STUDY ASSOCIATION

GEWIS

SUPREMUM

VOL 52 № 2

THE DEFAULT EDITION

EDITORIAL

With this edition we at Supremum bring our efforts for this academic year to a close. Usually, this is a great moment to look back on what you have achieved in the past year.

EDITOR IN CHIEF Erik Takke

When looking back, I found to my surprise that I have actually learned some very useful skills. I can now work from home without being distracted all that much, I know how to better structure online meetings and how to properly organize online social events!

However, I also really want to look forward. I very much hope to go watch a movie in cinema again this summer and have a nice vacation with friends. I also cannot wait till lectures return to the Auditorium: physically sitting in the same room makes it so much easier to talk to friends when I'm bored!

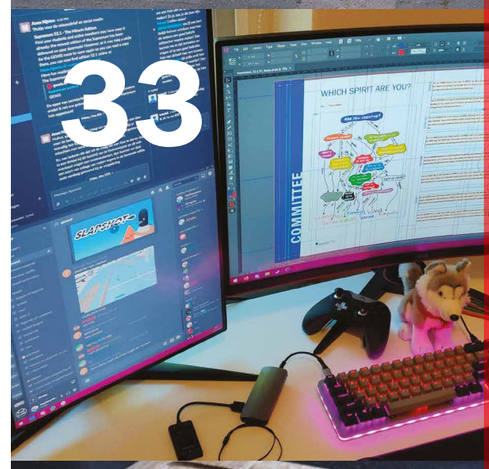
Sadly, we have to wait for all of that. What you don't have to wait for is this new edition of Supremum! This time around, we bring you our joint take on "Default" in a time that is all but. Among others, we present you the candidates for next year's board and talk about a very default piece of text. We tell you about an amazing initiative brought back to life and of course present you pages filled with infima!

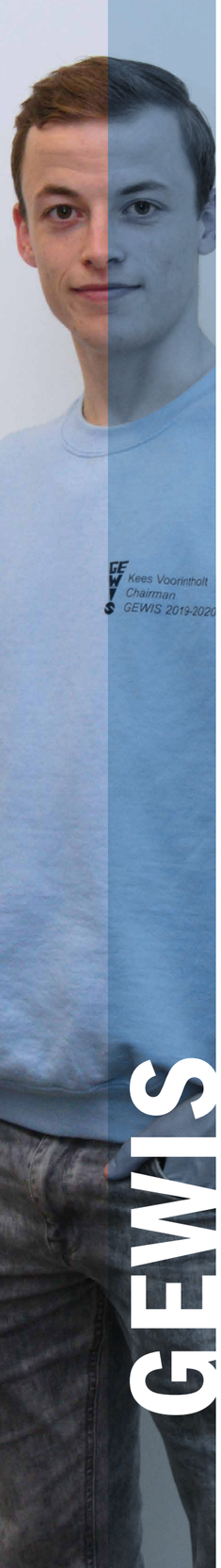
I leave you with something to grip onto in a time where we are all searching for our new default: we at Supremum will still be here next year creating new magazines filled with brand new articles and puzzles for you to enjoy!

Have fun reading about all things default and enjoy the summer break!

CONTENTS

CHAIRMAN'S NOTE 3
EDUCATION FIRST 4
FROM THE DEAN
  REPORTING DEFAULT SETTINGS 5
THE SCIENCE OF FOLDING 7
MAKING THE NEW DEFAULT FUN! 9
FRAMEWORK FOR MOTOR DRIVES 10
CIVILIZATION 11
ABROAD DURING A PANDEMIC, EH? 13
INTERVIEW SANDRA VAN WIJK:
  DATA SCIENTIST DF&A 15
MEET THE KANDIES! 16
A TYPESETTER'S TALE 21
FACES OF GEWIS 23
TU/ECOMOTIVE 25
ATHENA GOES ONLINE 27
TUPLES OF TULIPS
  ORTEC PUZZLE 28
GOODBYE IN TIMES OF COVID-19 31
WORK@HOME 33
INTERVIEW PRODRIVE 35
FORMING NEW HABITS 37
RELAXING IN A SILVERCHAIR 39
FIND THAT COMMON DENOMINATOR 41
GRADUATING
  THE STRUGGLES 42
HOMEMADE PIZZA 43





CHAIRMAN'S NOTE

This is already the last time I will be writing the Chairman's note during my board year. In two months, you might say that my life will go from special to normal again when I continue my master program and the new board will take control over this special association, because I think that GEWIS is not a default association.

TEXT Kees Voorintholt

Firstly, my board year was not a normal year in my life, if you compare it to other years before. I put my study on hold and experienced a lot of new situations. In the beginning, all these situations were new and throughout the year, I began to recognize those situations and I could handle them better. Also, I encountered way more different challenges in life than before. For instance, normally, I cook and eat at around 6 pm, but one of the biggest challenges as a board member is to have a normal dinner, since you often have meetings or activities till late in the evening. I visited the Spar on campus more than I would have liked in my board year, and I am still not a fan of those meals, but I can recommend the Babi Pangang.

Besides the challenges with eating during my board year, I also was challenged and improved myself in different aspects, for example, to communicate the opinion of not only yourself, but from a group or even the whole association. Another challenge was to keep the board working smoothly together and have personal talks with fellow board members if they encountered problems during their board year.

> "... one of the biggest challenges as a board member is to have normal dinner, ..."

The thing I appreciated the most when I encountered those challenges is that I could ask the help from my fellow board members, my predecessors, but also from the members of the association. This is something I did not entirely know before I became a candidate for the 38th board and I was scared that with only the seven of us, we should make sure GEWIS would function well. After this first period, I noticed the board does not stand alone during the year and you can often fall back on others. Because of this support from the association, I think GEWIS is not a default association and one can even call it special. Therefore, I like to give my compliments to all the members of GEWIS, for making GEWIS special during my board year.

> "... I could ask the help from my fellow board members, my predecessors, but also from the members of the association."

Like a board year, a Chairman's note also comes to an end. In these last words I write, I want to ask you, the reader, to keep GEWIS special by visiting GEWIS and helping the future boards. The essential part of an association are the members, so you can be proud of being a member of an association!

EDUCATION FIRST

The coronavirus has hit hard in the Netherlands. Bars and pubs are closed, we haven't seen Stratumseind in forever, and we can't even have KFC because ordered KFC is gross. Our university has fallen victim to the crisis too: all education and exams have been transferred to "online" at a very fast rate. Now we, the students, the teachers, and support staff all have to get used to this "new default".

TEXT Bas Gieling

I've seen some clever solutions to tackle online education. For example, in the early weeks, Zoom was used in Data Structures to create interactive online live lectures. These seemed to be almost as good as hearing Bettina Speckmann's actual live lectures in Auditorium. The "Big R.I.P." moment was right around the corner, though: Rumours that Zoom was not GDPR proof caused it to be out of business at most universities in no time. The problems never seem to end, do they...

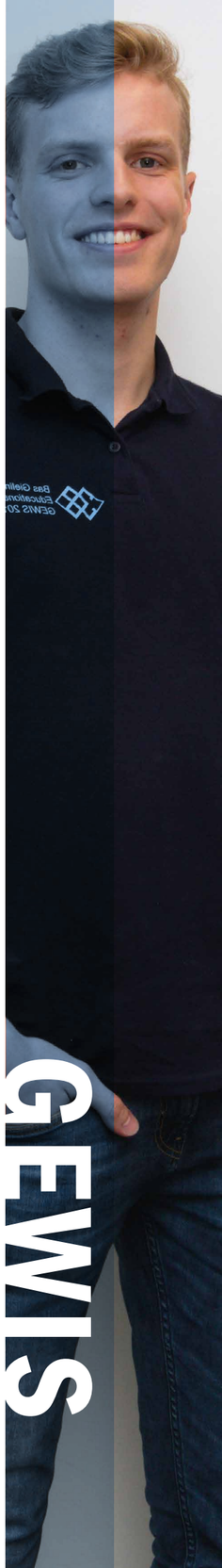
> "By now, most people have found what works best for them: their new default"

I've also noticed an exponential growth of online meeting tools: Skype (for business), Microsoft Teams, Zoom, Discord, WebEx, and many more. By now, most people have found what works best for them: their new default. Switching from software to tool to platform all day long gets pretty tiring, though.

Another huge challenge was making exams available in an online environment. Proctoring seemed to be the most logical choice at first sight, but many students had their doubts. Also, we all know what happened to the Physics resit, yikes. Other solutions popped up left and right: take-home exams with an additional oral exam, online quizzes of 30 minutes, assignments to be made during the exam weeks, all with their own pros and cons.

I think we can all agree that this crisis has not been fun. However, it has also brought us many good things: all these online solutions to replace physical education can help us in the future, for example to deal with the shortage of lecture rooms on the campus.

It is also going to be much easier to have a quick online meeting with someone who is out of town from now on. Lastly, the solutions for online examinations can be applied to entry tests for our future bachelor students. All these solutions have been possible for a long time, all we needed was a huge crisis to give us a push in the right direction to actually apply them in our new default.



FROM THE DEAN

REPORTING DEFAULT SETTINGS

Analysis of data requires data science approaches. Naturally, these approaches should be programmed in some kind of algorithm to be able to run the analysis with a computer. In many fields of science, researchers make use of existing procedures or algorithms that have been made accessible in either publically (like R, python) or commercially (like SAS, SPSS) available packages. The current way of working is that these algorithms have typically implemented all sorts of pre-specified choices or settings so that researchers can quickly and directly use the algorithm to analyze the data without evaluating or making all kinds of choices themselves. All of these pre-specified choices or settings are referred to as the default settings.

TEXT prof. dr. Edwin van den Heuvel (vice dean)

It should be noted that almost all algorithms, even the ones that conduct relatively simple calculations, have implemented some kind of default setting. For instance, the Fisher exact test, which is a test for testing equality of two proportions based on binary results, requires a choice of how to calculate the p-value for the test statistic. First of all, there exist asymptotic and exact versions for the calculation of the p-value. SAS, Stata, and SPSS all use the same asymptotic version as default, but [R] uses the exact p-value as default setting. Secondly, the exact p-value for the test statistic may also be calculated in different ways. This calculation is based on the hypergeometric distribution, but the hypergeometric probability for the observed contingency table can be included in this exact p-value calculation in different ways. To many researchers, these choices and the consequences of choosing alternative settings are typically unknown.

Obviously, for more sophisticated data science analyses, there are substantially more default settings implemented. For instance, the default settings of a multiple imputation procedure in a missing data analysis using a particular software program (SAS, [R]) may refer to (1) the number of imputed data sets, (2) the imputation technique used to impute, (3) the number of burn-in iterations used before data is being imputed, and (4) the numerical algorithm used to impute. Some of these default settings may be related to the use of the algorithm (e.g., choice of imputation method), but other settings might be really buried within the algorithm (e.g., the number of burn-in iterations). For these methods it may be more difficult to understand the role of all the default settings and therefore it becomes more complicated to also understand the consequences of all choices.

Only in few publications do researchers explicitly mention that the default settings are being applied for the data science approaches that are used in the publication. In this case they do not list the settings themselves, but use the phrase more as a reference to describe how the data analysis was executed. However, in many cases, at least in the medical journals, researchers only describe the data science technique typically in combination with the software package and its version. As illustration, we quoted part of the data science text from Degesys et al., having title "Correlation between N95 extended use and reuse and fit failure in an emergency department", published in JAMA, June 5, 2020: *"..... Proportions for categorical variables were compared using the Fisher exact test. For comparisons, a 2-sided α < .05 was considered ..... Data were analyzed using Stata version 16 (StataCorp)"*. Clearly, the example does not mention any default settings nor any changes made to the default settings, probably implying that the default settings have been implemented.

> "In a way, the users or authors hope or assume that the default settings would also work for their situation."

There are a few scientific issues with this way of working. First of all, using the default settings as reference, explicitly or implicitly, is not very precise for researchers who are interested in the details of the calculations, since default settings are time sensitive and may typically change with updates of the software package. Since (data) science continuously improves, software packages may adapt their default settings to the latest insights. It is therefore difficult to determine the default setting of an analysis used in a publication when time passes. Secondly, it may identify laziness, lack of responsibility, or even ignorance of the authors of the publication. In several analyses, in particular in non-standard data analysis settings, the default settings may not always provide proper estimates. For instance, in a missing data analysis the burn-in iterations should always be investigated to see if the algorithm has reached stability when it starts imputing data. If not, the number of iterations should be increased to make sure that the imputed data is not biased by an "unfinished" procedure. Although default settings are often chosen by the software developer, to help users make proper inferences for many possible data sets, it is and remains the responsibility of the user to argue the choice of the settings or otherwise investigate the influence of these settings. Since researchers do mostly not mention default settings in their publications, let alone discuss the influence of the settings on the (final) analysis, this could possibly be seen as a lack of responsibility or otherwise a lack of understanding. In a way, the users or authors hope or assume that the default settings would also work for their situation.

Clearly, with this text I am trying to make a case that reporting and understanding of the (influence of choices in) default settings should be common practice in any (student or research) project that includes data analyses, whatever technique a user is using (even though I may not have reported default settings always perfectly myself). The limited space for scientific text that is offered by journals and the push of journals to make data and software codes publicly available does not discharge us from our responsibility since default settings are not always easy to find and software packages may change over time leading to different results even if the same code is used. For instance, the calculation of the p-value of the Fisher exact may change in the future when the software packages decide to change their default settings. Thus it is important that students and researchers are acquainted with the details of data science techniques and they cannot just rely on the developers of these procedures to have an adequate scientific analysis.

