOGRAM



PUZZLE Jet van den Broek
Jeroen van Oorschot
Rik Schepens

HORIZONTALAAL

2. Plopperdeplop, ik ben het zat mijn haar te doen! (6) **4.** In de regel niet-liggende claxongeluiden (8) **6.** Geen Engelse maan nee (5) **8.** Het klonk alsof deze schutting in de fik heeft gestaan (9) **9.** Fietsenmaken = vakmanschap? (8) **12.** Zijn oud geld staat in gram op deze bank met een verward sterrenbeeld (6) **13.** Als je dat drinkt, staat de richting gek (9) **15.** Een zeer goede Brabantse tijdstermijn (7) **19.** Tweede wereld sik (5) **20.** Hier kun je verschillende bijzondere drankjes drinken die bruisen (20) **21.** Heeft een hekel aan zwart geld (3) **22.** Niet zonder verwachte aankomsttijd bij het plein om te studeren (9) **23.** Wessel viert carnaval (5) **24.** Het puntje zetten tussen haarmiddel en een Zuid-Oostelijke studie (7) **25.** De vereniging maakt deze door Simon Stevin geopperde kunde mee (5) **27.** 2,5 borrelganger (4,3)

VERTICAAL

1. Als je een ei legt in Engelse thee, klinkt dat vies (6) **3.** Je weet waar je gebleven bent, als je luistert naar dit domme dier (8) **5.** Klinkt als onder voor korte tijd (8) **7.** Dit spel met ronde lichaamsdelen speel je op een meubel (12) **10.** Klinkt als een barre weg die vol twijfel sluit om 2:00 (12) **11.** Hij maakt foto's van het hoogste met een behoorlijk vaarwater (3,8) **14.** Moeten altijd twee daar zijn (4) **15.** Tijdens de wandeling is het meisje gevallen in het bos (4) **16.** Het klinkt alsof een heks bezig is een kabinet te vormen (11) **17.** In teken van de strijd, de eerste kip hebben geconsumeerd (6) **18.** Dit doen wervende muggen (7) **19.** Het klinkt alsof de kok elke week ruzie heeft (6) **20.** Hij is zonder er bij neer te pennen vervelend (11) **26.** 155 Romeinse ballen

THE FUTURE, CLOSER THAN EXPECTED!

Last week the Wervingsdagen Career Expo took place. This year I consciously decided to go both days to think about my career after my master's degree. As a chairman of GEWIS I have been responsible for the Wervingsdagen for a year and still I doubted whether I would go both days. Even though I was busy with the career opportunities for all the GEWIS members, and maybe all the students at our University of Technology, I did not feel the urge to go for my own future, to engineer my career yet.

TEXT Tim Meeles

But that changed last week. During the Career Expo, suddenly I decided that as a first-year master student it was about time to think about my future for real now. So I got out of my comfort zone and I stepped to my possible future and asked about their Inhouse days. You know about them, these are these advertisements that a GEWIS member always gets in his mailbox, checks his/her agenda and decides that his/her schedule for that day is not known yet. These are the mails I suddenly care for, as if a knob has turned inside my head.

“Differentiate oneself from your fellow students.”

Of course, I have been thinking about my career, I have visited lunch lectures, I have picked two master's programs to widen my knowledge and I have tried to gather as many gadgets as I could get. These gadgets everyone throws away after a year, even though after a day would have sufficed too. But I never took the second step, till last week. And tomorrow is the big day for me, my first Inhouse day. A day I always thought about as them judging you. However, they have convinced me that I can judge them there, because I can see whether I would fit in their company. I am naïve enough to buy that story.

But as I argued before, go to the events, develop yourself to differentiate yourself from your fellow students. I sense a collaborating nature at our university, and I applaud that. The art of helping each other is one of the most valuable assets that one can learn during his study. During my courses at Tilburg University, I have (finally) noticed the importance of collaborating. In Tilburg, one already sees their fellow students as competition on the labour market, so let us not help our "classmates" to get the good grades, is nearly a slogan that a student lives by at the TiU. So working together is of great interest for our good atmosphere at the university. Nevertheless, it is important to differentiate oneself from your fellow students by doing extra-curricular activities, like committees and trainings to improve your skills, preferably not taught by the STU. A recruiter immediately notices this on your curriculum vitae.

In conclusion, think about your future now, and show that you are capable of doing more than just your studies and widen your set of soft skills. And, maybe more importantly, get to know as many companies as you can, starting at your first year. It is never too early to find out where your interests lie and maybe you can even pick your electives to match your future work activities. However, do not forget to enjoy your present student life too, as our working members (burgers!) always complain about wanting their life as a student back. It is, after all, said to be the best time of your life!



AUTOMATISCH TESTEN

Zo, klaar! Code ingecheckt en weer verder met een nieuw item van de backlog. Maar hoe weet ik nou of die code die ingecheckt is niet iets anders heeft kapotgemaakt?

