

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

G E W I S

 **UPREMUM**

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THE
DESIRE
EDITION



EDITORIAL

This edition's theme is Desire, which can be expressed in a lot of ways. From candidate board members desiring to spread their wings and learn to fly, to students at the end of their studies desiring to finally be done with their thesis. You might desire better planning skills, pizza for lunch, or to cuddle with a cat, but what I am sure you desire is to read the rest of this edition of Supremum :).

EDITOR IN CHIEF Koen Deen

One's desires can change at almost any moment (currently my greatest desire is to just go to bed and sleep as long as I can). However, some desires never change (which maybe still includes sleeping). It's a bit of a funny thing, as a lot of these desires can be explained by evolutionary needs (this is somehow still about sleeping), but some are completely irrational constructs. Take legacy; why should a monkey care if his grandchildren know who he was? Or even hobbies; I'm not sure if arts and crafts would make my monkey ancestors more likely to continue their bloodline.

Yet, all of these desires shape us into the people we are today. They lead us toward a purposeful, fulfilling life (which might be the evolutionary benefit after all). Desires are your personality, it's what makes us human. To be freed from desire is to be dull and lifeless, and I am sure that that was not what Gala meant when she wrote that song.

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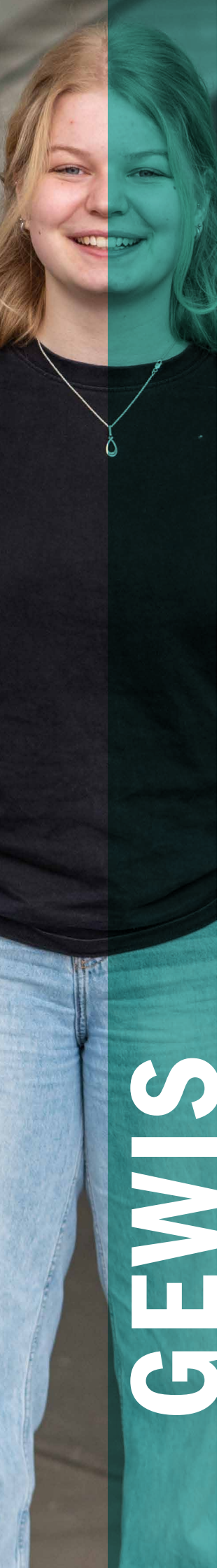


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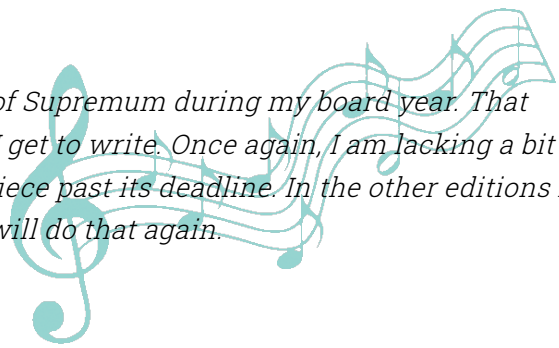
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CHAIR'S NOTE

Here we are, the third and last edition of Supremum during my board year. That also means the last Chair's note that I get to write. Once again, I am lacking a bit in inspiration, leading me to submit this piece past its deadline. In the other editions I tried to use the theme as inspiration, so I will do that again.



TEXT Ciska de Greef

Personally, I have always had a desire to make music, so I thought it would be nice to tell you more about that. Ever since I was a little girl, I had a dream to become a big star by singing and playing the violin (yes, both at the same time). I was “performing” for my mom very young already, singing in a random plastic microphone she gave me. There are pictures of that, but I will not share those today.

In primary school, my mom told me I had to pick one sport and some sort of cultural hobby to do after school. While this sounds a little forced, I was interested in a million things so this was mostly a restriction. In the end, I did two sports (if you consider horseback riding a sport, but I am not here to have that discussion) and I wanted to play a musical instrument. The music school in my town organized an open day every year, where you could try out all the different instruments they offered, so there I went. They had a lot to offer, from trumpet to violin, from piano to drums, so I tried them all. Before coming there, I had envisioned me playing violin so that was the instrument I was most excited for. Sadly, it turned out that, to me, the sound a violin makes when someone inexperienced is playing it is not great (my apologies to any violinists out there). Fortunately, I found something with a much lower sound without this problem: the cello.

I absolutely loved my cello. It built up slowly, but by the end of primary school I was playing it multiple hours per day. In that time, I learned lots of songs and went on a classical music camp. I performed a few times at my music school, but also at bigger events like in a big orchestra of cellos at the Cello Biënnale. It was a lot of fun. Unfortunately, half way through

high school, I hit a wall. I had less time to play because school took up a lot of time, and I was not getting better as quickly anymore. Additionally, my music taste changed a little which meant that I did not enjoy all the classical music as much. Therefore, I sadly decided to quit. I still miss my cello, but am very happy with the time I spent playing it.

The desire to make music stayed, even though I was no longer playing, so towards the end of high school, I decided that I wanted to learn to play the guitar. I wanted to learn bass, but someone told me I should start with an acoustic guitar first, so that is what I did. I took weekly classes and learned all the basic cords, but I mostly enjoyed singing while playing. When I started university, I had to quit those classes as they were too far away, so for the first year here I made no music, except playing my guitar once in a while.

Then finally, after 19 years of ignoring my desire to sing, in the second year of university I started singing classes. Since then, I switched around singing teachers and had a little break, but I am still very much enjoying learning how to sing. Right now, I am also singing with a band (somehow known as the GEWIS band by the department). We have a lot of fun making music I had never even heard before joining them and practicing (almost) every week.

I hope to find some more time to practice and make music after my board year and maybe even pick up a new, or even old, instrument again. The desire to make music will stay, I am sure of that, so I will see what the future brings.

A PERFECT SCHEDULE

They all said the problem was attendance, but the exact nature of the problem depended on who you asked.

TEXT Natalia Sidorova

“If only three people show up, I might as well lecture the wall.” said the Lecturer.

“If the lecture starts at 8:45, I might as well be the wall.” said the Student.

“There aren’t enough rooms anyway.” said the Scheduler. “So let’s not pretend everyone is coming.” That, for some reason, settled it.

They agreed to remove human prejudice from the process. A model would decide. Initial results suggested the model would perform well. It reduced both empty seats and unmet demand. Minor issues were attributed to noise.

“It generalizes well.” said the Scheduler.

“It captures behavior.” said the Lecturer.

“It seems complicated.” said the Student.

It was a complex model indeed, with a target of 100% room occupancy. It took into account lecture time, lecture type, course population, historical attendance, weather, week number, exam proximity, whether the lecture was optional or compulsory, and, for reasons never fully explained, Thursday borrels.

“Excellent.” said the Scheduler. “At last, something objective.”

“It will know that 8:45 is impossible.” said the Student.

“It will know that a full room matters.” said the Lecturer. The model was trained.

In the first week, the results seemed miraculous. The rooms were full. No room shortage, yet still enough places for all students.

“Perfect.” said the Scheduler.

“Much better.” said the Lecturer.

“Much more humane.” said the Student.

The model was refined. The second schedule was even better. Evening classes disappeared from it. There was even a brief sense that the university, after many years of effort, had finally understood itself.

Again the rooms were full. Again the Lecturer had an audience, even more active. Again the Student had recordings.

“Remarkable.” said the Scheduler.

“Surprisingly accurate.” said the Lecturer.

“Convenient.” said the Student.

The model was declared a success. Room shortage was declared to be not a capacity problem but a prediction problem.

The Scheduler asked a GenAI tool to explain the model. It returned three simple rules:

1. Schedule the largest courses on Monday mornings, Fridays, and Thursdays in hours 7 and 8.
2. Provide lecture recordings for all courses.
3. Control attendance instead of maximizing it.

For a while, no one said anything. Then the Scheduler cleared his throat.

“The predictions were perfect.” he said.

This was true.

“The rooms were full.” said the Lecturer.

That was also true.

“I never missed a class I wanted to attend.” said the Student.