THE SCIENCE OF FOLDING

A couple of years ago, I first heard of the Folding@Home project. This non-profit company aims at leveraging the computation power of people at home to virtually fold proteins in the hope of finding cures for diseases.

TEXT Erik Takke

At the start of the current pandemic, the project gained even more publicity. On April 8 of this year, NVIDIA - one of the world's leading manufacturers of graphics cards - released an article stating that the Folding@Home project was going through a massive growth. Within a couple of days it had quadrupled its community and reached a mind-boggling one exaflop of crowdsourced computer power to investigate the proteins found in the COVID-19 virus. That is 1.000.000.000.000.000.000 floating point operations per second, or 2.2 times the compute power of the world's fastest supercomputer **0** . For a closer-to-home comparison: the graphics card in my four year old TU/e laptop 'only' has 1017 gigaflops of compute power --- roughly one millionth of an exaflop.

> "... I can tell you more about the applications of origami in science"

I very much enjoy looking at these numbers and am amazed each day by the fact that a very small group of humans has managed to transform what many consider to be send into the overly complicated calculators that now support our biweekly series binge-watch nights.

But, let's get back to the topic of folding. Although I don't know any of the specifics of how this project works and what operations are performed exactly, I can only imagine that at least a couple pages are taken out of a book on origami. This broad field of paper folding techniques originating in Japan actually has some very nice mathematical principles behind it... or so I have been told. I will tell you right now that that part of origami is very much beyond me. I have no clue what mathematical mysteries lie hidden behind this paper-folded curtain, but I'm quite certain it is mystical.

With that alliteration out of the way, I can tell you more about the applications of origami in science. A subject that piques my interest quite a bit is space travel. Although I don't see us travelling through the galaxy in fashion similar to Star Trek or Wars anytime soon, ten years ago I also could not have imagined the impact of smartphones on our daily lives, yet here we are.

Regardless of whether it will ever bring us anything, research into how the celestial bodies around us work and how they came to be, is still happening every day. Although we have been able to gather quite some data about the planets close by, such as Mars and Venus, going further out into the pitch black hole called the Outer Solar system to get a glimpse of the planets such as Uranus and Neptune is a bit trickier. For a probe to reach either of these planets within 5 years after launch, it needs a lot of speed: simply enough speed to escape the gravitational pull of the Earth does not cut it here.

Traditionally --- which sounds strange, since humans have only done this a handful of times --- the probe is launched from Earth and once in orbit, given a nudge and set to float through space for the rest of its days. Aside from the sporadic gravity assists when flying past a planet, and maybe a very small ion engine, there is nothing on board to make the probe pick up speed along the way. Not that this is surprising: launching an extra kilogram into orbit is extremely expensive.

This may all be OK if all we want to explore is our own solar system. We have, however, come to the conclusion that, aside from maybe Mars, there isn't another habitable planet in our solar system to colonialize. Chances are we have to find something better a bit further away. If we wish to reach anything far beyond Nepture before our time here is up, we have to go a bit faster.

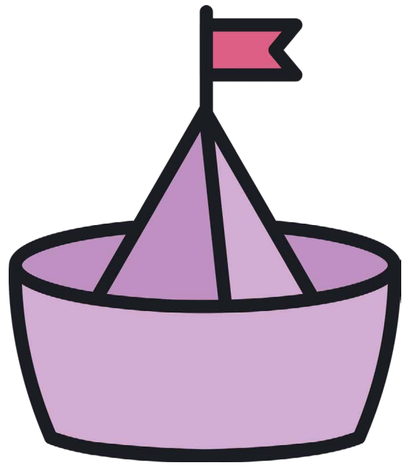
> "... it keeps us on edge and focused on what we have not explored yet."

This is where some basic origami can help out. A method currently under development is the use of a so-called solar sail. The overall idea is to have a very thin film folded up very neatly inside the space vessel during launch. Then, once is has left the earth's atmosphere, it unfolds this thin film to form a large surface which is positioned perpendicular to a large light emitting source, e.g. the sun. Skipping over the details here, photons emitted by the light source "bounce" against the sail, giving it a very, very, very little bit of momentum with each bounce. Since outer space is an (almost) vacuum, the vessel maintains all of this momentum. So, every photon bounce keeps adding up linearly to the point where, if your light source emits many, many photons, it actually becomes a viable engine - if you can call it that - which, most importantly, requires very little weight to operate.

Although this lies in the potential future, many things that have been put in space were sent up there while being folded. When nosing around the internet while delving into this topic, I found how the solar arrays on the International Space Station (ISS) were put in place: they were neatly folded up, sent into space and carefully unfolded once attached. There isn't much complexity in the way these panels were folded up, but all the more in the precision that this was done for it to be guaranteed to work: messing this up would have be extremely costly.

For me all of this goes to show that even in something as structured as mathematics there is it plenty space to do something outside of the box and come up with crazy solutions. We need that; it keeps us on edge and focused on what we have not explored yet. However, there is just as much value in dumbing things down; to keep it simple, but being very precise in what you are doing, especially in environment where you have to guarantee something has to work.

To close, I find it fascinating to see that such a simple thing as folding a piece of paper can spark ideas that make an impact on our daily lives. So, especially in these strange times, have a look around. Zoom in on the most basic, default – yes, I had to sneak it in – things you interact with each day. Chances are you will find something yourself that gets you amazed about how much thought was put into making it. Or, if there is no brilliance to be found, it might give you an idea to create something no-one has ever thought of before. Regardless of the outcome, don't forget to stay curious!



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https://bit.ly/3iV2Kw6

If you want to get involved in folding proteins yourself or know more about the Folding@Home project, check www.foldingathome.org/start-folding for more information.

MAKING THE NEW DEFAULT FUN!

After the Supremum's disaster edition earlier this year, the world thought it would be a good idea to cause a disaster itself. And whoop-dee-doo, here we find ourselves with the Corona crisis leaving restrictions on all of us. The pandemic causes us to stay at home; video calling and being alone has become the new default. Chilling on campus is not allowed anymore, and so the leisure part of the TU/e is not possible either. That needs to change!

TEXT Bouke Bosma

That must have been what the Community Manager of the TU/e, Erik de Jong, thought just before he made a call to our own lovely radio GEWIS. After the success of the online radio channel during the introduction week of 2019, almost everyone on the campus was aware that we had the technology to set up a radio channel. In addition to that, Erik was looking for ways to keep our beautiful community alive and to entertain all the poor students that were sitting at home. Thus the idea of a Community Radio was born.

At first the crew consisted of the few people that ran radio GEWIS on their own during the intro, but the amount of work and the hours they had to put in proved too much to keep on doing next to their studies and work. More people got hired, including me, and almost every show guests would be invited to promote their cause or just to make fun radio for all you lot sitting at home. This has resulted in some serious shows about the changes of the education during these times, but also some shows that would highlight the parts of life we see less since the outbreak, like social drinks and sports.

Now, when you first start making radio, it is all fun and things, but you quickly discover you cannot take it lightly. As many of you know, I am not someone who has much difficulty talking. I love it, especially about myself and the things I undertake. But once you have said things a couple of times, you run out of content. Luckily, we now apply a no guest no show policy, meaning that you have new guests every broadcast, but you gain a lot of respect for all the people who make regular radio shows. And then there is the technics as well. It took quite some time to get to know all the machinery it takes to optimize the audio quality and let all sounds be heard. And still, things go wrong sometimes.

But, all in all, the radio is getting more professional and cozier by the day. So if you are not familiar with the radio just yet, my first question would be, "how haven't you heard about it?" and the second thing I would say is, tune in during the weekdays in the afternoon from 14:30 to 17:30 and in the evening from 19:00 to 22:00. If you prefer to listen in the weekends, we can often be heard in the afternoon at the same times. You can find us on radio.tue.nl and you can even chat directly to the studio! Make sure you are part of it!

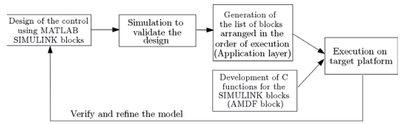
Editorial note: after 10 weeks the radio initiative was stopped as possibilities to return to campus popped up. However, this is probably not the complete end, as hopefully radio GEWIS will return to us in the future!

FRAMEWORK FOR MOTOR DRIVES

AME Motor Drive Framework (AMDF) is a software platform developed for power drives in order to standardise the control blocks. AMDF is versatile for a wide range of power drive applications, eg. battery management units, motor control units and power conversion.

TEXT Samyuktha Sivaram - AME

The key feature of AMDF is that it supports model based software development. Model based software development enables the translation of a simulation model to embedded software and is shown in Figure 1. This feature will ensure that the embedded software is in accordance with the designed control loop thereby avoiding any discrepancy in functionality during code development.



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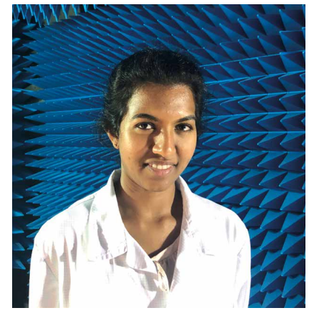
Block diagram for model based software development

The control scheme is designed and validated in simulation and a list of the SIMULINK blocks used is generated using a MATLAB script. This list is a .h file and gives information on their interconnections and configuration. This list is specific for every control algorithm and hence unique for each application. Based on the design, each block has been programmed in C and these blocks can be reused.



ADVANTAGES OF AMDF BLOCK

» Reusability of code - When the control algorithm has multiple instance of the same block, the corresponding C function in AMDF can be used for all the instances. For example the PI controller function in AMDF can be for both speed controller and current controller by varying the parameters.

» Robust code development - This method of code development ensures correct implementation of the control in embedded software. The functionality of the simulation is mapped to code by the architecture thereby eliminating human error.

» Highly optimized and efficient implementation.

AME

CIVILIZATION

It is finally time for my largest video game time-sink: the Civilization series. With its first instalment dating from 1991, this turn-based strategy game is the best-known example of a 4X game, in which you eXplore, eXpand, eXploit and finally eXterminate. You start as the ruler of a humble village in ancient times, which will (hopefully) grow to a continent-spanning high-tech empire. This, however, will require a careful balancing act between growth, science, diplomacy, warfare, money and culture.

TEXT Henk Alkema

CIV I

1991
TECHNOLOGIES: 67
PREFERRED VICTORY CONDITION: TIME
HARDEST GAME WON: CHIEFTAN (1/5)

In the first game in the series, there are three ways to victory: build a spaceship and reach another star system, conquer all cities of your opponents, or simply have the highest score at the end of the game. From a modern point of view, it is a complete disaster. Not only does it come with a 155-page manual (which I drudged through for you guys), it somehow manages to be both extremely shallow and extremely convoluted at the same time. This issue is caused by two problems: the UI and the tech tree. For any turn-based strategy game, having the most important information on your main screen is vital, and Civilization comletely fails to do so. And while I am a sucker for tech trees (and talent trees), this is the most needlessly intertwined one I have ever seen. Just... see the figure 0.

5

CIV II

1996
TECHNOLOGIES: 89
PREFERRED VICTORY CONDITION: TIME
HARDEST GAME WON: CHIEFTAN (1/6)

Civilization II is basically an upgraded version of the first game. The (now isometric) graphics have improved drastically, but everything else is just as terrible. However, it does have one feature which unfortunately never returned in another Civ game: the High Council. The council consists of film clips of actors portraying different advisors, which are so bad they are good. I highly recommend looking them up!

CIV III

2001
TECHNOLOGIES: 84
PREFERRED VICTORY CONDITION: CULTURAL
HARDEST GAME WON: WARLORD (2/8)

While Civ III brings a lot of great ideas to the table, the execution is still lacking. For example, the different civilizations you can play as now have unique abilities and units, and three new victory conditions have been added. The domination victory is achieved by controlling most of the world's land and population, and the diplomatic victory by being elected world leader. Furthermore, culture is introduced: produce enough, and cities which belong to your enemies will peacefully join you. Produce even more, and the cultural victory is all yours. Furthermore, the UI has improved, and the tech tree is planar! On the other hand, the game looks drab at best, especially when the whole world is covered in roads (which you will want to do). Victory also depends heavily on whether you have access to the right strategic resources, which are scattered across the map. On top of that, you cannot beeline for any technologies, making every game rather samey. All in all, it is the first 'normally' playable game of the series.

CIV IV

2005
TECHNOLOGIES: 92
PREFERRED VICTORY CONDITION: CULTURAL
HARDEST GAME WON: MONARCH (6/9)

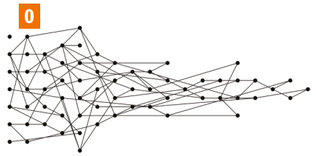
Continuing the steady evolution of the series, Civ IV does what Civ III did as well: it fixed the problems of the previous versions, and added some new cool ideas which don't completely work. The UI improves further, we have 3D graphics, and all of the problems of Civ III have disappeared. New in this installment are religion and civics. Religions are founded by the first civilization researching the corresponding techs, giving that player the holy city of that religion. Religion has an enourmous impact on diplomacy, and has all kinds of other benefits. Civics allow the player to specialize their civilization, by choosing one of the five options in each of the five categories. For example, having a theocracy will prevent non-state religions from spreading and will improve the military units produces in cities with your state religion, while having free religion will increase the science output of your cities. You can freely switch civics whenever you have the required technologies, but doing so will cause anarchy for a few turns, during which the output of your cities is practically nonexistent. Again, this game is not without its flaws. Every single game devolves into one big religious brawl where everyone who does not share your state religion will do everything they can to ground your empire into dust. Also, while looking significantly better than the previous games, it still look amateurish for modern times.