TEXT Danielle Hollman - DSW

GEEN FUNCTIONALITEIT OMGOOIEN

Allereerst wordt alle code die we inchecken ge-unit-test en ook handmatig getest door testers. Maar daarnaast gebruiken we bij DSW automatische regressietests om de kwaliteit van onze applicaties te waarborgen. Dit doen we zodat we snel feedback hebben dat gedane wijzigingen geen bestaande functionaliteit hebben omgegooid en we zeker kunnen zijn van de kwaliteit van onze software terwijl we de OTAP-straat (Ontwikkel, Test, Acceptatie, Productie) doorlopen.

ZOEKEN NAAR BALANS

De afgelopen jaren zijn we bezig geweest met het opzetten van deze tests voor ons applicatielandschap. In eerste instantie hebben we deze tests vrij technisch ingestoken. We zetten veel data klaar om een proces te testen en deden dan een technische Assert dat het proces tot de verwachte wijzigingen in gegevens (database, outputbestanden) had geleid. Dit werkte op zich prima, maar het klaarzetten van de testdata kostte veel tijd en we kwamen tot het inzicht dat deze manier van testen onderhoudsgevoelig is en niet de volledige kracht van onze tooling (=Specflow) gebruikt.

OVER DE AUTEUR

Danielle is sinds januari 2015 als systeemontwikkelaar in dienst bij DSW. Ze is begonnen als ICT-trainee, waarna ze binnen haar huidige project FAST al snel haar draai heeft gevonden. Automatisch testen is een belangrijk onderdeel van systeemontwikkeling, vandaar dat ze samen met een collega binnen haar team heeft gezocht naar manieren om dit structureel goed neer te zetten.

FUNCTIONELE INSTEEL

Inmiddels hebben we binnen ons team een verbeteringslag doorgevoerd; we testen nu functionele stromen in plaats van technische processen. Deze manier van testen hebben we ontleend aan de ontwikkelstroming Behaviour Driven Development, dat propageert om functionele testscenario's op te stellen. Deze scenario's zijn leesbaar voor niet-ontwikkelaars en bevatten de hoofdlijnen van een procesflow. Een ontwikkelaar kan vervolgens de code achter de test programmeren en Specflow verenigt deze beide werelden, waardoor leesbare tekst in code wordt omgezet.

VOORDELEN

Het grote voordeel dat onze nieuwe aanpak oplevert, is dat de automatische tests nu kunnen fungeren als levende documentatie; de tests beschrijven de functionaliteit van de software, zowel de happy flow als de verwachte uitval. Daarnaast zorgt onze nieuwe aanpak ervoor dat de tests sneller op te stellen en te ontwikkelen zijn en zijn ze bestendig voor nieuwe aanpassingen.

CONTINUOUS DELIVERY

Met deze aanpak zijn we klaar voor de toekomst van continuous delivery. We kunnen kwaliteit centraal stellen, terwijl we toch wijzigingen aan onze software kunnen doen zonder het risico per ongeluk de boel plat te gooien op productie.

Deze tekst staat ook op werkenbijdswn.nl, de plek waar we regelmatig inhoudelijke stukken plaatsen die op enige wijze gerelateerd zijn aan het werken bij DSW Zorgverzekeraar.

NON-TRIVIAL REPRODUCTION

There is one horror that every student, every young adult (whatever the hell that is supposed to be) and even many old people (more commonly known as "burgers") share in great fear. A dread, which always seems to follow a moment of perfect happiness; the contrast could not be bigger. Imagine waking up, the morning after and witness your life crumble down when you hear either yourself or your partner say: "oh god no! I'm pregnant."

TEXT Yoram Meijaard

To me, the idea of having a tiny human in my house, taking care of it and supporting it through its eighteen-year introduction to humanity, seems to be quite undesirable. However, there are many who find their biological clocks ticking and ticking and ticking. At some point they will break and start their journey into parenthood. This is quite fortunate, since the survival of our species depends on the constant creation of new tiny humans. Given the significance for our future, let us dive into our current process of "making new humans" and review it critically.

"If a man and a woman really love each other then ..." Okay, stop right here, we all know how the technicalities of sex work. The more important aspect is that afterwards a baby could be born that will walk on this earth for decades. It seems to be the responsibility of any parent to find a partner that is in all aspects the perfect father/mother to their child.

"Age divided by two plus seven."

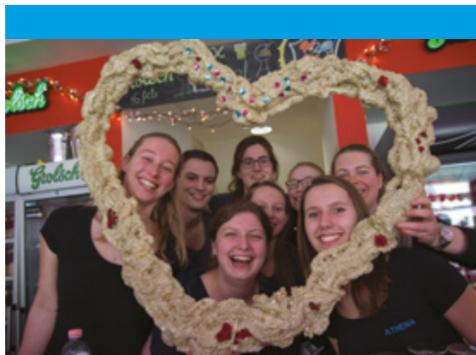
What entails being the perfect parent? Or rather, what is the set of matching genes to spawn a perfect child? Humanity is in constant search for this extra set of genes and uses many indicators for good genes. These indicators, more commonly referred to as "beauty", is not a perfect prediction. In fact, it is a rather shallow concept and generally a cultural preference, with a bit

of personal influences. Clearly, visible indicators cannot possibly give a meaningful indication of a perfect partner.