All desires had been taken into account.

All constraints had been satisfied.





ADVENTURES OF ALICE AND BOB

In cryptography we always work with two people, Alice and Bob, that want to communicate (no, other names are not allowed). Alice and Bob want to send each other their most secret desires over WhatsApp, but don't want these desires to become public.

TEXT Jolijn Cottaar

Eve, our evil eavesdropper, would love to know all their desires. Eve is also a tech genius and a billionaire and thus she, as the first one on this planet, has access to a quantum computer that is able to break the encryption that is currently being used by WhatsApp (and basically all other online communications, including, for example banks and governments).

You might already know that current encryption is based on certain mathematical procedures that are very easy to do one way, but doing the inverse is basically impossible within even a trillion human lifespans. For example, RSA, the most well-used cryptosystem in existence, is based on the fact that multiplying two large prime numbers is easy (your phone can do it easily), but given a large integer it is extremely difficult to factor this number into two primes. Similarly, doing exponentiation when working with a modulus is easy, while doing a discrete logarithm is very hard. The security of WhatsApp is based on this on an elliptic curve (if you find this interesting, the course Cryptology might be interesting for you).

Now this is a problem, because Shor has already introduced an algorithm in 1994, way before the existence of a quantum computer, that is able to, for example, factor a large number, or compute a discrete logarithm in polynomial time. This algorithm, though, needs a quantum computer of a certain size, and this does not exist yet at this moment. However, Google has just issued a warning that this quantum computer

might exist sooner, rather than later. So, we better prepare now.

But how do we prepare? There is a field of research called post-quantum cryptography. This should not be confused with quantum cryptography, which is cryptography that runs on a quantum computer itself. Post-quantum cryptography is meant to work on your phone, laptop, smart fridge etc., but it should protect all of these devices and communications from attacks by a quantum computer.

The field of post-quantum cryptography is based on five different families of mathematical problems that we believe are secure, even from quantum attacks. Important to note here is that we do not know this for certain, our belief is based on the fact that loads of very smart people have tried to find attacks that break these problems, but have not managed to do so yet.

These five families are lattice-based, hash-based, code-based, multivariate-based and isogeny-based cryptography. Lattice-based cryptography works in a huge grid of points, where it is easy to, for example, find the point closest to the origin when you have certain knowledge about the grid, while without that knowledge it takes forever. This might sound easily doable in two dimensions, but usually lattice-based works in a couple of thousand dimensions, which complicates it a lot. Most of the post-quantum cryptography that has already been implemented is

from this family, for example Signal (a much better choice than WhatsApp) and Chromium based web browsers that use Kyber, a lattice-based scheme (and for the Star Wars fans; yes, it is named after the crystal in lightsabers).

Hash-based cryptography is based on hash functions. A hash function is a function that takes any input and outputs a random-looking string of (usually) a specific length. It is really important that it is very hard to match an output with an input. For example, if you would hash "I love crypto" and "I love crypt0" you would get vastly different hash outputs, so there is no way to connect them. Hash functions are still quantum-secure so they can be used even in a post-quantum world.

Third on the list, we have code-based cryptography, which is based on error-correcting codes. These codes are already being used in most computations to fix any error that occurs due to noisy channels. If you know exactly how the code is generated you can easily error correct, but again it is basically impossible if you only have a scrambled version of that information.

Fourth, we have multivariate cryptography. For this we look at systems of multivariate equations over some finite field. We have all learned in linear algebra how to solve systems of linear equations, but now we change the linear terms into, for example, quadratic terms. Then, we would now look at system of equations like $x_1x_2 + 3x_3^2 + 2x_2x_4 = 0$. These systems are created

such that there is an easy way to invert them, if you know some secret invertible map F . The public information however is a scrambled version of F , which is hard to invert, quite similar to the code-based cryptography.

Last but not least, we have isogeny-based cryptography. Isogenies are very special maps between elliptic curves that have some very nice properties. Mainly, it is very hard to find an isogeny between two curves if you have no knowledge, but if you know the kernel it uses, it is very easy to find.

So, what do I actually do as a PhD in this field? I personally get to do the most fun thing (in my opinion) and that is trying to break existing schemes to see if they are actually secure. I mainly do this in the field of isogenies, but with some amazing bachelor and master students I have worked in almost every field I just mentioned (except hash-based, so if anyone is interested... let me know!). We do this by trying to find an attack that in some way locates the secret information in a faster way than just brute forcing, the attack is usually focused on the underlying mathematical problem.

A huge upside of working with isogenies is that the community is quite small and is a huge fan of workshops in beautiful places. Doing a PhD in isogenies will lead you to have breakfast with the most beautiful views on Earth! (see down below).





INTERVIEW: JW

JW is someone who by now has been working for Facilities at this university for over 27 years. He started here when the Education and Student Affairs office consisted of a single employee and a box of cards. He has seen our department grow and change over the years, and was happy to talk about this with Supremum.

TEXT Lucas Muller and Willem Schinck

Back before we moved to the (then newly renovated) Metaforum building in 2012, the M&CS department was situated in what we now know to be Atlas. Here, JW got an office on the 6th floor, the first of four floors dedicated to mathematics and computer science.

The first week JW worked on campus, he was asked by a colleague to accompany him to the borrel at GEWIS. When he learned there was one every week, he immediately went to buy himself a borrel card. He has been a regular at the GEWIS borrels ever since.

At this point, these “borrelkaarten” (borrel cards) were still printed in the same repro shop as exams were. This was of course way before everything went digital. JW’s responsibilities were also much different back then. Doing a round of the mail was a task that could take up your entire day. Placing an order for furniture or office supplies also had to be done manually, with a fax machine.

While a lot of aspects of his job have naturally changed because of things going digital, some have remained the same. There are still packages to deliver and lights to fix, though when it comes to such maintenance, he’d rather be the one to hand others the tools than the one using them.

Working at a university means that he is in contact with people from many ages. He told us that he feels these conversations with students keep him young; “You talk about different things than with Erik.” He has many stories of students coming to university as shy first-years, and seeing them grow, come out of their shells, and become the new core of GEWIS. He’ll sometimes even make bets with his colleagues who which students will become board members in a few years time.

With the many changes that happened in the time JW has worked here, it is only to be expected that there are ones he likes, but also ones he finds regretful. While he is happy to never have to replace the projector lights that were always way too hot, he misses the atmosphere from when he first started.

At that time, the university was a lot smaller, and you could feel that. People generally left their door open to let anyone drop in for a chat. This meant any face was a familiar face, so it was much easier to approach someone.

Not only that, but you could also mess around a bit more, the vibe was less official. Sometimes, if the child of a coworker came to work with their parent, JW would offer to take them along on his mail round. They’d get to be on the cart as he raced through the hallways. One of these kids he raced with is now walking around in a toga here. She still remembers this fondly.

As the department, and university as a whole, have grown in number of students and staff, JW has seen a huge increase in diversity in both groups. While the switch from Dutch to English hasn’t always been an easy one, in our conversation with him he was always quick to point out how much he appreciates the large variety in the kinds of people he gets to interact with on a day to day basis. From what he can tell, no matter who you are – where you’re from, who you like, what you look like, what kind of job you do – you are welcome here. This feels only natural to him, since “Everybody has to go to the bathroom, so everybody should be able to.”

There is one thing that is not welcome, and that is a lack of respect. In general, JW hasn’t experienced much disrespect between different kinds of staff members. When it does happen around him, he is happy to shut it down. He tells us an anecdote from an unspecified number of years ago. A PhD student threw something on the ground in his office, and refused to clean up the mess. “That’s for the cleaning staff,” according to him. JW struck a deal with the cleaning staff: they won’t clean his office until he cleans it up himself and apologizes to them. Two weeks later, JW hears a knock on the door; the PhD student has come to say sorry. After the apologies, everyone goes back to work as normal; there is no need to dwell on it anymore.