CIV V

2010
TECHNOLOGIES: 81
PREFERRED VICTORY CONDITION: DIPLOMATIC
HARDEST GAME WON: DEITY (8/8)

Well, by now you shouldn't be surprised when I tell you Civ V fixed lots of things wrong with Civ IV, improves the UI and graphics, and adds some more stuff to enjoy. Religions are now extremely customisable, and every player can found at most one religion (but not all players get to found one, so be quick!). The civics have made way for social policies, a set of eight mini-tech-trees full with amazing improvements which can only be gained by producing enough culture. And, last but not least, the grid of square tiles has finally made way for a hexagonal grid, making movement speed a lot more logical. City-states are also introduced, cities you can either try to conquer, or befriend for a bonus depending on the type of city-state. Become best buds, and they will automatically declare war with anyone who you are at war with. As far as downsides go, I can name two: the AI is pretty bad at waging war, and on higher difficulties, getting a cultural victory and founding a religion are both simply impossible.

Unfortunately, I haven't been able to play Civ VI, as my PC can not even comfortably run Civ V - I haven't managed to finish a single game with more than 6 players. Despite that, because of the clear trend, my recommendation is simple: start with the latest game your PC (and wallet) can handle. Not only do the UI, graphics and gameplay improve, the later installments also are significanly more newcomer-friendly. The tutorials get better, and most of the gameplay can be automated in the later games. This allows you to discover all the details on how the game works at your own speed. Two final notes: I would start with one of the main games, and not one of the spinoffs. The games are also extremely moddable, so do check out all of the possibilities. Happy one more turn!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0 — *Civ I - The tech tree*

1 — *Civ II - General game overview*

2 — *Civ III - Lots of cities*

3 — *Civ IV - General map overview*

4 — *Civ V - Attacking in general*

5 — *Civ II - Another way to view the game*

ABROAD DURING A PANDEMIC, EH?

I never really thought about going abroad before my board year. However, when it was over, I started thinking about what a beautiful opportunity it could be. It did not take me long to figure out a top three of the countries I wanted to go. On the top of my list? Canada. I have always wanted to go there, because the nature is impressive, and a part of my family lives there.

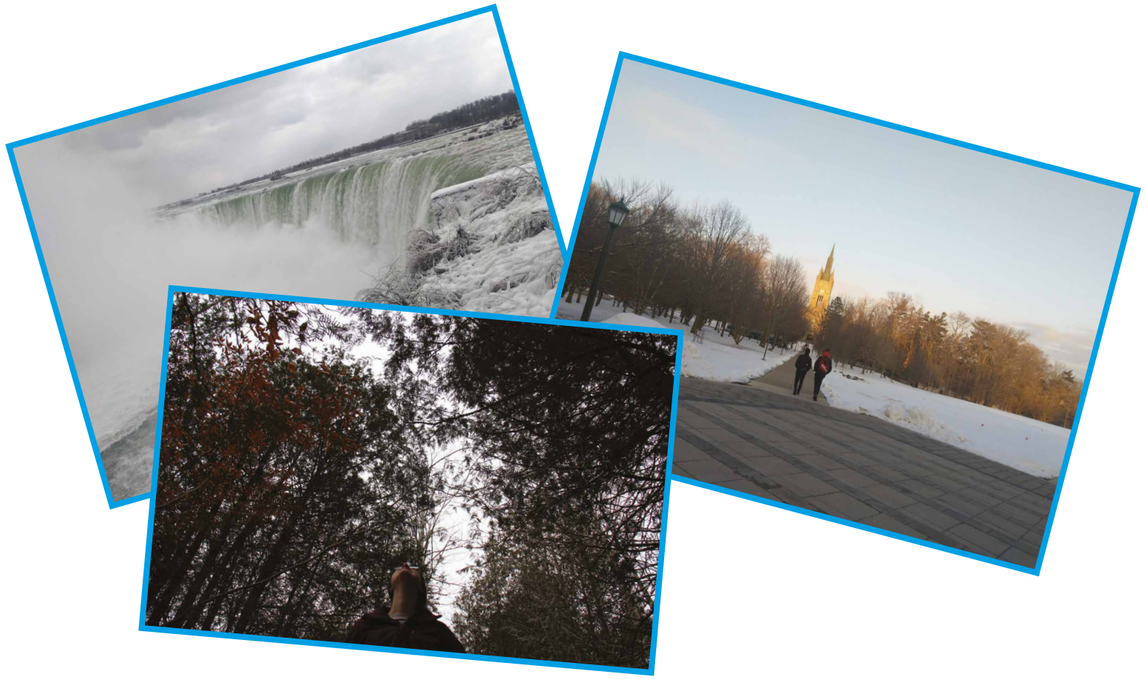
TEXT Nicky van den Berg

As soon as I narrowed down where I wanted to go, I needed to find out what opportunities would be there to make this part of my program. At first, I wanted to follow courses at a university, but soon I found out that their second semester started at the beginning of January, while I would still have to take exams at the end of the month. Because I thought that both taking my exams abroad in a totally different time zone or arriving halfway through the semester would be inconvenient, I chose to look at different possibilities. Since I really wanted to be part of a university community, I decided to look into the opportunities to do research. That is how I ended up with Mikko Karttunen at Western in London, Ontario. Coincidentally, the same place where a part of my family lives.

After making preparations for almost a complete year, the moment was finally there... I was leaving the Netherlands! After saying goodbye to my friends, it was time to leave Eindhoven for a long time. While I was waiting at the airport, I realized that I did not really know what was waiting for me. I would move in with a family member that I had seen about three times in my whole life, I did not know what to expect from my research, except for a global topic, and I did not know anyone. Even though I felt quite confident that everything would be alright, I was kind of nervous. Since my flight was at the end of January, and the Corona outbreak had already started in China, the border control was stricter. Therefore I missed my flight to my final destination. The waiting time to my next flight was 6 hours, which basically meant that I would arrive at my final destination at 6am European Time. My family was there to pick me up. This was a very special experience, since this was the first time that I saw my second cousin.

During the first weekend, I did my best to adapt to the new rhythm, since my jetlag was present. I did my best to get to know the part of my family with whom I would be spending a lot of my time during my stay in Canada (even more than I anticipated on beforehand). On Sunday, I went to the campus and found out where I had to be on the next day; my first day at Western. I was impressed by how similar everything looked to my impression of the US: the roads are very wide, there are shopping malls at almost every corner, the dressing rooms in the gyms consist of lockers... It took me some time to get used to my new rhythm, my new work, the new culture and the new university. I struggled with finding new friends since I was working in an office, not following lectures, and I did not find any clubs that I could join since I was a visiting graduate student. After about two weeks, someone told me about the "Global Café" which is a weekly meeting at Thursday afternoon where people meet each other. Here, I made new friends at a rapid pace.

I used the weekends to explore different new places.



During the first month, I visited Windsor, Waterloo, Strathroy and the Niagara Falls. In addition to that, my family felt the obligation to introduce me to some typical winter activities such as tubing (which is basically sliding down a mountain on a tube). Furthermore, I tried several Canadian dishes such as butter tart and Nanaimo bars.

I visited the Niagara Falls mid-February. Since it was very cold at that time (about -10 °C), I was lucky enough to be able to see the waterfalls partially frozen. This was a very impressive experience. I was amazed by the surroundings of the falls as well. It looked more like a fair than a city. Everywhere you looked, there were either hotels and restaurants, or museums, haunted houses, roller coasters, Ferris wheels, etc.

In short, the first month was a very nice experience, but then March arrived. This month was more difficult than I had thought it would be. It started with the death of my grandmother. I had never anticipated that it would be this hard to be that far away when all you want is spending time with your family and the people you love. Luckily, we have the advantages of the modern communication system, so I did not feel left out. I called my family every day, and together we managed to get through this difficult time. At the same time, I heard that the situation with the Coronavirus was becoming worse in the Netherlands. In Canada, everything was fine at that time, but almost at the same time that the universities in the Netherlands closed their doors, the same happened in Canada; all lectures would be online and high schools and elementary schools would not open after the March break. This made me decide to work at home starting then. I received a request from the TU/e to return back to the Netherlands, but since I felt that it was not safe to travel and it looked like Canada was taking measures well in advance, I decided to stay in consultation with both of my supervisors and my family. This also meant that I would not be able to have the time in Canada as I anticipated it to be. I was planning on travelling out west as soon as I was done with my internship. However, due to travel restrictions, all of these plans are cancelled. My days consist of working, going for a walk or exercising at home and sleeping. Although my stay is different from what I had anticipated, I am still very grateful for this opportunity and together with my family here, we make the best out of it.
Hope to see you soon! Stay healthy, stay safe!

INTERVIEW SANDRA VAN WIJK: DATA SCIENTIST DF&A

Ze beschikt over een indrukwekkend cv, de 34-jarige Sandra die na vele omzwervingen precies 13 maanden geleden startte bij de Belastingdienst. Voor de directie Datafundamenten en Analytics om precies te zijn. Een opmerkelijke keuze?

"Nee hoor. Ik wilde graag terug naar Nederland, en had behoefte aan stabiliteit, na jaren aan verschillende universiteiten in het buitenland gewerkt te hebben.

TEXT Belastingdienst

(GE)WIS EN WAARACHTIG

Sandra van Wijk is in 2007 afgestudeerd aan de TU Eindhoven in de richting technische wiskunde en daar ruim vier jaar later ook gepromoveerd. Tijdens haar studie was zij lid van studievereniging GEWIS, waaraan ze veel goede en dierbare herinneringen bewaart.

"Ja, mijn studie en promotie hebben mij veel opgeleverd. Ik heb op veel verschillende plaatsen in de wereld mogen wonen en werken en kunnen bijdragen aan interessant onderzoek. En nu dus in Nederland."

ENORME HOEVEELHEID DATA

De schier onuitputtelijke hoeveelheid data waarover de Belastingdienst beschikt, biedt mij en mijn collega's dan ook enorm veel mogelijkheden. Je kan zo ontzettend veel doen met die data. Allereerst natuurlijk het ondersteunen van collega's die werkzaam zijn in de uitvoering van de Belastingdienst. Waar kunnen zij zich het beste op focussen?

Op basis van welke gegevens kunnen zij bijvoorbeeld risicovolle aangiften detecteren om die vervolgens te controleren? Óf wat denk je van machine learning? Teksten scannen en 'machines' (lees: computers) patronen laten herkennen in die teksten op basis waarvan de Belastingdienst ook weer slimmer en beter kan opereren. Nee, er gebeurt veel bij de Belastingdienst en de ontwikkelingen staan niet stil.

EEN VOORBEELD

Nog een concreet voorbeeld? Het gebruik van data om de taxateurs van de Belastingdienst de waarde van vastgoed beter te kunnen laten bepalen. Daarvoor is een model ontwikkeld en we wilden nog stappen zetten, wat door de toenmalige staatssecretaris Snel ook werd aangemoedigd: Dóen! zei hij letterlijk. En dan is het soms wel jammer dat de Belastingdienst redelijk terughoudend is in het gebruik van alle mogelijkheden. Dus voordat alle werkzaamheden hier zijn voltooid? Nee, ik kan nog wel even door.

Belastingdienst

MEET THE KANDIES!

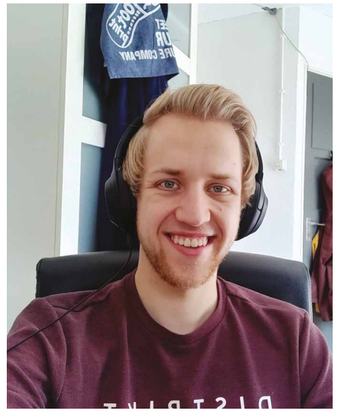
You have seen our fantastic Kandie group picture. This year it's different from other years, because we cannot meet in person at the time of writing. Many activities are cancelled (including many of our training sessions), trips to other associations and group bonding activities. This does not mean, however, that we do not try: these times require improvisation, and together with the 38th board we make it happen! You cannot see us in person at the moment, but we still want to make ourselves visible to everyone. How do you do that? Well, with a default bio that you edit a little bit. With some information about us and a real photo in our current situation, we hope you get to know us a little bit better!

TEXT Candidate 39th board

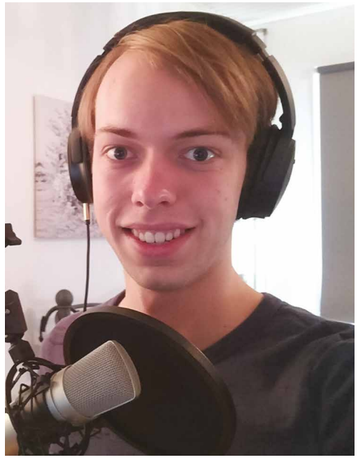
NAME: IRNE VERWIJST
AGE: 21
STUDY PROGRAM: COMPUTER SCIENCE AND ENGINEERING
PLACE OF BIRTH: NISTELRODE
CANDIDATE FOR CHAIRMAN

Hi everyone. I'm Irne Verwijst. Born and raised in Noord-Brabant, the best province of the Netherlands. I walked in at GEWIS during the middle of my first year, when all my friends left me to go to 'hbo' . Since then I made some new friends and enjoy an active life at GEWIS: Being in many committees, establishing Défi and having a drink at the bar at least every Thursday.
"Baby, if you were words on a page, you'd be fine print."