Perhaps societal constructs such as appropriate age, status and wealth can give us better insight into the perfect partner. Most are aware of the appropriate-age-rule: "age divided by two plus seven", which gives a guide to which people you could consider as potential partners. Someone's status and wealth are proof of their potential capabilities of taking care of their offspring, but by far the most important indicator from a societal aspect might be the similarity of the social class of the partners. Most relationships are in the same social class: students with students, civilians with civilians, highly educated with highly educated, rich with rich and poor with poor. There are exceptions, but in general this still remains true.

Considering that most new relationships are forged from the same social class, we can turn our attention to our beautiful association. Our children, a next generation of engineers, will most likely be born from relationships between us engineers. So if the partner you will end up with is currently most likely an engineering student, what would be the most logical place to start looking for your potential future partner? "Het Dakterras" of course! Thus, for the sake of your children and our future as a species, we might as well conclude: "Meer gevoos in de soos!"

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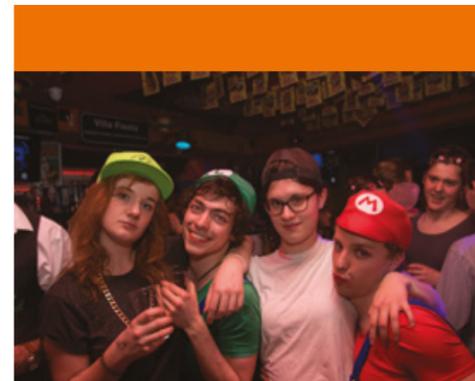
FEBRUARY 14 - FEBRUARY 21

- » EJC 17-3 Spreading The Armadillove
- » *ATHENA High Beer*
- » EJC 17-2 Squashing with sheep
- » *B^{x-1}-Borrel*
- » GEDWAAL Hiking Weekend
- » *EJC Activity: Hit That Hit!*



FEBRUARY 23 - MARCH 10

- » *GELIMBO CarnivalsBorrel*
- » *GEPWNAGE LAN 9.0*
- » AC Escape Room ft. DSW
- » *GEKERST Lustrum Symposium*
- » GEKERST Lustrum Gala



MARCH 20 - MARCH 29

- » *EJC Gender in the Blender Party*
- » GEPWNAGE LaTeX in the Dark
- » BAC ft. GEZWEM PiratenBorrel
- » *ATHENA City Trip Bruges*
- » *SCIFI Social Pong*



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PHOTOS GEFLITST

GEFLITST presents a timeline covering some amazing events of the third quartile.

The emphasised activity names refer to the displayed pictures in each column and are ordered chronologically.

MARCH 30 - APRIL 6

- » GELIMBO Lustrumweekend
- » *EJC Gebro'd Stack-A-Sandwich*
- » *EJC 17-1 Breistevlaai*
- » *Yearbook Reveal Borrel*



COMMITTEES & FRATERNITIES

FRATERNITIES



ATHENA
ATHENA



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



GELIMBO
GEWIS Ervaart Limburgse
Initiatieven Met Bewondering en
Ontzag



GEPWNAGE
GEWIS Plant Weer Nerdige
Activiteiten en Geeky
Evenementen



I.V.V.
In Vino Veritas

COMMITTEES

€4
€orporate €ommunication and
€ontact €ommittee

AC
Activiteiten Commissie

AVICO
Audio- en VideoCommissie

BAC
BAr Commissie

BATA17
Batavierenracecommissie 2017

CBC
Computer Beheer Commissie

EJC17-0
Eerstejaars commissie GeBro'd

EJC17-1
Eerstejaars commissie Psi Delta Pie

EJC17-2
Eerstejaars commissie

EJC17-3
Vliegende Schapen

EJC17-3
Eerstejaars commissie Armadillos

GEDETD
GEWIS Ervaart Delft Eindhoven

GEDWAAL17
Twente Dag

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

GEKERST
GEWIS Ervaart een Koraal- en
Robijnlang Samen zijn in Thema

GELIFT
GEWIS'sers Liften Ieder
Fantastisch Traject

GEMOLD17
GEWIS'ers moeten overal
leugens doorzien

GETAART
GEWIS'ers Eten TAART

GEWISKI ★
GEWIS'ers Ervaren Wintersport
In Super Koele Ijstijden

GEZWEM
GEWIS Zeilt Weer Een Meter

INTRO17 ★
Introductiecommissie 2017

JBC17
Jaarboekcommissie 2017

ODC
Ouderdagcommissie

SCIFI
Student Committee for
Internationals Facilitating
Integration

SR
StudentenRaad

STIJL
Huisstijl Commissie

SUPREMUM
Supremumcommissie

WC
Web Commissie

SUPREMUM COLOPHON

SUPREMUM

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