Currently, JW hopes to continue working here until it’s time for him to retire. We ask him if there is anything he would still like to do before then. Having worked at a university for so many years, he thinks it would be fitting to give his own lecture in a big lecture hall. He would talk about how it was to work on this campus, everything he has experienced, and pass on some wise words like any old guy would.

Something else he’d be excited to get to do again (though he’ll never offer it himself) is to DJ for an event on campus. It’s been a hobby of his for years, and he has done it for a few GEWIS activities. One time he DJed for a thousand employees at the sports day, because the band that was meant to play there was booked double. Doing this for such a big crowd of people is daunting, but once the first people start dancing, you’re set.

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Metaforum after renovation



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Metaforum before renovation



AI GUARDRAILS

How to keep your agents under control

TEXT iO

In the previous articles I've explained what AI agents are, and how they can make meaningful impact by triggering next steps in a workflow or making changes to other systems via the available protocols.

A risk that always remains when allowing AI to interact with other systems or your end users is that you don't know what conclusions the agent will reach – and thus you don't know what changes will be made, or what response will be given to your end users. The internet is full of examples where AI agents have accidentally removed entire databases or have given very strange responses to prompts – sometimes resulting in quite funny scenes, like the fairytale tree in De Efteling talking about grandpa skateboarding while not having any legs when asked to tell a customized fairytale.

This article will explain how you can use guardrails to prevent AI agents from running amuck and potentially causing data loss or reputational damage.



HOW DO YOU PREVENT AI AGENTS FROM ACCESSING AND MODIFYING DATA

The most straight-forward approach to prevent agents from accessing and modifying data in unwanted ways is to make sure that the agent doesn't have access in the first place. It may be tempting to provide your agent with a machine-to-machine access token that has broad access, however this is not recommended, because an AI agent is not a machine in the typical sense.

After all – AI agents make autonomous decisions, which makes them inherently riskier than a typical component that does a specific pre-programmed action – in that case the risk of unexpected behavior is a lot lower.

Instead, you should register AI agents as agentic identities in your identity & access management solutions. This ensures that you have a centralized place to manage their access as well as a proper audit trail of what has been done by the AI agent. This also makes it easier to add a second level of authentication on risky operations, for example you can add in human validation when an AI agent wants to delete some data. Most modern IAM solutions have added an identity type for AI agents over the past year and have auditing and extra confirmation steps in place.

HOW DO YOU ENSURE AI AGENTS DO NOT 'GO WILD' WHEN INTERACTING WITH HUMANS

When you're exposing an AI agent to end users through a conversational UI, especially when it's public, you need to ensure that the tone of voice used by the agent matches what you want the perception of your brand to be. For example – the conversational agent of McDonalds should not promote Burger King, or answer questions about comparing a Big Mac to a Whopper by saying that the Whopper is better. On top of that there are the obvious things like making sure the agent doesn't talk about harmful or inappropriate content.

There are a couple of ways to achieve this.

1.

SYSTEM PROMPT

The first one is a system prompt – this is a hidden set of instructions that is given to the agent before the user's message. This typically contains a description of the wanted personality and tone of voice, as well as rules and boundaries in which the agent must operate.

2.

GROUNDING

Secondly – you can employ grounding – this means that you anchor answers to a certain type of question to trusted up-to-date information instead of letting the AI rely on its internal training data.

3.

CLASSIFIERS

Thirdly – you can add filters and classifiers. Classifiers analyze the users prompt to detect jailbreak attempts, harmful requests or policy violations before it reaches the main model – allowing you to stop processing the request once an attempt to illicit an unwanted answer is detected.

Filters are applied to the answer of the AI generated response and checks it again for unsafe or brand-damaging content and can rewrite or block it when it's detected. This is a second layer of defense to ensure your assistant does not reply with harmful content.

Finally – most LLM models have built-in guardrails against harmful and unwanted content as well, but it's not recommended to rely on these because they are not in your own control - the LLM provider can change their own guardrails at any time. Secondly, these guardrails are not the same between the LLM providers, so you should always add your own guardrails on top of what the LLM provides out of the box.

To conclude – AI agents and conversational assistants are expected to pop up in more places over the next couple of years, and if end users embrace them, conversational assistants may stay until the next big tech disruption. Guardrails are an important part of assistants and agents, and should be kept on top of mind when implementing an agent. I hope this article has given some insight into the possibilities and what should at the very least be implemented in all agents and assistants.



FROM THESIS TO TECH: OUR JOURNEY AT PICNIC

You have probably seen one of Picnic’s electric vehicles around Eindhoven. Picnic is an online supermarket that delivers groceries to the customer’s doorstep. Being tech-driven allows us to plan and execute efficiently, from packing groceries in our warehouse to routing our vehicles. We always enjoyed solving problems such as vehicle routing and bin-packing during our studies, so writing our theses at Picnic felt like a perfect fit!

GRADUATING AT PICNIC

Within Picnic, Daan joined the Planning Systems team, focusing on developing algorithms that generate the distribution planning from the warehouse to the customer. Sterre joined the Machine Learning team that builds and maintains models, for instance, to forecast demand and estimate delivery times.

Daan: In 2022, Picnic was using a bin-packing algorithm that only considered the volume of articles. This led to items being placed together while their actual shape didn’t fit. I worked on a 3D bin-packing algorithm to pack articles based on their dimensions. Applying state-of-the-art algorithms to a real-world business problem was incredibly exciting to me!

Sterre: At the time, Picnic had just begun experimenting with creating recipes. My thesis focused on identifying the dishes customers cook based on their grocery orders. It was a great way to gain firsthand experience of how a tech-driven organization like Picnic operates.

WORKING AT PICNIC

Later we became full-time developers. Daan in the Planning Systems team and Sterre in Warehouse Systems. The first six months taught us a lot. We covered topics like infrastructure, databases and the fundamentals of Spring.

Daan: Being a developer is very different compared to university. Projects are less predefined, so you shape solutions around business needs. One of my favorite projects was to redesign an algorithm to better handle fragile items, reducing the number of damages. It was

amazing to observe the immediate decline in customer complaints from my work!

Sterre: I love the collaborative team dynamic and the creative aspect of designing software. It’s exciting to take ownership of initiatives and to drive them from concept to completion. The first large initiative I led was developing a new warehouse flow to optimize stock replenishment on load carriers. Currently, I am leading a project to create an automatic storage and retrieval system for pallets.

KEEP ON LEARNING

Picnic supports self-development, including through courses at our Tech Academy. Graduates learn industry best practices through introductory courses, while experienced developers have the opportunity to delve into advanced topics, like diagnosing JVM performance by analyzing heap and thread dumps. Everyone is encouraged to take these courses, to strengthen our skills and ensure Picnic remains at the forefront of technological advancements.

WHAT’S NEXT

Picnic is expanding into new markets, bringing many new challenges to our supply chain. In these countries, lower population density means our Vehicle Routing algorithm needs adjustments. For example, as trips in low density areas will generally be longer, the algorithm must schedule breaks for our drivers. There are many exciting projects in the future for Picnic to work on! And who knows? Perhaps you will spot one of our electric vehicles at the southern French coast or high in the mountains of Germany!



COLLEGIUM NOVUM

As an international student, especially one from outside the EU, navigating your life in the Netherlands is tough. From a lack of local connections to communicating in Dutch with your landlord - these experiences, some of them fairly humbling, shape the reality for many of us. It is also something that makes us strong, independent and compassionate - and makes us want to assist those facing similar struggles.

TEXT Mikalai Varapai and Sofia Larina

This is why I, Mikalai Varapai, and my friend Sofia Larina decided to create Collegium Novum Foundation, i.e. “new school”. Together with our four co-founders, we aim to build a platform where we share knowledge, experience and connections – to contribute to a smoother integration experience of internationals in the Netherlands and retainment of talent in the Brainport region.

But what does it take for students to create a foundation in the Netherlands? For us, was not as trivial as we were expecting. We first consulted a notary in Maastricht to help us sign the statutes and register with KVK. What we thought was the hardest step, turned out to only be a warm-up. We soon realized that as an organization we needed a bank account (preferably). How hard could it be?