NAME: MAX OPPERMAN
AGE: 9+10 = 21
STUDY PROGRAM: COMPUTER SCIENCE AND ENGINEERING
PLACE OF BIRTH: HELMOND :(
CANDIDATE FOR SECRETARY



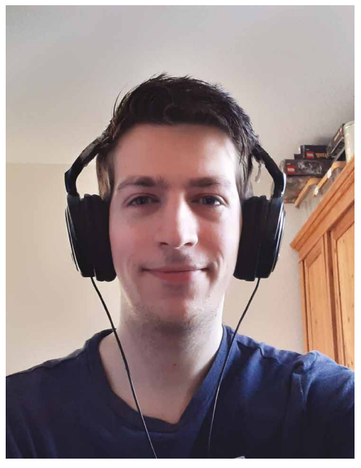
Hi there! I'm Max Opperman. I was born in Helmond, however, for the most part raised in Panningen. This was a small improvement that I further extended by moving to Eindhoven. In my first year I joined FYC 18-φ. In my second year, I joined GEFLITST. Recently I also became a member of CBC and C4. I also play hockey at Don Quishoot and am a member of TU/ecomotive (as you might have read in another article in this edition of Supremum on page 25). Hope to see you guys soon!



NAME: ROY KAKKENBERG
AGE: 21
STUDY PROGRAM: COMPUTER SCIENCE AND ENGINEERING
PLACE OF BIRTH: OLST
CANDIDATE FOR TREASURER

Hi! I'm Roy, 21 years old and born and raised on the countryside near Olst. You know, that beautiful little town where an intercity stops. At GEWIS, you might know me from the committees GEFLITST, Intro19, Intro20 and C4. Just like many others, I have been a part of a FYC, namely the beautiful FYC 18.0 IKU. Another fun thing to do at GEWIS is borrelen. Many GEWISsers like that as well I think. Also, just like many others at GEWIS, I am a member and volunteer at a Scouts group. For many years I have been busy organizing activities for my Welpen in Olst.

"If I had a euro for every time I thought about you, I'd be in a higher tax bracket."



NAME: WOUTER VAN DER HEIJDEN
AGE: 20
STUDY PROGRAM: COMPUTER SCIENCE AND ENGINEERING
PLACE OF BIRTH: VELDHOVEN
CANDIDATE FOR INTERNAL AFFAIRS OFFICER

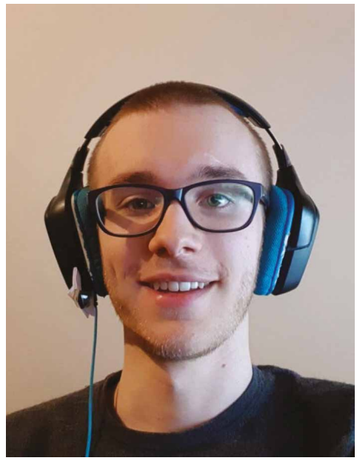
Hey everyone! My name's Wouter van der Heijden. I come from a smaller version of Eindhoven, but the location is pretty much the same. I like cycling and I'm a big fan of playing piano as well as spending time at GEWIS with friends, which comes with the occasional drink (or ten). On non-corona Thursdays, I can be found at Stratum 11 out of 10 times. During the dawn of my student years, I was fortunate enough to be the chairman of a wonderful first year committee, 18-0 IKU. Now I'm a member of AViCo, AC and SSG. I'd love to have a chat!

NAME: KOEN DE NOOIJ
AGE: 20
STUDY PROGRAM: APPLIED MATHEMATICS &
COMPUTER SCIENCE AND ENGINEERING
PLACE OF BIRTH: UUTRECHT
CANDIDATE FOR EDUCATIONAL OFFICER

I'm Koen de Nooij, a fourth year Mathematics & Computer Science student. I'm taking my time, but I hope to finish my bachelor this year. I joined GEWIS in the first-year committee 17-3 Armadillo's, and I've been sort of active ever since.

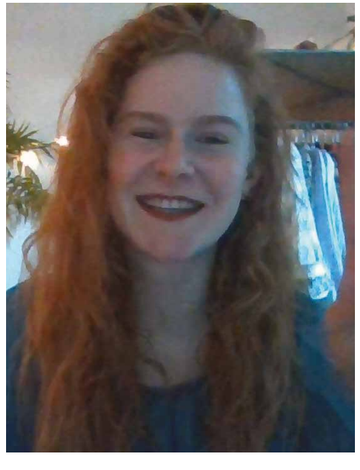
My hobbies are gaming (full-time League of Legends player, silver 4), programming and chilling with friends. I say "oof" a bit too much, pretend I'm living a healthy lifestyle and my pet is a big fat pig.

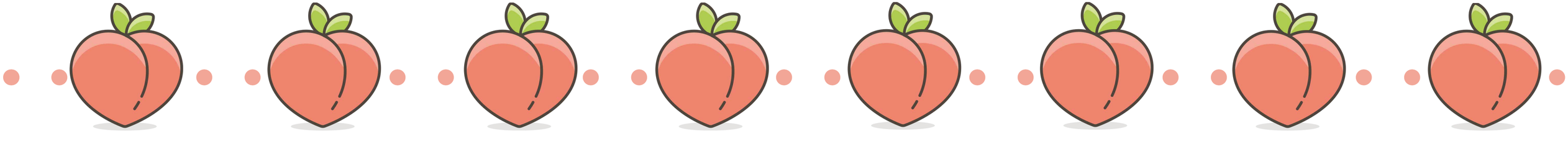
Swipe right if you're a kapper, because I love kapsalon.



NAME: JEALY VAN DEN AKER
AGE: 20
STUDY PROGRAM: APPLIED MATHEMATICS
PLACE OF BIRTH: 'S-HERTOGENBOSCH
CANDIDATE FOR EXTERNAL AFFAIRS OFFICER

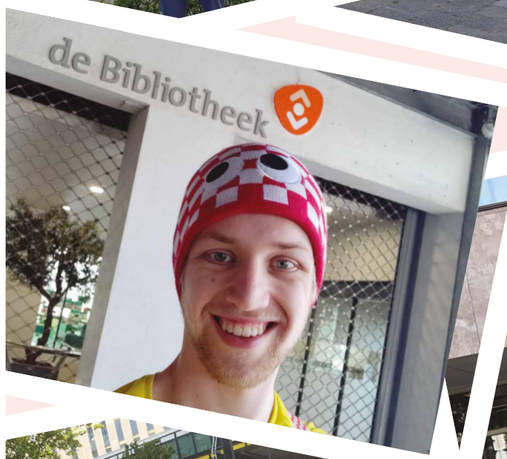
You have seen our fantastic Kandie group picture. This year it's different from other years, because we cannot meet in person at the time of writing. Many activities are cancelled (including many of our training sessions), trips to other associations and group bonding activities. This does not mean, however, that we do not try: these times require improvisation, and together with the 38th board we make it happen! You cannot see us in person at the moment, but we still want to make ourselves visible to everyone. How do you do that? Well, with a default bio that you edit a little bit. With some information about us and a real photo in our current situation, we hope you get to know us a little bit better!

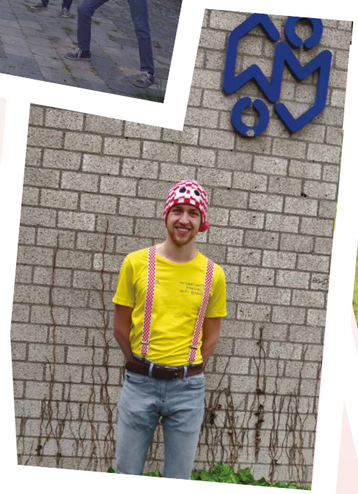


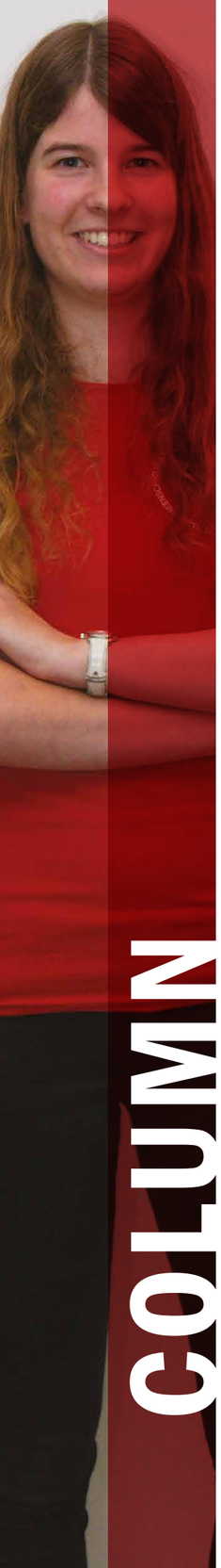


RESPONSIBILITIES & AMBITIONS

The kandies are in their element, looking for high places, libraries, banks, hardware stores, IT companies and schools!





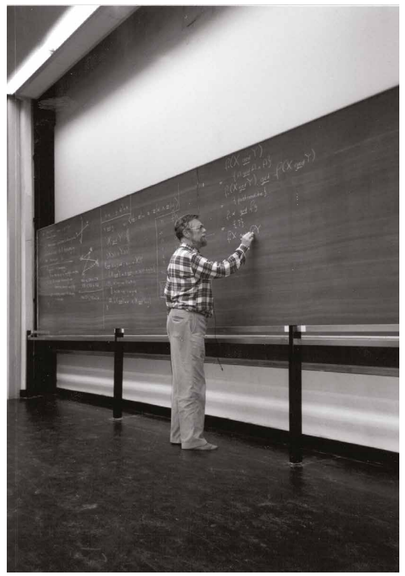


A TYPESETTER'S TALE

Three times a year, many words in the minds of writers within the department of Mathematics and Computer Science find a way to the pages of the Supremum. Transforming thoughts into some ink on paper is a process that has been subject to many changes over the years, although some things stay the same.

TEXT Anne Nijsten

Where 20 years ago you could deliver your article on a diskette and the magazine was printed at the repro shop on campus and 40 years ago Edsger W. Dijkstra wrote his essays with a fountain pen, nowadays the texts start their journey when sent to the mailbox of the committee. After they are checked and possibly some corrections are made, it is time to shape them into the result that will face the readers. This design uses a template, for some consistency when you read through the magazine, but where does this default part originate? And where to make changes to give an article its unique look?



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Professor Edsger W. Dijkstra

Once per edition, the design team gathers at a design evening, orders some food and works on the articles. New members of the team get a crash course on Adobe InDesign, Illustrator and Photoshop. Starting with the basic attributes that already have been created, placing an article on a digital page can be done in a matter of minutes after some practice. Then follow the details: spacing of the words, handling obvious whitespace and placing or creating images. Especially this last bit may take some time when the designer feels up to it.

When the author did not deliver any images with the article and there is a lot of space left, the challenge is to find some image that fits the article. An easy way is to search for a theme related to the text in your favorite search engine. However, the results may not always be suitable for reuse. To make sure the picture may be published in our magazine, some websites with stock pictures may offer easy solutions. The free ones are the best, we are students after all. Sometimes vector images are tweaked a bit to fit the color theme of the page. Other times, a designer or photographer in the team may create his or her own images.

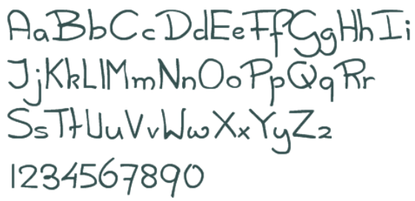
However, let's get back to default. The text. Earlier there were no fancy layouts in this magazine, it was just plain old text in a typewriter script. However, each story depicted by the text differs, how is that default? We may want to consider the "Lorem Ipsum" text as the most default text there exists at the time.

1

The new Supremum, a long time ago

You may have heard, or rather read, these words somewhere before. Maybe as the name of one of our first year committees, or this seemingly Latin text was placed randomly in some document you read. This text is commonly used as a placeholder text, so the person designing a document can get an impression of what the layout will look like when text is entered, without getting distracted by the meaning of the text. A bonus is the variance in word length: instead of pasting "this is an example text" all over the document as a placeholder, the lorem ipsum text somewhat resembles the distribution of letters over the words in the text that will probably be added in the final document.

The standard lorem ipsum text has its roots in a book by Cicero, written about two millennia ago, but many variations of placeholder text have been created over time, like beer ipsum, cat ipsum and lorizzle. So, for testing the designs, you copy any text that makes you happy. But what would these default texts be without the letters that depict them? Not everyone has a neat handwriting like Dijkstra (a so called EWD-font).



2

The EWD font

There are a lot of requirements that make a font default. When you are a fanatical user of Microsoft Word, Calibri took this position over from Times New Roman a while ago, but when you prefer LaTeX above all, Computer Modern is usually the way to go. Is the font used for printing or on screens? For headers or for bodies? Marketed as eco-friendly or bold and bright? Do you have long or short texts? Etcetera. In the end, everyone chooses their own default. Supremum chose Franklin Gothic and Roboto Slab. Before that we had Tahoma and Times New Roman and even before that Helvetica and others.

Defaults may change, and so do we, along with the world around us. As long as we all have this freedom we can let our minds let out a creative flow and even share this with the others around us. Whether this is in a triannually published magazine, a casual business email or a handwritten postcard to your family, there is a way for the words in your mind to embody themselves, so let them be heard!

Do you want to discover more about designing or other steps in the production of a magazine? Let us know at supremum@gewis.nl if you want to join one of our meetings!

TU/ECOMOTIVE

Student teams combine personal development and social gatherings with the possibility to apply your growing engineering skills. Topics tackled by these teams are diverse, ranging from medical sensors to energy transition and mobility. TU/ecomotive is of the latter category, and builds a completely new car every 1 to 2 years! Keep reading to find out more about TU/ecomotive, and about what diverse tasks a software engineer can do in such a team.

TEXT Sietze Gelderloos & Max Opperman

We, Sietze Gelderloos and Max Opperman, are both in our third year of Computer Science and Engineering. We joined TU/ecomotive because we wanted to apply the knowledge that we gathered during our studies in a more realistic environment.

TU/ecomotive aims to explore and push the boundaries of sustainable transportation. Years ago, the team started by competing in the Shell Eco-Marathon. This competition is geared towards having teams of students design and produce a vehicle to travel as far as possible expending some fixed amount of energy. In these years, TU/ecomotive has made Isa, back then Europe's most energy-efficient road-legal car. Indeed, road-legal. We believe that innovation in mobility only has value if it has real potential for real-world applications.

The team has since explored sustainability in mobility in a number of different approaches. Energy efficiency while driving was key in the design of Isa. Nova followed and was designed to be adaptable to an owner's changing needs over time by being highly modular. Seats and even body panels could easily be swapped out to fit one's needs. By using a car for longer, less material and energy would be spent when looked at over the years of use.

Lina followed, to become a road-legal vehicle with its structure made, as first of its kind, from bio-based composites. These composites combined very low weight of traditional fiber composites with low energy needs of naturally occurring resources. Lina is a 4-seater weighing in at only 310 kilograms!

The team realized that they were reaching the limits of the regulations for the Shell Eco-Marathon, should their goal still remain to make realistic vehicles. That is the reason why it was decided that we would no longer compete, leaving us more free in our choice of approach to tackle sustainable mobility. This choice was followed by the design and construction of Noah, extending Lina's vision to become fully circular. In other words: the materials used in Noah could all be re-used in a similar application.

Currently, we are in the process of designing and building Luca. Luca will take Noah's vision even further and be made not only from materials to be used again after use, like in Noah. Additionally, Luca will be made from materials that have already been used before. We are going to use recycled PET bottles where needed, and unsorted waste streams in a number of other applications. Most notably, in our chassis. Our chassis is made in large part from a bio-based composite combining flax fibers, the PET noted above, and plastic taken *from the ocean*. By combining this fairly degraded and blended plastic with flax fibers, the properties of this composite become such that they suffice to make up a safe vehicle. We aim to restore the value of waste materials by cleverly pairing up waste streams and applications. Hopefully, this concept grows an incentive to use unsorted, degraded waste streams at a larger scale. This reduces the need to produce virgin materials, and will even help to clean up waste from places on earth where this waste is harmful.

Max joined the team as a software engineer. As a member of the software team, there is a number of tasks that needs to be done. We started off by specifying the requirements that our car has to adhere to when we want it to be road-legal. There is a lot of regulations that were too vague or convoluted, and to transform them into concrete requirements was more of a challenge than we had originally expected. We learned how natural language can be quite inefficient or even insufficient to properly specify behavior.

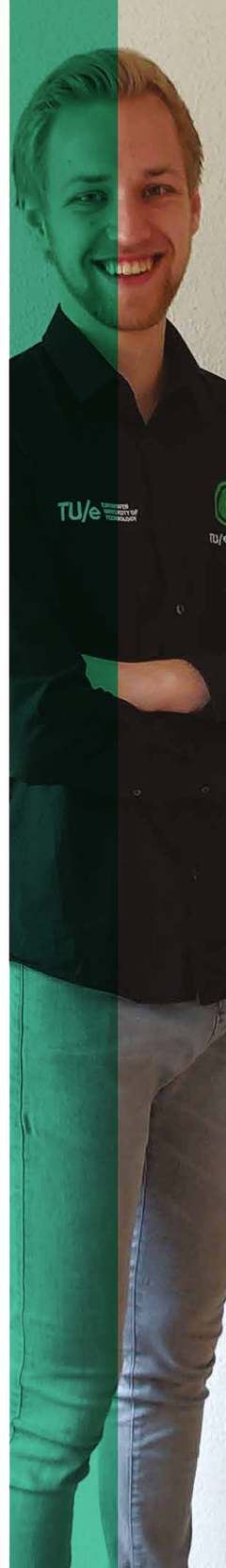
After we finished setting up requirements we could start the meat of the work: programming microcontrollers. This has all been done in cooperation with one of our main partners, NXP. For reliability reasons, these microcontrollers are not your standard AVR chip as those found on Arduinos. We have five different applications for these microcontrollers in Luca, each on a different PCB. They communicate over what is called a Controlled Area Network bus, or CAN. This is a commonly used communication protocol in vehicles, robotics, and factories. As the software team, we have to make sure that the correct messages are sent at the right time to control different systems in the car, ranging from lights to wipers to the drivetrain. Working on such a system comes with great responsibility, as Luca will be able to cruise at 90 km/h. Safety, reliability, and robustness are crucial.

In our car, we will not have a built-in infotainment system, which would include the radio, stereo, navigation, and whatnot. Since most cars are not driven for approximately 95% of their lifetimes, we decided to replace the infotainment system with a system with similar capabilities that you always have with you, your smartphone. This reduces the complexity of in-car infotainment systems which would not have been used for the great majority of the time anyway. However, since a smartphone typically has a relatively small screen, we will add a Heads-Up Display in our car. This is an LED display that is reflected in the front window, in the line of sight of the driver. This screen will display the most important information from your phone, such that the driver does not need take their eyes off the road at all. We, as the software team, will build an application for the user's smartphone that collects all important data and relays them over Bluetooth, to the car. These data consist of navigation directions and the current legal speed limit.

Another thing we are investigating with the TU/ecomotive software team is what we call Driver Drowsiness Detection, to prove that sustainable transport does not have to mean Spartan transport. Though the system is still in an early stage of its development, we hope to design a system that warns a driver when they are too fatigued to drive safely. Through image processing on a camera feed of the driver's face, we extract relevant features, and then use those to decide whether or not the driver should be notified to take a break.

Sietze, like Max, started his work at TU/ecomotive as a software engineer, but he soon decided to take up the challenge to become the technical manager of the team. He now oversees the whole process of designing and building Luca, and not only the software inside. Discussing technical details in fields very different from software can be tricky as a computer science major, but with the necessary homework and a bunch of logical reasoning, one can come very far.

Thus far, you have read about past accomplishments and the current project of TU/ecomotive. You might have derived from our variety in projects that we are quite free in our goals, as we do not have to compete in any competition. This also means that we want to be very open-minded when it comes to the plans for next year. After summer, the current TU/ecomotive team will pass on the baton to an entirely new team, which is free to find their own challenge. This new team still has a number of vacancies left. Should you have any questions regarding our project, our software or our plans for next year, simply contact one of us and ask!



ATHENA GOES ONLINE

The default of ATHENA is not that hard to identify, whether it's a meeting, a 'gezellig avondje' (fun evening), or any other time we see each other. An ATHENA evening cannot be started until we have eaten together. The most common meal is pasta, but the cooks always get creative. Then, of course, there is a homemade dessert. Dessert is very important for ATHENA, so much that members who don't finish their action points will have to make an involuntary dessert. After dessert, it is time to make ourselves some drinks. This is where the classic 'zoete meuk' for which we are so well known takes the stage. Don't worry, during these evenings we behave and drink it out of glasses instead of buckets. The rest of the evening is spent playing some games and of course drinking some more very sweet cocktails.

TEXT Sanne de Wit - ATHENA

The above describes ATHENA evenings as I got to know them. Unfortunately, as I am writing this piece, these evenings are not possible. However, this does not mean that ATHENA has been inactive. We have found many ways to stay in contact and keep a positive mindset. It is this mindset that makes me so proud to be part of such a great group of people. Hopefully, I can give you an insight in ATHENA's way of keeping in contact and maintaining positivity during these times.

A few of us have found a way to still get their workouts done. They meet multiple times each week to have a boot camp together in the fresh air. One time this was even followed up with an after-workout wine picnic. Credits to those people who still work out, I would be lying if I said I was one of them. Another thing that has been keeping us sane is the ATHENA Snapchat group. Just as we begin to miss our chairman and her great music taste, she manages to come through with a snap of her singing 'Hoe Lang is een Chinees' to brighten our mood.

Our meetings and game nights are now online. A great thing is that we have been able to meet up more often since no one has any plans in the evening anymore. Usually we play many board games. Now we play a variant of 30 Seconds in which you have to act out the words via webcam and Skribble.io gets us all in very competitive moods. The company was just as great, however, I do miss the cocktails and now I have to bake my own desserts. I cannot wait until ATHENA can meet again in the default way. For me, it will be extra special since it will be the first real-life meeting I will attend as a real member and not as an '*uilskuiken*' (aspiring member).

ATHENA also wanted to help GEWIS members to keep in contact with their friends and beat some of the boredom they may experience these days. Therefore, we decided to organize a Crazy 88. These 88 challenges were focussed on digital social contact, moving and not sitting inside all day. Every day we posted some of our favorite submissions on Instagram together with the temporary rankings. Watching all of the submission was a lot of fun. Some examples are: we now know that singing the GEWIS song over Discord usually does not sound great, people prefer cracking easter eggs on their head instead of normal ones, and brushing your teeth is a great activity for a zoom meeting. We sincerely hope everyone had fun participating and we congratulate the winning team.

Hopefully, we will soon be able to drink cocktails or wine together again, but until then I hope that you can take some inspiration from this article and keep in touch with your friends!

TUPLES OF TULIPS
ORTEC PUZZLE

The tulip grower in Lisse received his last shipment of tulips bulbs. He had ordered bulbs from all over the world and was very pleased to see them all together. Exactly 100 different shipments in total he had received. Every shipment contains a seemingly arbitrary number of tulips of one species, so 100 species in total. What a beautiful view that is going to be, when all bulbs have been planted and tulips have grown out of them. He can hardly wait ...

But then it struck him. He had reserved 10 lanes for the bulbs, each 1 meter wide. If every bulb will result in a tulip covering a space of 10 by 10 cm, in which lane should he plant each of the bulb species?
Choices, choices...

He began to list his wishes and concluded he only had three:

- Each of the lanes should contain exactly 10 different species of tulips.
- Each of the rows of a lane contains 10 bulbs, except the last row that can contain at least 1 and at most 10 bulbs.
- The difference in length of the longest lane and the shortest lane would have to be as small as possible. Assume here that for example a lane with 41 tulips would have the same length as a lane with 49 tulips, both 50cm, giving at least 1 and max 10 tulips per row of 10 cm in a lane.

He received the following amounts of tulips (where every number indicates the number of tulips of one species):

Can you help him to divide the tulips species over the lanes? What will be the difference in length between the longest lane and the shortest one?

Send your solutions to: puzzle@gewis.nl
The first correct solution will be awarded a prize!

ORTEC
OPTIMIZE YOUR WORLD

761	844	7819	3233	3317	6286	5857	3643	7884	2013
1165	1223	9785	6668	2754	9735	1088	3317	2278	8570
1493	1878	1800	358	2868	1855	3230	7582	6089	5581
2083	3360	5886	1051	8240	2669	9430	3878	3876	6472
2341	3363	1011	2252	6285	2623	4180	5533	140	1758
3110	4539	914	8769	5192	3700	1326	3986	7315	7533
4951	5687	9328	7000	5839	4536	2020	3580	3645	158
5811	6682	5182	6023	24	5175	5687	1109	8174	8107
3917	7236	2491	4982	9392	1987	2394	2574	8933	3480
7505	9693	3216	7285	1043	7077	7521	5414	3762	386

PUZZLE

INFIMA

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

Tijdens een quarantaine pubquiz.
Joy: "Volgens mij is dit de vlag van het Vaticaan!"
Jealy: "Er zitten Arabische tekens op..."

Bouke: "Kersen zijn zwart."
Susan: "Heb je ooit een kersenvlek op je kleren gehad? Is dat zwart of is dat rood?"
Bouke: "Ja."

Naomi tegen Kostek: "Wat is jou definitie van moeilijk koken dan?"
Kostek: "Jou laten koken"

Sietze terwijl hij in de MiEV probeert te driften met de handrem en per ongeluk ook de toeter indrukt: "Met deze combinatie maak je een screenshot!"

Mitchel op zijn allerlaatste Supremumvergadering: "Plakkerige dingen achter mijn computer is geen goed idee."

Teun: "Zullen we even kaas gaan snijden?"
Vinz: "Wat wil je hebben?"
Teun: "Ja, kaas."

Bas tijdens een drankspel: "Noem een karakter uit Star Wars, Ruben begint."
Ruben: "Spock..."

Liselotte in de Happy Italy wil graag een tripel bestellen.
Liselotte: "Hoe duur is de tripel?"
Bediening: "Zal ik even navragen."
Liselotte: "Doe er maar 2."

Ivo: "Als je iets heel ergs gedurfts doet, wordt je ook big balls genoemd."
Lieke: "Zo word ik ook wel eens genoemd."

Bouke: "Wat is Susan aan het lachen de hele tijd? Oh, haar camera is vastgelopen."

Romy tijdens de whiskeyproeverij na de uitleg over wat je moet ruiken en proeven: "Moet je echt al die dingen proeven?!"