Well, turns out having the nationalities of the two single most sanctioned countries in Europe sets up some hurdles, according to the first five banks we applied to. At every bank we contacted, we had to explain in detail what the goal of our organization is, and promise that we will not launder money (on god!). Dealing with the “Know Your Client” department became a CV-worthy skill for us – something those negotiating at the peace tables could learn. After (finally!) being able to open a bank account, the question naturally rose of setting up the technical infrastructure for the foundation. Did the Bachelor in CS prepare us for this sufficiently? Up for debate.

Our friend Tudor Farcas came to rescue us with the most secure webserver running under his bed in Luna.

This nano-quantum-blockchain-AI technology is something we decided to use for our internal organization tools, such as planning, collaboration, sharing documents, etc. Don’t worry, the main website is properly hosted, but for our internal tools we wanted to take a step away from big-tech, and primarily use self-hosted or European-owned technologies. They are a great alternative, albeit lacking in promotion. The actual “CS” part of creating the foundation had mainly to do with the website, collegiumnovum.eu, which was solely done by Mikalai. There, you can also find all the relevant information and fill out the forms if interested.

After this, things really took off: we even managed to scrap some finance. €500 of starting capital really spoilt us! So, with these insane means and the wealth getting to our heads, we managed to already help a couple of our peers land their internships at bigger companies – with the help of having more experience on their CVs. We mainly used our personal connections from the divine land of Limburg to find start-ups that could use some CS knowledge.

Right now, we are actively looking for partners in Eindhoven, again, with the focus on either tech start-ups or non-tech SMEs that need their “IT person”. We also want to organize more community-related and cultural activities. Our first step would be to partner up with Bakkie 040 for a “taalcafe” – something that once really helped ourselves learn Dutch. If you have any questions, you can email our chairman at mikalai.varapai@collegiumnovum.eu.





WORKING IN THE LIBRARY

Good whatever-time-of-day-you're-reading-this! I hope you're in for a read, because this article is about a place where the main thing you can do is reading: the university library. Well, in essence it's about the library helpdesk, because this is where I have a student job. Let me tell you more about that!

TEXT Alexandra Snobl

As you may or may not know, the library team is split in two: the front-office team, which operates at the place you know as the library helpdesk, and the back-office team, which has its offices behind the MF lecture rooms on floor 0. Here is where they do things like printing exams, brainstorming about the collection of the library and other, in my opinion, rather boring and bureaucratic things. At the front office, however, we're in direct contact with the visitors of the library, which is a lot less boring. This team consists of four regular team members who all have their own occupation and working students. We, the students, are mainly here to keep the library open in the evenings and during the weekend, but we also sometimes have shifts during the day, where we get to work with the regular team members as well. Personally, I like this variety, since working with other students is a lot of fun, but the older regular team members are also really nice. Now, oftentimes I get the question: but, Alexandra, what is it that you do there, behind the helpdesk? What could you possibly help people with at the library?

The first things I usually say is that we answer questions of visitors and we maintain the mailbox. In both cases, the questions are not only of the type "I want to borrow this book, can you help me?". In fact, they vary from this, to what specific form PhD students need to fill in for their defense, to renovating the chairs in the library, to retired teachers offering some books as a donation to the library. My impression from the first day that I worked here, back in September 2022, thus was: damn, you need to know many small things when working behind this helpdesk.

However, this job is not at all just spending time on a chair answering questions. In fact, if I would do my job as well as I can, I think I could get at in least 5000 steps per shift. Over the years I learned that a lot of students don't know this, but we actually have study rooms in the library which you can book! We have 10 small rooms, which just consist of a desk and two chairs, and 8 big rooms, which also include a big screen that you can connect to. These larger rooms are available for 8 students even. The nice thing about



these rooms is that they are a green zone, meaning that students can discuss freely in them, as opposed to the bigger part of the library. We like to have these rooms locked when there are no reservations, to prevent things like vandalism without being able to narrow the suspects down to specific students. Therefore, every time someone has a reservation, we should (in principle) walk down with them to open the door. The same thing holds for when a reservation is done so we can lock the door again, but I have to admit that we all slack a bit in this part...

Furthermore, I think our boss would argue that the most important task of our job is to maintain the peace and quiet in the library, which means that we have to play police (as we like to call it ourselves): go downstairs and tell people who are talking that they should be quiet. Since the library is rather big, each round of doing this can take up to 20 minutes, I would say. Finally, at the end of the day, we have to walk around, shove all the chairs back under the desks and tell people to please pack their bags and leave the library. As you might recall from when Jos from the reception does the announcement: "For the upper part of the building, don't forget to switch off the lights!". Yes, that includes GEWIS ;)

I think this gives you a slight idea of what my job entails, and also a teaser for the desires of a working student at the library helpdesk. My own main desire is that visitors of the library behave. This means: no

talking in the no talking zones, no eating because that will provoke mice, and listening to us, employees, when we ask for maintaining our rules in case they were forgotten for a bit. However, the world is not entropy-free, which has led to multiple interesting things happening in the library. Most of these examples were told by my colleagues, since I have almost never encountered something really strange, but all of them really happened.

We have had the following situations occur: high school students vaping in the study rooms, students drinking beer in the orange zones, a woman carrying around a butcher's knife in her bag, bottles of Flügel being thrown around by students, being accused of all kinds of things when asking visitors to listen to the rules, having to tell someone that they can not use their own coffee machine on floor -1 because that makes a lot of sound... Do I have to continue? After all these negative encounters, I want to end with a nice one, to kill your bad impression of my student job: one time, a student came upstairs when I was having a bad day (they didn't even know that), gave me a sticker which said something along the lines of wishing me a wonderful day. That melted my heart!

All in all, the most fun part about my job at the library is the contact with my colleagues, the nice frequent visitors who always wish you a good day with a big smile, and students actually listening and saying sorry when they are being corrected for their behavior. So, will you take over my job when I graduate?

STUDENT JOB



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.

NS conducteur tegen Noël: "Je bent wel een boefje"
Samuel: "Hij komt wel uit Zeeland"

Olivier: "Ik moet spellchecken."
Mateusz: "Wat moet je?"
Olivier: "Spellchecken."

Mateusz: "Welk spel moet je checken?"

Hiske: "Die huiswijn smaakte een beetje alsof je een worstje in metaal had geduwd en dat drinken."

Sandor v. W.: "Ik krijg ook zo veel mailtjes dat ik in de min ben gegaan dat het wel spam moet zijn."

Victor, 5 jaar kasco lid, vult voor het eerst een begroting in

Victor: "Dan kopen we één drankje per persoon"

Tessa: "Je zit nu bij inkomsten te kijken"

Bartjan: "Ik word chronisch boos op mensen."

Ciska vanuit het bestuurshok: "Zit Stijn hier?"

Iemand: "Nee"

Ciska: "Dan app ik hem wel."

Jens: "Ik channel mijn innerlijke alcoholist Inge."

Inge: "Houten-Noord is ghetto"

Olivier D. (Is drinking out of a plastic bottle): "That's why they take the cap off, it lekt on mijn hoodie"

Bartjan: "Kut ik moet m'n vader bellen. Die is al een hele dag jarig!"

Koen: "Het gaat er niet om dat je de beste bent. Het gaat erom dat je de scheidsrechter overtuigt dat je de beste bent."

Ruben: "Afvalscheiden? En de kinderen dan?"

Anne B: "Het zou leuk als we in de olie kunnen zitten, maar dat past niet"

Arend: "We zijn niet een ANWB koppel, meer een soort ANWB orgie."

Ciska: "Ik weet niet waar mijn tanden zijn."

Lucy: "Hoe is het leven?"

Donny: "Het leven is brak"

DressMe medewerker bij de GELEDWIN kleding bestelling: "Willen jullie allemaal E. Huiden op jullie shirt?"

Ruben L.: "Onthoud, de PC is banger voor jou, dan jij voor de PC"

Koen D.: "I love ciska's mom"

Arend R.: "De mac in Best... Dat is toch die ene van Shakespeare?"

Robbie: "Voelde je je in het weekend ook niet goed?"

Donny: "Nee. Zelfs zaterdag niet toen ik maar 10 bier en een wijntje op had"

Jens: "Ik denk dat ik zo'n 7 liter bier heb gedronken, maar de helft was Heineken Silver dus dat telt niet."

Jasmijn H. and Fay S. making pasta

Jasmijn: "This tastes like... pasta"

Kim during the GMM: "Sorry my laptop decided to open PlanApp"

Martijn: "Michelle Obama is een trophy fuck."

Martijn: "Als je je verveelt, pluk een roos, dan zie je morgen ... ehhe ... ja zoiets is het toch"

Tessa: "I am fine with that for money"

Arend: "Ik heb het gegeven paard keihard in de prullenbak gegooid."

Koen v.d. B: "Als ik een lasagne in de airfryer doe is, het dan een frituursnack?"

Costa DJ: "Beetje dwingen mag"

Ruben L.: "Tilburg is een beetje het Drenthe van Eindhoven"

Sandor: "Ik vind deze definitie heel vo"

Tessa: "Dit is de definitie van Défi, tuurlijk is die vo!"
(Ging om definitie 4.4: jacobian van functie phi, aka D phi)

Jelte moet alleen nog het vak functionaal analyse halen voor zn bachelor

Jelte: "Ik ben zo blij dat ik geen analyse vakken meer heb"

Arend R: "Een kind met oase is als een wasbeer met suikerspin."

Martijn: "Darja, are you milieubewust?"

Darja: "Nee"

Martijn over kwarktaart: "Dit is eigenlijk gewoon een vervormd bakje ontbijtgranen"

Darja: "If I were to be a normal female..."

Hiske K: "Is a sexist printer"

Under pressure speelt af op de speakers

Wietske: "Dit is niet het ice liedje?"

Inge S.: "Ik denk dat ik een hele goede backseat alcoholist zou kunnen zijn."

Martijn: "Nee want ik ben dus over mijn kots gaan schijten"

Stijn S. op z'n telefoon: "...pagga slaan ethymologie"

Ciska d. G.: "Weet je nog die goede oude tijden Jelte? Toen je nog kon rennen?"

Victor: "Je hebt bij de FPC wel offline documentatie, maar geen stackoverflow ofzo"

Jaro: "Dus ook geen claude?"

Lotte: "Ik wil gewoon naar een stripclub in plaats van piemelcupcakes maken."

Robin: "Ik schreeuw altijd Geld, Geld, Boeken, Boeken als ik klaarkom"

Elise v.: "Waarom ben jij knuffels aan het bodyshamen?!"

Lotte L.: "Waarom is afstuderen altijd studeren, maar nooit af?"

Bartjan H.: "Behalve als het helpt om niet naar het diner te gaan. Dan ben ik wel vader geworden!"

Stan: "Ik ben het op gevoel aan het doen, en het voelt goeied"

Victor: "Weet je wat dan het grappige is? Ik weet trouwens niet wat het grappige is."

Olivier: "Kan ik een ping pong bal lenen, is er iemand van GELEDWIN?"

Noel: "Ik weet niet of je DPR kent?"

Max: "Is dat Oost Duitsland?"

Matthijs: "... en dan twee mensen die ik niet ken."

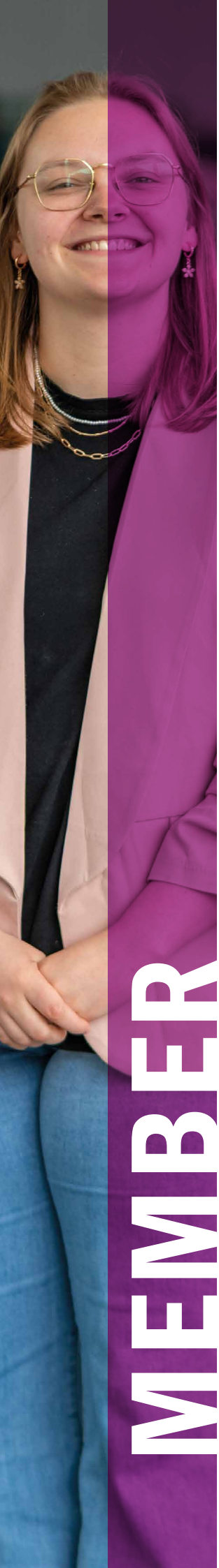
Elwin: "Nick end Simon!"

Hiske: "Ik ben non-binair, ik ben een draak!"

Daan: "Ik kan soms wel grappig zijn."

Sirenes gaan af

Daan: "Hou je bek trut!"



MEMBER

OPTIMIZING THEFT (AND RELATED PROBLEMS)

Imagine you are a thief and you are planning to rob a store. You bring a large bag, and take as many products as you can. The goal of course, is to obtain the highest possible value of products. When looking at a product, you wonder: “to steal or not to steal?”. While a TV has a very high value, it also takes up quite some space in your bag, so it might be smarter to steal a smart watch instead. What do you take? Well, these kinds of questions are exactly the type of questions I worked with during my Bachelor final project!

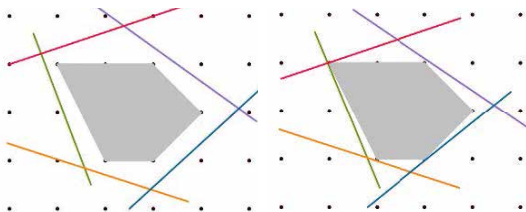
TEXT Tessa Verheul

Well, okay not exactly such questions, but those of a similar form. Throughout my project, I worked with Knapsack problems. In the standard setting of a 0-1 knapsack problem, we have a set of objects that each have an associated weight and value, and for each item we can choose to select it once or not at all. The objective is then to determine a subset of objects that results in the highest total value, whilst ensuring that the total weight does not exceed a given weight capacity. Here, the term knapsack refers to the literal knapsack (a kind of bag) that represents this weight capacity.

Many real-life problems can be modelled as knapsack problems (not just theft). Solving them can help us make informed decisions for these real-life problems. An important part of solving knapsack problems is presolving. This is a collection of preprocessing techniques that reduce the size of a model or that strengthens the constraints of a model. As a result, we get an equivalent variant that is easier to work with.

See Figure 0 for a 2D visualisation of the effect of presolving on an integer program. In this figure, the grey area represents (the convex hull of) the solution space. With our theft example, the solution space would be all the combinations of products we could steal whilst not exceeding the capacity of the bag we brought along¹. In the figure, each coloured line represents an individual constraint of the model. An example of a

constraint is the carrying capacity of our bag. In the figure we can see that the constraints of the original model lie loosely around the solution space. Ideally, we have a model where its constraints describe this region exactly. Since this is generally out of reach, we aim to manipulate the problem such that the constraints lie closer to the solution space. This process is what we call presolving.



0

An arbitrary mathematical model before and after presolving.

In my Bachelor final project I looked at a variety of presolving techniques, ranging from simple sanity checks to complex manipulations. While most of these techniques are already used in practice by optimization solvers, we were unable to find their mathematical foundation in the literature. Therefore, the goal of my project was to provide their mathematical descriptions and proofs. Additionally, the aim was to quantify their effectiveness in practice for which I developed my own measure. Using it, we tested these techniques on large data. But that is a whole other story.

1

Note that our theft example is a Boolean program and Figure 1 represents an arbitrary integer program. Therefore, the visualisation of the convex hull of the solution space of the theft problem would look different. But for simplicity, an integer model is chosen for the visualisation.



IN THE SPOTLIGHT

Dear reader, I am Tycho, and I am currently a first-year Master's student. The wonderful people of Supremum have asked me to write a bit about myself and my time at GEWIS, so let's get started!

TEXT Tycho Louws

My story starts in the beautiful province of Zeeland, where the first 18 years of my life flew by, and before I knew it it was time to pick a university. After visiting a few open days, I stumbled onto the campus of the TU/e and immediately appreciated the open and inviting vibe it presented. I already knew I wanted to do something with mathematics and given I had always liked tinkering with computer programming, the choice for computer science was not a difficult one to make.