Sietze: "Sex op mijn bed is prima zo lang er iemand gewond raakt."

Rob R. vertelt dat hij het middenstuk uit een Aladin nummer het leukste vind omdat ze allemaal Disney nummer nazingen.
Bouke: "Vind je handjes handjes bloemetjes gordijn dan ook leuk? Daar zingen ze in een couplet ook allemaal carnavals nummers na!"

Bouke tegen Anne: "Maar waarom ben jij zo dun als je ouders jouw cavia al zoveel te eten geven?!"

Hans Sterk: "This is not a very exciting isomorphism, this a typical Friday afternoon isomorphism."

Robin: "Als ik porno kijk dan word ik er alleen maar aan herinnerd dat ik geen seks heb."
Bas: "Oh, dus je gebruikt de zakdoekjes alleen maar voor het huilen?"

Martijn M.: "Ze gelooft in 5G masten."
Pieter: "Ja, ik geloof ook dat die bestaan!"

Sanne: "Janne, wil jij ook een aquariusje?"
Janne: "Doe eens gek."

Max O.: "Hij kwam uit Twente, niet uit Enschede."

Na de GELIMBO pubquiz, over Max bij ons team vragen voor de volgende keer.
Martijn M.: "Max is best wel dom, die weet dingen die ik niet weet."

Een collega tegen Tim Meeles: "Dit moet wel een zware week voor jou zijn zeker, nu je je highlights niet bij kunt laten werken?"

Luuk, vol verwondering: "Je denkt er niet zo over na, maar je ademt toch gewoon de hele dag!"

Jealy: "Wie heeft er nog geneukt?"
Wouter: "Wel gelachen.."

Anoniem: "Ik mis de NSDAP best wel."

Vinz B.: "Ik ben een heel gelukkig persoon"

Joy: "Hij gaat je toch niet stalken op facebook."

Roy: "256 is een mooi getal want dat is 2^8."
Sanne: "Jij bent 2^8."

Illona: "Als je met links aftrekt, doe je dat met links, niet met rechts."

Meeles tegen Bor: "Dan ga je wat groter, dat vind ik plezierig om te zien."

Rick: "Het grootste tankstation van Europa..."
Tobin: "... is Vinz B."

Illona H.: "Hoe typ je licentie?"
Rink: "Met een Griekse I."

Thijs L.: "Wie neemt nou de lift van 1 naar 0?"
Arnoud B.: "Als je van 3 komt!"

Anne N.: "Dat is zo verwarrend, al die programmas met al die bliepjes."

Sanne V.: "Wie heeft er een piep op de oven gezet?"

Iedereen is boos dat Ruben de letter 'f' niet uit kan spreken
Ruben: "De 'f' van viets."

Vinz: "Ik heb een glaasje water nodig."

Max: "Martijn heeft het zaadje geplant dat JEMAMA heeft doen bloeien."
Jasper: "Het zaadje planten is wel de helft van het werk!"

Joy W.: "maar dan wel met echte paaseieren, niet met dildo's."

Anoniem 1: "Ik heb 60 mensen gezoend."
Anoniem 2: "Wat monogaam!"

Samuel: "Jij bent gewoon zoals een karameltopping op een sunday."
Robin: "Maar ik hou helemaal niet van karamel."

Jasper G.: "Wat is dit, waarom staat dit ding vast op 01:44???"
tEun: "Dat is de tijd, achtelijke mogool.."

Alba L.: "Ik ben echt een alcoholist als het aankomt op drank."

Niels over Semi zijn valpartij op zijn kin: "Hij heeft alleen geen hechtingen, daar baal ik wel een beetje van."

Wouter van der H. on the Election GM of the 39th board: "hollup, heeft Wouters bestuur gedaan? Nee toch?"

Sjaars: "Wat is datastructures kut."
tEun: "First time?"

Ilse F.: "Je kan eigenlijk alleen de uitgaven zien, maar de ingaven kan ik wel verklappen."

Jealy: "Ik vind mezelf verbazingwekkend monogaam."

Ruben: "Zouden jullie je planten namen geven?"
Bouke: "Ik weet niet man, ik zou ze denk ik ook geen water geven."

Meeles tegen Bor: "Te weinig tong, te weinig tong, maar ik kom je wel zo snel mogelijk opzoeken."

Kaz tijdens poster review: "Elke tip kan een top zijn."

Alex: "Ik kom bijna klaar. Dit is echt een wiskunde orgasme."

COLUMN

GOODBYE IN TIMES OF COVID-19

Parting ways is never easy. Nevertheless, after spending 6 years with this committee, the time to part ways with the Supremum is getting closer minute by minute. As it doesn't look like the COVID-19 virus will leave us anytime soon, I might not be able to say goodbye to the rest of the committee by shaking hands. Fortunately, there are countries on this planet where a handshake is not the default way of saying goodbye. Maybe we can learn something from them..

TEXT Wessel Sinnema

But before changing our habits, it is good to revisit why they exist anyway. Originally, proposing a handshake was a sign of trust; it showed that you were unarmed. When initiating the handshake, you made a possible opponent aware of that fact, before knowing whether they were unarmed too. When the other person accepted the handshake, both of you knew that nobody was armed. As such, the handshake was only the default when meeting with equals.

When meeting superiors, the default way of greeting and parting ways was bowing. A bow is of course a gesture, where you bend your back and lower your head. While most of us aren't used to bowing, it is still the default way of greeting and parting in many other cultures. In our own culture, there was a difference between the genders in bowing customs. While the default for men was bowing, for women it was curtseying. The main difference between the two, is that when bowing, you normally lower your head by bending your neck. When curtseying, you lower your head by bending your knees instead. Although curtseying is not used as often anymore, we all still know it from (often historical) series and movies.

Although bowing is more hygienic than shaking hands, it still feels weird for most of us. Luckily, there are many variations to the bow. For example, in Japan, there are 12 basic variations of the bowing gesture. The customs for bowing vary by gender, formality, and status. Choosing the wrong type of bow is often problematic; it can either insult the person you are greeting, or damage your own status.

Another common variation on the bow is the Namasté or the Wai. To do a Namasté, you press your hands together, with your palms touching, your fingers pointing upwards and your thumbs pointing to your chest. Then, lower your hands, until the angle between your hand and your arm is about 90 degrees. This gesture can be combined with a bow, to make it more respectful. In certain countries in South and Southeast Asia, this is the default greeting gesture. It is not known whether this gesture was used in Europe historically, it is now widely used as a yoga move.

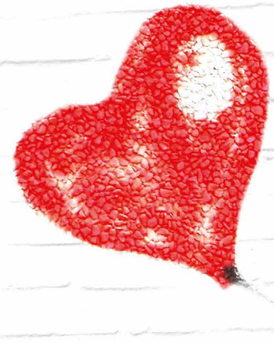
The origins of the Wai are similar to the handshake; with both gestures, you showed your enemy that you were unarmed. In fact, this gesture was even more effective, as it shows your enemy that you are unarmed with both hands, while the handshake only shows that your right hand doesn't have a weapon. Because it is based on a similar principle to the handshake, the Wai looks like a good alternative for the handshake. The downside of the Wai gesture is that it looks very similar to praying. So to many people, the Wai gesture looks religious, which might become awkward in some situations. These awkward situations even arise in countries where it is the default. As such, even in the countries where this gesture is the most common, there often is an alternative way of greeting and parting in informal situations. In India, a "sloppy" version of the Namasté is often used when greeting informally. In this version, the last step of lowering your hands to a 90 degree angle is skipped, giving a more informal and less stiff feel to the gesture. In Southeast Asia, the Wai gesture is not used at all in informal situations; a smile is used instead in those situations.

Like in Southeast Asia, many cultures, including ours, use facial expressions as a low effort way of greeting in informal situations. While some of us greet by smiling, the more common varieties are either raising your eyebrows, and nodding.

The greeting gesture of raising your eyebrows might originate from the unconscious gesture of raising your eyebrows when you are surprised by something. Although greeting by raising your eyebrows exists in most cultures, the actual interpretation varies between them. In some places, like the Tonga island, the method of raising your eyebrows is the default, and can even be used in more formal situations. On the other hand, in countries like Japan, raising your eyebrows is considered indecent and, perhaps literally, frowned upon.

Finally, you can always wave to greet or part ways. A wave is a gesture where you move your hand visibly and repeatedly. Similar to the bow, there are various different variations of waving. Waves can range from more formal and very informal. There are four main variables that differ between waves. First, whether the palm is directed at the other person or not. The second variable is the elevation of the hand. Third, the angle of the wave. Finally, there is the direction of the movement of the wave. Like with most of these other gestures, the customs of waving differ between various cultures. In the west, waving is often used at a distance, while in some eastern cultures, it is also common to wave to closer people. An interesting variation is the Hawaiian wave. In this wave, the thumb and pinky are stretched out. The three middle fingers are curled into the palm of the hand and then the hand is waggled. Unfortunately, this wave kind of looks similar to the horn sign, which has various existing connotations to it in our culture.

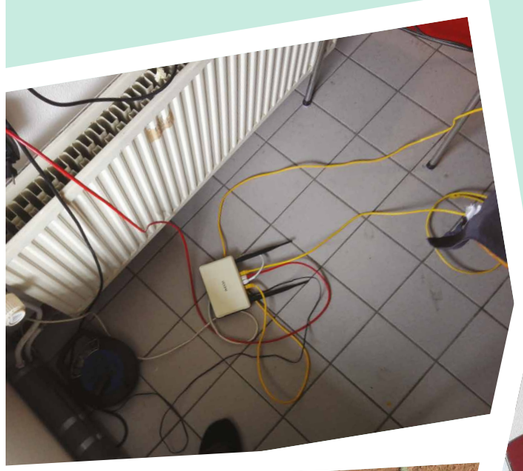
Two gestures that are also related to the wave are the peace sign, where you make a V with your index and middle fingers, and the famous vulcan salute, where you instead make a V with your middle and ring fingers, while keeping your index finger pressed to your middle finger, and your pinky pressed to your ring finger.

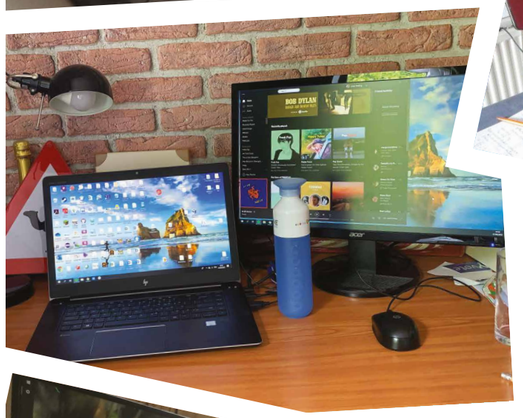


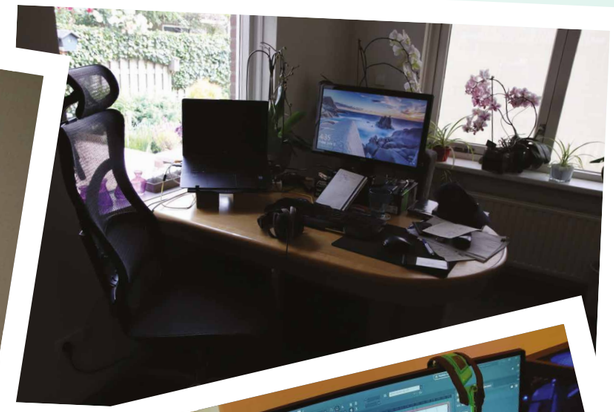
Personally, I like the idea of the Namasté and the more casual Namasté, as the origin of the gesture is similar to the handshake. It therefore feels like it could be a more hygienic alternative for most people. Unfortunately, it still feels weird to use the gesture in practice; many people give weird looks instead of properly mirroring the gesture. So instead, I might just continue the eyebrow raising gesture, which still feels less weird. I guess changing habits is difficult.

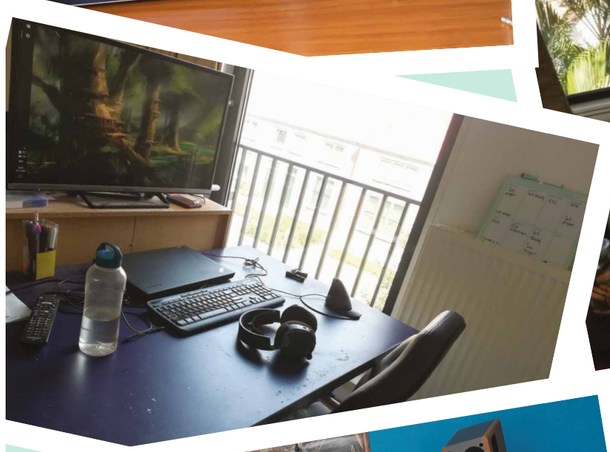
WHERE ARE YOU?

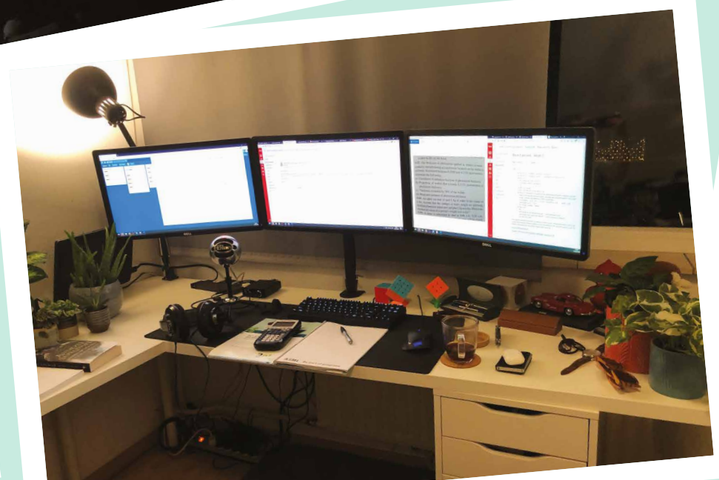
Supremeception, mascots, study hub 2, a stable internet connection, a mess on your desk, motivation to clean your desk for featuring in a magazine, study material for exams, a beautiful set of hardware: our readers traded the campus for their homes and this is the result!

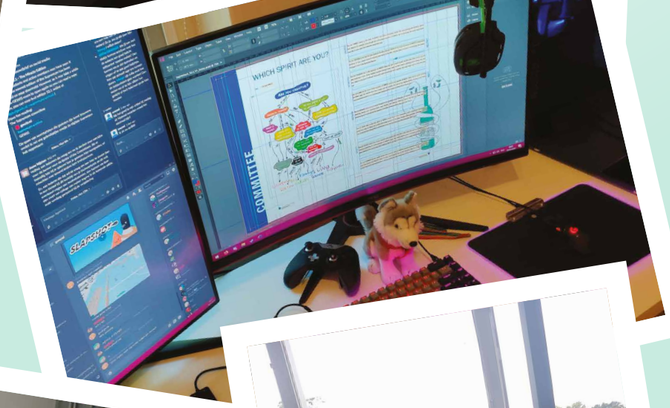












COMPANY

INTERVIEW PRODRIVE

TEXT Florian Oosterhof & Simon de Vegt

FLORIAN SIMON

CAN YOU TELL SOMETHING ABOUT YOURSELF, AGE, HOBBIES, STUDY ETC?

My name is Florian Oosterhof, aged 26. I did a double bachelor Mathematics & Computer Science at the TU/e, and chose to continue only with Mathematics in my master, in the direction of Discrete Mathematics and Applications. In my spare time I play rugby and play games on my Nintendo Switch.

I started living 26 years ago in a small village in Overijssel. I moved to Eindhoven for my bachelor Electrical Engineering after which I started my current master Embedded Systems (Software stream). I am a very active person, hate to sit at home, love to go to the gym, active vacations (snowboarding) and any whatever-activity with fun people.

HOW DID YOU END UP WORKING AT PRODRIVE TECHNOLOGIES AND WHAT WAS YOUR WORK EXPERIENCE BEFORE YOU STARTED WORKING AT PRODRIVE TECHNOLOGIES?

I wrote an open solicitation to Prodrive while studying at TU/e, already during my bachelor. I had no previous work experience, only did some tinkering with programming in my spare time. During my studies I worked 12 hours per week, except during my semester abroad, and after my master I started working full-time at Prodrive.

This basically happened because I was totally done with studying full-time. I did an open solicitation at a couple of companies and I am happy that Prodrive responded very quick because that is how I ended up here. I am still studying full-time but somehow motivated enough to also work.

CAN YOU EXPLAIN WHAT YOUR CURRENT FUNCTION IS AT PRODRIVE?

I am a software engineer & architect. In this role I take responsibility of updating the specification and design of the software according to the (changing) wishes of the client, and am part of the team implementing the changes. In practice I also help with investigations of mechanics and production issues a lot, which typically require tweaks and changes to software to show more than the usual diagnostics.

I am also software engineer, I started on the mobile-apps project which led to me currently being the sole responsible for our internal (iOS, Swift) apps. I do off-site standby shifts for our application-software running in the factory, wrapping up my previous project with high-end blade servers and am also busy with my graduation project. I like variation.

WHAT IS YOUR COOLEST PROJECT SO FAR? AND WHY THIS PROJECT

I have only worked on one real project so far, but it is definitely a cool one. In this project we build a digital and automated tissue scanner. The scanner is part of an ecosystem of scanners, automated slide placers, viewing software and other tools to make the work of the pathologists easier. The software makes a low-resolution "overview" image to see which regions of the slide are relevant to scan in high-resolution.

In this project I have performed several fun theoretical problems. We needed to create an efficient algorithm to calculate a cover in high-resolution coordinates of the interesting areas in the low-resolution image. This requires a mathematical description of the conversions between low-resolution and high-resolution coordinate systems, but there are also restrictions placed on the calculated cover, such as non-overlapping of two separate but very close pieces of tissue. Based on problem reports from the client, we incorporated a system-specific and highly non-linear component in our coordinate conversion, to account for motion characteristics of the system.

This is definitely my graduation project. I picked it because it is the coolest project at Prodrive (warning: biased). Within Prodrive we develop control algorithms for all kinds of motion applications. These are often implemented in FPGA's, now we want to create an automated flow from an implemented control algorithm in Simulink® to assembly running on a softcore in an FPGA. In order to do this we need to somehow compile this model. For this we decided to use LLVM, a modular compiler framework. My graduation project focusses mostly on designing and implementing an LLVM-backend which translates LLVM-IR into custom assembly for our internally developed softcore. Never during my bachelor I would have guessed I would be implementing a compiler backend in my graduation project.

HOW WOULD YOU DESCRIBE THE BUSINESS CULTURE? (HOW ARE YOU COLLEAGUE'S, WHAT WOULD BE THE AVERAGE AGE, WHAT KIND OF BOSS DO YOU HAVE, IS THERE A LOT OF PRESSURE, ETC)?

At Prodrive the average age (at the time of writing) is 28.34; this is also noticeable in our business culture. It sometimes feels like a very interesting and next level student-project. Everyone is extremely passionate about their job, but at the same time they value their (and your) time off, if you pick up a work-call when you are on the ski-slopes in France they hang up on you instead of just asking what they wanted to ask (true story).

Prodrive is a very flat organization. *We don't really do bosses at Prodrive, your project leaders responsibility within the project is to manage resources and scheduling, not to be your boss. The idea is that management is overhead and that it should be minimized, instead everyone has responsibilities and this is taken very seriously.*

We prefer direct people-to-people contact over bureaucratic correctness. If you don't know who to turn to with a problem, you ask someone who might, and directly approach the referred person. Although Prodrive has outgrown the stage where everyone knows everyone, we still prefer to work in this face-to-face way. Add to this the secondary benefits such as a free gym, free lunch and dinner, and a company phone, and you can see that Prodrive is a great place to work.

HOW DID YOUR WORK LIFE CHANGED DUE TO CORONA, WHAT CHANGES DID PRODRIVE MAKE?

Prodrive policy is to work from home. For software engineers this is typically not a big issue. This was already possible before corona, and I have used it before to catch up on some work during evenings and weekends. Nevertheless, I always preferred working at the office. Now, due to corona, I cleaned up and upgraded my home workspace, and now I really enjoy working at home, mainly because it gives me bits and pieces of time with my wife and newborn child during the day.

In addition to the working at home policy we have implemented a lot of measures to ensure the safety of our colleagues on-site. When you enter the building your temperature will be measured, the hallways have been transformed into a one-way tour across the buildings with mandatory hand sanitation stops everywhere. The canteen has been reorganized such that everyone can spread out during breaks. The factory has made a lot of changes on top of the already very clean working environment. Our own personal trainer (GymTim) is streaming daily workouts for everyone to enjoy.

DO YOU HAVE ANY TIPS TO SURVIVE THE CORONA CRISIS FOR STUDENTS?

- *Study (so you have time to go outside when the time comes)*
- *Use a kitchen timer do pomodoro (time management method), stretch every break and / or do some pushups. MOVE!*
- *Engineer an ergonomic work setup, this doesn't have to be expensive: use rolled-up socks as wrist-rest, put some books under your laptop for a proper height, put a tennis ball on the floor for your feet to play with.*

PRODRIVE TECHNOLOGIES

FORMING NEW HABITS

University life brings a lot of new dilemmas with it, for example: do you study for the exams or are you going to play cards at GEWIS? Do you cook your own meal or do you get some microwave food for dinner? And last but not least: are you going to go to that lecture in the morning? For these situations new habits will have to be formed and this training on paper will try to guide you through the process in several steps.

TEXT Arend Verbeek - TRAIN

WHY SHOULD YOU FORM NEW HABITS?

People need habits for routine situations, like having breakfast or going to a sports class. If you would need to actively think about all these small things, you would waste a lot of energy, while the outcome would be the same each time.

FORMING NEW HABITS

The first thing you should ask yourself is why you want a new habit. This means that you should be able to clearly define what bothers you in your current situation. Personally, I wanted to stop drinking soda, because I did not enjoy it anymore. Some other goals that came up during an earlier training on this topic were to keep the same sleep schedule, so that people would feel less tired, or to stop snacking after dinner. You should define your goal to be measurable, otherwise you will easily get bored with your challenge. For me, this was quite easy: I should just stop drinking soda. However, for keeping a sleep schedule, for example, it is somewhat harder. Do you have to get up at exactly 7:30 or is the interval between 7:30 and 7:39 alright too?

THE REWARD OF A HABIT

Very often, the reward for a 'good' habit is something unrelated to the situation that the habit is used for. Going to the gym and rewarding yourself with a piece of chocolate afterwards is an example of this. You shouldn't need external motivation, because a habit should be rewarding enough by itself. If this is not the case, it is apparently not important enough for you to change your habit.

CRITICAL MOMENTS

Attempts at making new habits often fail because of outside pressures. For example, going to the gym twice a week is very hard if you have three exams in the next week and you are trying to find a new room at the same time. So if you are just starting to adapt to a new habit, try to imagine some situations where you might not keep true to your new habit. If you already have a premade response to such a situation, it is a lot easier to stick to your plan. For my challenge, one of the hardest situations would be during a party, when everyone is drinking something else and I would have to say "water please".

GOOD AND BAD HABITS

People often focus on whether a habit is good or bad. This completely depends on the situation and the desired outcome. Sleeping in might be a bad habit if your goal is to attend morning lectures, but if your goal is to feel well rested then it might be a good habit.

WILLPOWER

Willpower is the ability to control your behavior in the face of temptations and impulses. Most situations have a short term benefit and a long term benefit. For example, studying until five o'clock and watching Netflix afterwards is more beneficial for your study. However, watching Netflix right now is very tempting.

LOSE WILLPOWER	GAIN WILLPOWER
Sleep deprivation	Sleeping
Alcohol	Eating
Losing focus (for example Facebook, email or cleaning)	Sporting
Making choices	Green environment
Suppressing emotions	Laughing
Stress	Spending time with family and friends
Have to's	Attending religious or cultural activities
Netflix/games	Slowing breath or meditating

A planning makes it easier to reach the end goal that you want, but there are also some other activities that increase your willpower and thus increase the chance to get your desired result. Beneath you will see an overview of what to do to get willpower in specific situations.

STEPS TO CREATE A NEW HABIT:

1. Find an undesirable situation.
2. Find an alternative outcome that you prefer.
3. Make a plan to reach that outcome (make sure that each step is measurable).
4. Think of some critical moments where you could fail.
5. Try out your new habit!

RELAXING IN A SILVERCHAIR

*As I discovered during the quarantine: a broken laptop, a dusty pile of CD's and a CD player make a great recipe for an extended session of music nostalgia. With no Spotify for a few days, yet still wanting some music in my room with a good sound quality, I got a few CD's out of their cases, and into my music setup. A lot of great artists such as Nine Inch Nails, Eric Vaarzon Morel and Devin Townsend saw the light of day again. But after a few runs of CD's, this frog stared back at me: "Hey, *croak*, it's Wednesday and you have not played me yet?" After questioning whether I just really heard a frog talk to me, I kind of had to agree with his statement. It really was a long time since I played that record. It was time for me to rediscover this record again. Very well Froggie, let's do a deep dive into the early ages of the band that produced you: Silverchair.*

TEXT Lars Verstraelen

A As a Grunge fanatic, the discovery of Silverchair was undeniable for me. My nephew (also the drummer of our band) fed me so much Pearl Jam, Alice In Chains and Soundgarden that I just grew to adore them very much. One day, he suggested me this less popular group; a group that makes this great and rock solid music, sounding like everything you aspire from Seattle Grunge. Without a second thought I put the record on the next day, where I had to make a long train journey (or at least long enough to complete the whole record). Just like the ride, the discovery of Silverchair was lovely.

The record in question that my nephew suggested was called "Frogstomp"; the debut record of Silverchair. I was awed by the raw intensity, the brilliant songwriting and the flawless vocals of Daniel Johns. As this was their debut record, I wanted to discover more about the band. I actually researched them thoroughly, and discovered some very unexpected things. First of all: even though the Seattle Grunge sound is so evident here, the guys were not from Seattle. In fact, they were not even from the USA. The guys came from Newcastle, New South Wales, Australia. Considering that this record was released in March 1995, and the existence of only 7 really big Seattle Grunge records at the time, it is incredible how they adapted the style of music.