My first year unfortunately coincided with the tail end of COVID, which meant online lectures and lots of time spent at home. Luckily, following the advice I got to sign up early for housing, and living pretty far from Eindhoven, made me land a room with some amazing housemates to pass the time with. One of these happened to be an active member of GEWIS who was so kind to let me tag along to some parties and activities. This netted me my first bit of status as that-one-housemate-of-Wietske.

The next few years my engagement with GEWIS consisted only of the occasional hit-and-run of the coffee machine. I found studying in my room to be effective enough, and most activities were not on my radar. There was, however, one activity which did pique my interest: the B.O.O.M. Active Weekend. I had already been a member of one of the scouting groups in my hometown for over ten years at that point, so a weekend of camping and outdoor activities was right up my alley. Joining the weekend and subsequently disappearing for a year, every year, made me known to some people as guy-from-B.O.O.M.-weekend.

I managed to keep this up until I finished my Bachelor's last year, at which point I decided to try my hand at “borreling.” One social drink became two, which became an activity, which became spending many afternoons studying, and “studying” at “Het Dakterras.” This year I have attended more activities and spent more time with GEWIS than all the other years combined. I even became a member of the ABC in hopes of contributing something to the association as well.

If there is one thing to take away from my time at GEWIS, let it be that it is never too late to join in. Whether you are a model student, an enjoyer of social drinks, an avid spectator of table tennis, or just looking for a place to chill between lectures, come hang out. If you ever see me, don't be afraid to say hi!



MEMBER



MY ROUTE TO THE HARMONICA



As everyone who took my course on Algorithms knows, I play the harmonica. In this article I describe how my desire to learn got me hooked on the instrument.

TEXT Bart M. P. Jansen

The beginning of the story dates back to the summer of 2017. My girlfriend Irene and I were traveling along the French coast in our campervan: a beat-up Ford Transit whose main attractions were the fact that it had a bed, and space underneath to put our windsurfing equipment. Every hour that I was driving the van, Irene was putting her newly-acquired crochet skills to good use. She produced three pieces of cloth, which she eventually filled with rice and then declared to be juggling balls. My birthday happened to fall in the middle of that trip, and on that day she gifted me the juggling set. It came with a challenge: we cannot head back home until you can actually juggle them.

I’m always up for a challenge and promptly started practicing. It took me some effort, but I managed to put in quite some hours on the days the wind was too light to go surfing. By the end of our vacation, I could keep the balls going for 100 throws. I was somewhat proud of the achievement, so after we reached my apartment in Eindhoven and unpacked, I shot a short video of myself juggling in my living room and sent it over the family group chat. My little brother, with whom I played Doom and Red Alert II over IPX networks when growing up, was surprised at my new hobby. He



replied: “That’s rather unlike you, mister computer scientist. Are you turning into a hippie? What’s next, will you actually start playing that ukulele hanging on the wall in the background of your video?”

The ukulele was not mine, of course – it was one of the items Irene brought with her to liven up the mancave I called home. But the idea of picking it up and trying to play it fascinated me. I looked around for a good way to get started and found the app Yousician. It’s like Guitar Hero, but for real instruments. It shows you a scrolling view of music notes passing over strings of the instrument, uses the microphone to hear if you’re getting it right, and has achievements and challenges to keep you interested. The app made playing an instrument close enough to playing a video game that I got into it. I spent the rest of the year mastering the hammer-on’s, finger slides, and strumming patterns of the highest levels. When my next birthday swung about, Irene gave my budding musical career another push: she bought me an actual guitar, which means I gained two more strings. It turns out those two extra strings add a level of depth to your sound that I had not realized I was missing.

The ukulele retired to its spot on the wall. I immersed myself in the world of fingerstyle guitar, where you play the melody with your fingers and simultaneously accompany yourself by playing a base pattern with your thumb. Making music turned out to be a great way to unwind after a long day at university, to put the mathematical obstacles of my research projects behind me and clear my mind.



It was for that reason that I walked into a music shop in Bergen, Norway, when I landed there to attend a workshop on fixed-parameter tractable algorithms. I wanted to buy a small instrument to allow me to relax and unwind after a day of doing research abroad. Since it was supposed to be a traveling instrument, it had to be something small. That’s how I bought my first harmonica.

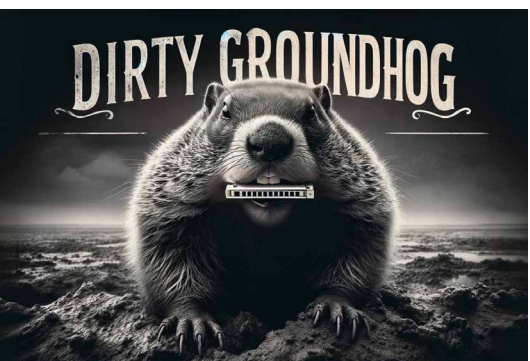
In managed to play some folk tunes on it in the weeks after I bought it, but my playing lacked soul. The harmonica came with a coupon for one month of free access to the online material of BluesHarmonica.com, though, which I started exploring. It offered 10 levels of techniques for playing the harmonica with increasing difficulty, neatly laid out and categorized in a way that appealed to my view of what good education looks like. I learned that the harmonica is traditionally an instrument used in Afro-American blues music, where it served as a poor-man’s saxophone (it’s very cheap to manufacture). Blues had never appealed to me before, and at the time the only blues song I had ever heard of was Sweet Home Chicago. But the technicalities of playing the instrument like the blues masters did in Chicago in the 1950s fascinated me. I discovered that to play proper blues harmonica, there is an intricate dance that the tongue carries out unseen to the listeners. You place the entire breadth of your mouth over the instrument – you take a bite out of the tin sandwich – and then use your tongue to block off the 3 or 4 holes that you do not want to produce sound. This allows you to briefly take your tongue off (or slap it back on) to produce all kinds of textures that generate rhythmic drive. By making your tongue perform a backwards wave in your mouth, whose



amplitude has to be matched to the frequency of the note you are playing, you can bend the pitch of a note to produce the wailing sounds that the original blues masters – descendants of slaves, coming from the cotton fields in the Mississippi delta – used to communicate the hardship of their people.

The hidden depth of the instrument and its connection to a culture I knew very little intrigued me. I took a paid subscription to BluesHarmonica.com and quickly progressed through its levels of achievement. When the COVID pandemic hit, the head instructor of the site sent me an email. He had noticed my active use of the site. Since his local harmonica school in San Jose (California) had to suspend its activities due to the pandemic, he switched to teaching via Skype. He offered me private lessons. I jumped at the opportunity of learning from the master himself. Throughout the lockdowns he built my technical mastery of the instrument. When society slowly started up again and the doors of his local School of the Blues re-opened, he ended our lesson series. He had taught me all that could be taught from behind a computer. He told me that to make further progress, I would have to find a band.

It took me a while to build up the confidence, but eventually I joined a Facebook group for musicians in the Eindhoven region. After a couple of weeks, a message came by: “Singer/guitarist and drummer are looking for a bass player to start up a blues band. Perhaps we could also use a harmonica.” I decided to give it a go. One month later, our band Dirty Groundhog was born.



MEET THE KANDIES

One Sunday morning the warm sun came up and -pop!- out of the egg came 7 tiny and very hungry caterpillars. As these very hungry caterpillars, we will be eating everything in sight for the upcoming months and after that we will emerge from our cocoons to be 7 very beautiful board members. You can read all about us in this very tasty Supremum, so make sure to read it before we get a stomach-ache from eating all the articles.

TEXT Kandies

ELWIN

The first kandi does not need introduction, as most people know him already. This is because Elwin Huiden has been a member of GEWIS since 2018! After his first year of Applied Mathematics, he moved to Tilburg for a teacher training program and econometrics, but his heart has always been bugging him to return to his initial bachelor, which he did in 2023. This adventure goes hand in hand with wisdom and many contacts, some things that make him fit for being the next Chair of GEWIS.

When Elwin was a young larva in Zoetermeer, he grew up in a family full of table tennis talents. Naturally, he became a prodigy himself as well. Becoming national champion in 2023 for people under the age of 23 was his greatest achievement, and he got himself eligible to play in the Dutch national championships. He stopped pursuing a table-tennis career some time later, but it seems like his love for the sport will never run out. Did you know he still competes in the Dutch national table tennis championships every year?

Currently, he spends most of his time at GEWIS. Seriously, it feels impossible to be in 't Dakterras for a while without seeing him. Whether it's hanging around with Défi, drafting beers with the BAC or organizing activities with one his many committees, Elwin seems to be adding to the association as much as he can.

If you now feel like talking to him, you know where to find him. This caterpillar is always happy to grab a beer and have a chat.



RUBEN B

As there exist many Ruben's within GEWIS, and even in our candidate board, our first Ruben is known by many names. This Ruben is currently 21 years old, which, to put it in his favourite time unit, is about 7920 caterpillar minutes. You might wonder why Buben, the largest kandi, simply does not eat the other kandis. While he might be a very hungry caterpillar, Ruberd is vegetarian and would not partake in cannibalism. As a B.O.O.M. member, Twidde hates receiving leaves and eats them as quickly as he can. You might think that eating any leaf he sees will hinder Ruben 2 with writing minutes, but this is far from the truth. He uses many surfaces to write the minutes and for that reason, always carries a pen with him.

As the next secretary of GEWIS, Ruben has plenty of experience. Having been secretary of the AC and GEDWAAL, Ruben 2 figured out much of the ins and outs of writing minutes. Meanwhile, Bruno also still

cherishes being the chair of Intro25 by organising many bonding activities. Whilst this might all sound impressive on its own, did you know that Ruben is doing all of this while casually finishing up a double bachelor mathematics and chemistry? After a year of doing just mathematics he decided he needed a bigger challenge.



During weekends, Ruberd can also still often be found in 'Het Atelier' back in his hometown Wageningen. If you're wondering what that is, come up to him and have a chat, because, unless you are a delicious piece of fruit, Ruben doesn't bite.

MATTHIJS

Let's introduce the candidate treasurer, Matthijs. Originally from Goirle, a small town near Tilburg, Matthijs has been living in Eindhoven for 2 years now. He is a third year Computer Science student, and 21 years old.



In his first year, he joined FYC DesKRATes, where he already took on his first role as treasurer. As he showed at the time, and still does to this day, Matthijs is a very calm and organized person. He has been very active in the honors program, while still making time to be active at GEWIS. For example, he is a member of GEDWAAL, where he organizes the annual hiking weekend. Although less visible, Matthijs also maintains the applications of GEWIS for the ABC (while on the couch wrapped in a blanket, his natural habitat). Recently, Matthijs even joined multiple GMM workgroups! It's safe to say that he is a busy guy.

Though Matthijs may seem like a very goody-goody guy, if you get into a game with him, he will not hesitate to do anything to win. This same fierce drive is very visible in his role as B.O.O.M. aspi, which you might have noticed from his screams during social drinks.

All of these qualities make Matthijs the most capable treasurer that our candidate board could ask for, and the most awesome guy to spend a year with (we definitely won't need a KasCo next year).

JARMO

Next, it is time to introduce our wonderful Internal Affairs Officer, Jarmo Roelof-Jan Boer. You might recognise him from his beautiful red hair, or from tapping terrible beers during the borrels. Jarmo is a fourth-year Computer Science and Engineering student, and he is almost finished with his bachelor's degree (depending on when he plans to pass Automata). He was born in Utrecht 21 years ago, but he spent his entire youth in Houten, which is often considered the most boring city in the Netherlands. Looking for a change of scenery, he went to a secondary school in Culemborg, which is where he already met two of his fellow candidate board members.

Jarmo started joining GEWIS activities and borrels in his first year, and became active at GEWIS as a member of GETAART and a feut of the BAC in his second year. These newfound passions were more than enough reason for Jarmo to trade the boring Houten for the exciting Eindhoven. After moving, he became even

more active at GEWIS by joining several committees and trading his gross feuten-shirt for a beautiful gilet. These committees range from the AC to YBC25, to the best Introduction Committee to ever do it, Intro25.



If you ever see Jarmo hanging around in GEWIS (at the bar, most likely) and want to wish him good luck during his board year, or want to talk to him about anything else, do not hesitate to do so!

KOEN

This is Koen, our upcoming educational officer. He is a great and “gezellige” guy to be around, but he is also very kind and eager to help you out. That will come in handy whenever you need to complain about courses or lecturers next year: Koen can do something about it.

Educational Officer is abbreviated as “CO” in Dutch, so this might be the first time in his life that he is a little disappointed his name is not spelled Coen, but he still thinks the current spelling is the best. Talking about the best, did you know Koen is from the (in his opinion) best home town Best?

He is a third-year Mathematics student and has been active at GEWIS from year one. He first started out as member of FYC DesKRATes, but didn't stop there. He seems hungry with desire for work, because he has been part of a whopping 11 committees! You might recognise him from the first page of this Supremum as editor in chief, as a pirate for GEZWEM, or when he

dons his “vlakcentrui” as member of fraternity I.V.V. If you ever are in need of a partner to drink wine with, hit him up and you will have a great time, but watch out that he doesn't finish the bottle by himself!

If you don't like wine, you can still have a great time with Koen. You could go bouldering or solve a crossword together, or you might just introduce him to something new and interesting and share a valuable learning moment.



TYCHO

Next we introduce our upcoming External Affairs Officer: Tycho van den Anker. He was born in Tiel, but was raised in a very small (Tycho sized) town called Zoelmond. It only has about 500 inhabitants and includes highlights such as a church. He went to primary school in Geldermalsen and after that he went to middle school in Culemborg. While he was busy studying he also did gymnastics three times a week. After getting his degree easily, he went to study computer science in Eindhoven in 2022. He lived with his parents during the first year, requiring him to travel for one and a half hours both ways. He did not become active at GEWIS until his second year, when he moved to Eindhoven. The first committee he ended up joining was the AC, but before that he already become a feut of the BAC.

Now, one and a half year later, he is a member of nine committees, even becoming the chair of the BAC. He also almost managed to pass his bachelor in 3 years,

only missing out due to one course. If you are ever looking have a conversation with him you can almost always find him at the bar around 16:30. He will gladly talk to you about music, he even has a record player with a small vinyl collection. Movies are also a big interest of his, so if you ever need a few good recommendations you can always ask.



RUBEN L

Last but not least, it is time to introduce the second Ruben. This Ruben is the candidate Digital Affairs Officer of GEWIS. He grew up in a beautiful region called de Betuwe, known for its tasty apples, pears (which Ruben is a big fan of), and berries. Ruben is very talented at picking his educational institutions, especially his primary school, where he was taught long division by a talented teacher. He still applies this concept often in order to divide his day by tasks planned and find how much free time he has for the rest of the day. This time is then spent on hobbies, such as investing in domains like sjaars.nl, fixing SudoSOS, or spending some time at the bar if all the technical stuff is getting too overwhelming. Besides his own hobbies, Ruben also loves to ask about yours. If you are ever in a conversation with him, make sure to have an answer prepared!

It is hard to keep track of everything Ruben does for GEWIS, as you find him involved everywhere. Besides being part of many different committees, Ruben is also there every Thursday as a BAC member to make sure you are having your best borrels every week. Even

then, Ruben still manages to find time to (mostly) keep track of his studies as he has already started his Master's. All this passion and dedication show that there is no better person to fulfill this function and that the digital infrastructure of GEWIS will be in good hands next year!



MUSIC TO MY EARS

You wake up, you make some breakfast, get on your bike and put in your earbuds to listen to a self-made playlist. You get to GEWIS and the speakers are blasting metal. In the afternoon you get to work and they have the radio on. When you finally get off work you go to the AH to get some food, but that annoying overplayed pop song is ringing in your ears. At home you can finally relax with some music. Safe to say music is everywhere.