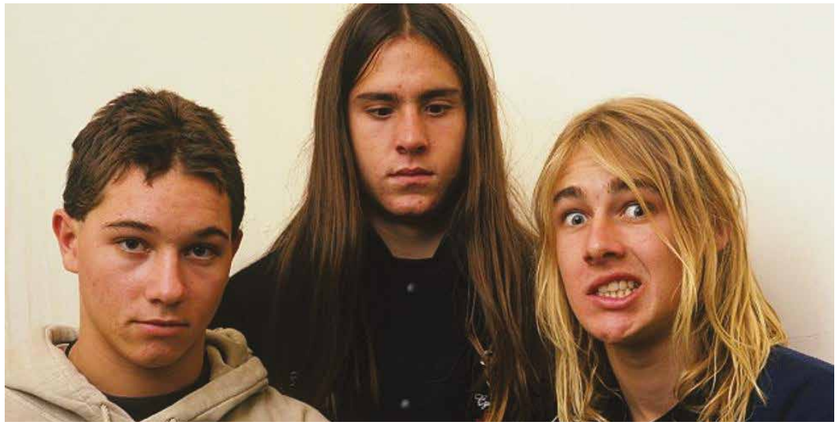
This record also adheres to a very natural flow. It makes for a very comfortable listen; a very pleasant 45 minutes. This is an important feature for a Grunge record: as Grunge is basically the very young sibling of Metal, it is hard to make raw and heavy music sound natural and gradual. Once you master the ability to write about very sincere issues accompanied with loud guitars and drums, while remaining the flow as calm as it is on Frogstomp, you know that you are a master in your genre.

The topics that are addressed on Frogstomp are very sincere and melancholic. They deal with religious misconducts, mass genocides, suicidal tendencies and exclusion issues; and these don't even address the full spectrum of the topics discussed on the record. Surely you would think that writing about these touchy subjects must go hand in hand with years of nasty experiences in life. The guys must definitely at least be in the end of their twenties... right? Not even close. At the time of release, the members of Silverchair were only about 15 years old! This gives the phrase "the early ages of the band" a bit of a double meaning. This may have been the largest surprise that I ever discovered from a band: at that age, I was hardly close to being a serious musician, let alone writing about serious topics in a non-degrading fashion. In this perspective, the record is not only well-written and respectful towards serious topics, it is also incredibly mature.

To give you a bit of perspective: the band formed in 1992. This implies that the boys were writing these very dark and poetic songs, even before they would learn about dark literature in English class. It was not mixed with this attitude in which youngsters would talk about these topics; they were (surprise surprise) very mature towards them. As a musician I also find it incredible to know that Silverchair completely mastered their instruments and vocals by, at most, the age of 15. The songs are quite intricate from a musical point of view. Not in a progressive "Pink Floyd" or "Dream Theater"-ish perspective, but in the way that I find it impressive that they use quite advanced chords and creative riffs. Also the rhythm section is spot on: Chris Joannou and Ben Gillies sound like one solid rhythmic instrument, creating this great backdrop for the melodies and vocals. It is impressive that a band consisting of such young members is capable of producing music that puts them right alongside the great Grunge heroes when it comes to talent.

It is also nice to see that despite the maturity of Silverchair, the guys were showing these insecurities that can only be shown if you are about 15-17 years old. The success of Frogstomp caused the guys to put onto these immensely large festival stages alongside very large names. In an interview from 1997 with

members from Foo Fighters and Veruca Salt, they stated that the singer was showing that he was still only 17 years old. He would practice his vocals for a full hour before the show started. To give some perspective: the bands that I know about hardly practice their vocals before the show, and if they do they will only do it 15 minutes prior to the show. Johns wanted to do everything perfect; something that I recognize in myself, as I also jumped on stages ever since I was 16 years old. Dave Grohl however stated that the insecurities of the members of Silverchair were misplaced, as they made great music and had a beyond fantastic singer. This comforting statement from Grohl to Silverchair might be the strongest way to describe Silverchair in their early days: young, powerful, great songwriters and containing one of the finest singers you could wish for in Grunge.



FIND THAT COMMON DENOMINATOR

What is the "default" TU/e student? As we are in the Netherlands, it is natural to assume that the default student is Dutch. However, with English as the TU/e's working language and the vast number of international students, would this be a fair assumption? on FaceTime. Sounds familiar right?

TEXT Caroline Freyer

Over the years we have heard many stories about internationals feeling excluded, lonely, and depressed. These stories circulate the internet and foster substantial attention. However, there are also stories about Dutch students being lonely and depressed. International students have to leave their family and friends behind and therefore, seem to be at a disadvantage. Yet, I believe this is an advantage. As an international student, you have to put yourself out there and meet people to make Eindhoven your new home. Dutch students have high school friends and family close by and thus do not feel that need to make Eindhoven their home. In the long term, this could be much lonelier. Therefore, it is important to see that regardless of nationality, we all face similar problems.

Throughout school and university, I have been an international student. For 21 years, I have seen the great opportunities the international environment has to offer. You meet people from the far ends of the world and learn to understand and befriend them. In this ever-changing and ever more connected world, this is imperative. This makes the international climate that the TU/e has one of the most important qualities.

As adults, a constant stream of judgment runs in our minds while making any decision. This is one of the greatest barriers to the way we form friendships. I have learned that there is always a common denominator and this is all you need to build a new friendship. We all knew this as children. We just needed to find someone the same age or who was interested in the same toy.

> "This world is big, but by making an effort to befriend people from other cultures and nationalities you can connect it and make it smaller."

This world is big, but by making an effort to befriend people from other cultures and nationalities you can connect it and make it smaller. Being an expat, I made friends all around the world. At the TU/e we can all have the same opportunity. With the number of nationalities the TU/e students represent, we could form our own world fair and learn about the lives of others all over the world. By having friends worldwide, we learn that everyone has similar desires and worries. The only thing we have to do is find that common denominator.

GRADUATING
THE STRUGGLES

When you ask people who recently graduated about their graduation internship, you will most likely hear complaints. Not necessarily about the company they were with or about the subject of their thesis, but more about the graduation process in general. It seems almost to be the default way to graduate: complain a lot until you get your degree.

TEXT Thijs Ledeboer

Most of you will know that I also graduated not too long ago, which was accompanied by a lot of complaints. So, I thought, keeping the theme of this Supremum in mind, that it might be a good idea to help future graduating students with some advice. Specifically, some advice on how to deal with the default problems you run into when doing your graduation.

The first problem many people run into is finding an interesting research topic and a supervisor. My approach to tackle this problem was looking at graduation positions companies offered. I ended up at the same company that I already worked for so I did not need to introduce myself there, otherwise that would be the beginning. To find a supervisor, I just e-mailed the chair of the group that was the closest related to my research topic, stating the topic and asking if there was a supervisor. I found my supervisor within one hour after that e-mail.

Once the supervisor is found, paperwork is needed. Most of the time this does not result in any issues, except maybe getting signatures from busy supervisors. Once that is taken care of, all you have to do is wait for the starting date. Or that is what I thought, but that was my first mistake. I had a research topic for which I needed data, which was expected to be there once I started. However, during my entire graduation I never had real life data since it proved harder to obtain than expected. That brings me to my second advice: if you need data for your research, make sure it is there before you start.

Most people start enthusiastically and full of motivation, but often around the halfway point or a bit later the "graduation dip" comes, or at least that is what I called it. You have been focusing on the same project for over three months and you still must go on for three more months. You have run into countless issues and graduation still looks so far away. Most people that I know went through this phase and I can only give tips based on how I dealt with it. I planned a meeting with my supervisors and plainly said, "I do not know where this research is going, I am half way in my time and I need something concrete that I can work towards". This got them thinking as well and we set realistic goals and completely redefined my research, but that was my specific case. Your supervisors are there to help you and they want the best for you, there is no shame in admitting you need help.

Every graduation project is of course different, but keep in mind that you are not the first to graduate. Ask for help if you need it and speak up if you are struggling. People want the best for you and are often willing to lend a hand.

HOMEMADE PIZZA

The theme for this supremum edition is default. So I started thinking, what is a default recipe? Well for me a default recipe is pizza! It's extremely easy to make yourself and so delicious. It might take you a tiny bit of practice to get everything just right but that's the fun in cooking. Let's dive right in!

TEXT Ruben Brinkman

First, some ingredients are needed. This recipe makes pizza for about 4 to 6 people. You will probably have some sauce leftover though.

FOR THE DOUGH YOU WILL NEED:

- 700 grams of flour (preferably around 15% protein)
- 500 ml of lukewarm water
- 7 grams of yeast
- 7 grams of salt
- Heaped tablespoon of Italian herbs mixture (optional)

THEN THE SAUCE:

- 400 grams of skinned tomatoes
- 1 onion
- 3-5 cloves of garlic (really depends on taste)
- 50 ml of olive oil
- 30g of tomato paste
- Heaped tablespoon of Italian herbs mixture

First, let's talk about the ingredients a bit. The first thing you might notice is the 15% protein in the flour. When making pizza you want to be able to stretch the dough out to form a good base. Stretching the dough very thin requires having a good build-up of gluten in your dough as these provide strength. Having a higher protein level means you will build up the gluten structures easier and better. However, using normal all-purpose flour will work just as well. Maybe you'll need to leave your pizzas just a bit thicker or the stretching can be a bit more work but that's not a problem at all. In the photos I used whole-wheat flour as flour has been sold out for quite some time, as you can see that posed no problems either.

Then for the sauce, please get some good quality skinned tomatoes. You will really taste this in the sauce. Something like Mutti. The amount of olive oil might also seem excessive but trust me, it's just a lot tastier this way.

You might also notice that a very important part of the pizza is missing, namely the toppings. I like to leave these up to yourself. You cannot really go wrong here. I like some nice mushrooms, lots of cheese, artichoke hearts, bell peppers, etc. You might even like pineapple on your pizza like some sort of maniac.

Now instructions on how to bake these delicious Italian pies. Please read them through thoroughly as there are a few options you can choose from.

THE DOUGH

1. Start by mixing the dry ingredients of the dough. Then slowly add about 4/5 of the water. Start kneading the dough. It might feel quite wet at first but please refrain from adding more flour.
2. Keep kneading for about 10 minutes. Whilst doing so slowly keep adding more water. At some point it should start looking a bit satin-like and not stick too much anymore.
3. When done put it in a lightly oiled bowl and cover up with either plastic wrap or a wet towel.
4. Now you want to leave the dough on the counter for about an hour.
5. Now you have to make a choice, you can either put dough into the fridge and leave to slowly rise overnight, or if you want pizza now leave it be and skip 6.
6. If you put the dough in the fridge take it out about a good hour before you want to start working on it to allow it to get up to room temperature again.
7. Once the dough has roughly doubled in size take it out onto a lightly floured countertop and divide it. You should make a ball for each pizza you want.
8. When making the balls try to not push too much air out. You should sort of fold the dough into itself and pull it over the countertop to "push" all the folds inside itself. The balls should have nice and tight skin. Put them on a plate or tray and leave them be for roughly 30 to 45 minutes.
9. After letting the dough balls rest pick them up, you can either stretch them by hand or roll them out. However, rolling will get rid of a lot of those nice air bubbles. And stretching by hand is a lot easier than it sounds! For stretching you can let gravity do most of the work first just pass the dough along with your hands whilst holding it up into the air it should start to stretch out.
10. Given that everything went right with mixing the dough you should be able to stretch it very thin without breaking it the pizza should be around 25 to 35 cm in diameter, don't stress if it's not perfectly round! That's what shows you made it by hand.

THE SAUCE

1. Dice the onion and garlic and start fruiting them in the pan with the olive oil. This should be done on medium heat.
2. Once the onions start to become somewhat translucent add the tomato paste and keep stirring for a good minute.
3. Add the canned tomatoes and stir everything together. Under no circumstance should crush the tomatoes.
4. Bring everything to a light simmer and put the heat to low. Let is simmer for at least 20 minutes. I often leave it for a good hour. You must stir every couple of minutes. In the last 5 minutes add the herbs.
5. The tomatoes should have burst open themselves from the simmering after this. You now have two options, either stir everything together quite vigorously if you like to have a chunky sauce. Or if you want a smooth sauce (which is what I like) use a blender.
6. Now comes tasting, you might want to add a bit of salt and pepper but be careful as a lot more cheese will be added to the pizza. If it is a bit too sour you can add sugar to sweeten it, or it is too sweet you can use a bit of red wine vinegar.

THE BAKING

1. Preheat your oven. Put it as hot as it can go. The max on mine is 250oC.
2. Put the pizza on the piece of parchment paper and spread some sauce over it. Now top it however you like! My favourite way is with sauce, shredded old cheese, mushrooms, red onion, artichoke hearts and, last but not least, mozzarella.
3. Now put it in the fully preheated oven and let it bake for around 8-12 minutes. Just keep an eye on it.
4. Take it out, let it cool ever so slightly and bon appetit!

It might seem like quite a process but in reality, once you got have made it once or twice it'll be extremely easy to make. For me, it even has become my default go-to recipe when I have a tad bit more time on hand and want to eat something nice.

I hope you'll enjoy your pizza! If you happen to have any sauce leftover you can use that for a really amazing and simple gnocchi recipe. Take the sauce, add about 150ml of vegetable stock and a can (400 ml) of diced tomatoes. Bring this to a simmer, add 500 grams of gnocchi and let it simmer for about 4 minutes. Take it off the heat and stir in any leftover cheese you have. Serve this up with a nice and easy salad and you've got yourself a super quick meal the next day as well!

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

Find out more at: www.gewis.nl/association.

FRATERNITIES

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ATHENA

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

Défi
Défi

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GEWIS Ervaart Limburgse Initiatieven Met Bewondering en Ontzag

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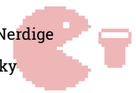
GEWIS Plant Weer Nerdige Activiteiten en Geeky Evenementen



I.V.V
In Vino Veritas

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