TEXT Wessel de Jongh

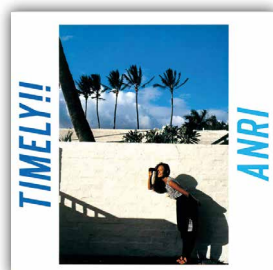
Let me start with saying that I am by no means an artist, a musician or someone that knows how to make music. I am simply a music enjoyer - I like to listen to music to the fullest. Something about the way you can express yourself with music just amazes me. It is not just that I love listening to songs in my own playlist, but also listening to whole albums and sharing them with other people. I believe that if you ask any person that somewhat knows me, they will say that I talk a lot about music. Besides just sharing my own music I also like to know what others listen to too. But I must be honest, that doesn't mean I always like the music. Although I have listened to multiple metal albums, I can't really get into it. Even though it isn't really my taste for now, I think it can change over time. I am still going to a metal concert with some friends and I feel like it's going to be a great experience!



THE NEW SOUND – GEORDIE GREEP

A funky and weird progressive/experimental rock album with lots of energy. The story follows a failed business man that falls in love with a woman who does not exist. The lyrics really reflect this weird and maybe a bit creepy persona, but that is exactly the idea behind the album. I would recommend **Holy, Holy** from the album.

One of the most fun things about music is having a discussion about it. In any other heated discussion, you might think someone is right, but with music you can never be! It is the best kind of discussion, since it is the most unimportant and never-ending one you can have. Even though I think Taylor Swift might not make good music, I love it when Taylor Swift fans tell me otherwise. Or when hip-hop fans say the new Playboi Carti album should win 10 Grammys, while I can hardly finish it.



TIMELY!! – ANRI

A city pop album from 1983. It is my favorite album and just a great listen if you want to dance (for me at least). The song **I CAN'T STOP THE LONELINESS** is a catchy and very enthusiastic song, despite its title and lyrics (if you translate them from Japanese).

Like I already said, I get a lot of joy out of albums. This is one of the things that got me into listening to music out of my comfort zone. Some people say that once you start listening to music album-wise, you can't go back, and I totally agree. I could recommend anyone who has never listened to a full album before to go through some genres that you really like and try a new

album. I guess that is also the whole point of this article, not to show you what my favorite artist is or what you should listen to. I just think people are missing out on listening to music to its full potential. Some people I meet tell me that they just don't listen to music that way, and that it's just a background thing. I do still feel like they could really enjoy it if they listen to something with their full attention.



PROJETO MEMORIA BRASILEIRA:

VIVA GAROTO – GARATO

A Brazilian jazz album that I got introduced to with the song **Esperanca**. A chill album that I like to listen to at the end of the day when the sun has already set. A real calm summer album if you ask me.

Albums not only opened my third eye as a way of listening, but also for experiencing new music. About 8 years ago I mostly listened to indie pop and some 70's disco. Without albums I would have never discovered the genres that I listen to every day, like jazz, breakcore, hardstyle, punk-rap, city pop, bosa nova, house, R&B, soul, experimental rock, etc. I think you get the point.



PUNK TACTICS – JOEY VALENCE & BRAE

An artist that I have had on repeat for 2 years now. This is their first and rawest album, with punk-rap lyrics that find a balance between well thought out lines and simply funny jokes. Although all songs on the album are great, I come back to **DELINQUENT (TEEN TITAN)** most often.

Of course, I said that the point of this article isn't to show you my music, but to encourage you to listen to different music and especially whole albums if you never have. However, that doesn't mean I won't share a bit of the music that I really like. Maybe it's not for you, but maybe it does kickstart something, or maybe it perfectly aligns with your taste. In that case, great! Throughout this article you can find different albums which are some of my favorites. To save time I've also highlighted my favorite song of each album, which you can also listen to.

If you ever see me somewhere, feel free to let me know what you enjoy in music! I would gladly add it to my list of songs, artists, and albums to try out (although that list has gotten quite lengthy).



(AN ATTEMPT AT) DINO NUGGIE VULCANO

When I follow recipes, I always look at how perfect their final dish is. This is not one of those recipes. The idea of this article was to show you how to make a really cool mashed potato volcano with gravy and dino nuggies. However, it turned into something that didn't really work out. So instead, I would like to show you how not to do it, and let this be a cautionary tale that the kitchen can be an experimentation lab in the hands of a student (or at least me).

TEXT Wessel de Jongh

I like to keep things simple, so this art piece consists of 3-part recipe that is not complicated at all:

- » Mashed potato (the mountain)
- » Gravy (the lava)
- » Dino nuggies (the dinosaurs)

Mashed potatoes

Ingredients:

- » 150ml whole milk
- » 30g unsalted butter
- » pepper and salt
- » 2 l pre-made AH Aardappelpuree (mashed potatoes)

While I would love to advise you to make your mashed potatoes from scratch, I know it's very common to come to the conclusion that you have too much work to do in the evening, or you might come home late from university and still need finish some tasks, so it is more convenient to make it with pre-made mashed potatoes.

Steps:

1. Put both mashed potatoes packages in the microwave for 5.5 minutes.
2. Realize, when you already put the packages in the microwave, that only one fits.
3. Since the gravy and nuggies are cooling
4. down, decide you are only able to only use 1 package for this volcano.

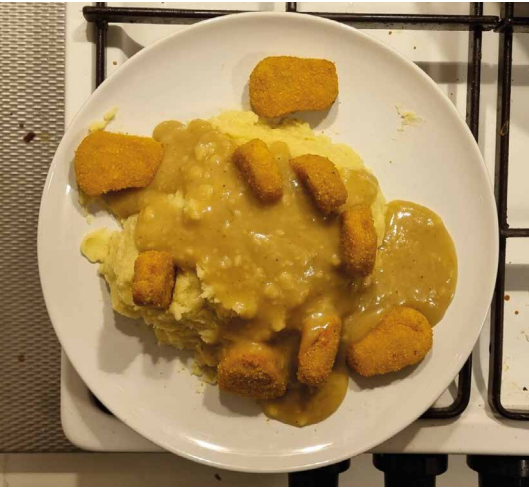
Gravy

Ingredients:

- » 25g unsalted butter
- » 25g flour
- » 1 liter? stock (I used vegetable stock)

Steps:

1. Melt the butter.
2. Add the flour and mix it until there are no chunks left.
3. Have no idea how to make the chunks go away or make it a smooth consistency.
4. Add a bit of the stock to fix the issue. Realize that it doesn't fix the issue.
5. Add more stock in the hope it fixes the issue and observe that it doesn't, and that the gravy is already quite liquid from just 0.5 liters stock.
6. Mix it one last time and take it off the heat to use as lava for the volcano.



Dino nuggies

Ingredients:

- » Frozen dino nuggies chicken nuggets

Steps:

1. Go to the nearest store that has dino nuggies.
2. Go through the stores to find no dino nuggies 'cause there are only regular chicken nuggets in a 5km radius.
3. Buy the regular chicken nuggets.

Final recipe

1. Add all the mashed potatoes to a plate.
2. Try to make somewhat of a volcano with a small tub at the top and some kind of path flowing down for the gravy to go through.
3. Make sure you have no artistic talent or feel for making this, and thus you create more or less a hump of potato mash with a hole in the middle.



4. Add the chicken nuggets somewhat randomly by pushing some in the volcano and adding some around it for decoration.
5. Add the gravy at the top and let it flow down.

Now you should be left with something that doesn't look anything like your childhood dream dish. Enjoy a volcano with chunks of flour and butter with gravy that's a bit too salty and non-dino-nuggie dino nuggies.

But in the end, I did enjoy it. Not because it was delicious, but because I tried to make a childhood dream come true. The taste was not the best, but I was excited to eat nonetheless and that balanced it out. Even though I had still much to do that evening, I quickly opened up YouTube to watch a video of my favorite creators while I forgot what I was eating. Although I never liked when my mom used to say that cooking boiled down to experience, I like the idea of this stupid dish reminding me that my mom is always right.

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

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