1/0 VIVAT

VOLUME 36 NO 1

Changing how the Kick-In works

From pilot to practice

Do-group Tree One big family!

Youth Politics

Computergenerated opinions Deepfakes and more

Imposter Syndrome

"This article probably sucks", and other things we tell ourselves because everyone else is better

Election Insights

Trusting those in the room where it happened

Ministry of IT? Digital Affairs in Parliament

And more...

Columns Company visits Cartoon Puzzle



//Colophon

Volume 36, number 1 February 2021 ISSN: 1389-0468

I/O Vivat is the scientific magazine of I.C.T.S.V. Inter-Actief, the study association for Technical Computer Science, Business Information Technology and the corresponding master's programmes at the University of Twente. I/O Vivat is published two times a year with 1900 copies.

Emma Sloot

// Executive editor Niels de Groot

Sven Mol, Jelle van den Wijngaard, Florian Mansvelder, Tjalling Hoogendoorn, Emma Sloot, Niels de Groot

Jelle Maas, Kimberly Hengst, Maria Iacob, Emil Cristen, Guido, Arend Rensink, Viet Yen Nguyen, Wouter Kobes, Tim Achterkamp, Frank van Mourik

Nicolien Boekhoudt, Ruben Groot Roessink, Lustrum Pixelate

For questions, comments or suggestions I/O Vivat can be reached via e-mail at iovivat@inter-actief.net, by phone at 053-489 3756 or by mail: Study association Inter-Actief, PO Box 217, 7500AE Enschede

The study association would like to thank the advertising companies for their collaboration.

// Printing Drukkerij van den Bosch & Fikkert

© 2021 LC.T.S.V. Inter-Actief

//Editorial

Dear reader,

It's been a while since the last I/O Vivat was published. Although the "new normal" has been normal for quite some time, it has proven to be hard for not just our committee members, but students in general to find their drive.

Quite some work has still been done, and the result lies here before you. Some articles may still relate to the coronavirus, like Sven's insider experiences as iDB member on how the virus impacted the Kick-In's technical side.

There's also quite a bit of discussion on how IT and society work together. Both Tjalling and Niels, as well as our guest writer Wouter Kobes will discuss how IT and politics go together, or not at all. Jelle will discuss the ethics regarding deep fakes.

Next to this, there are articles that mainly relate to society. One of our alumni has written an article about the dos and don'ts regarding a job interview. As CTO he has a lot of experience on the other side of the table. There's also an article regarding the imposter syndrome, which is gaining more attention worldwide.

These articles, together with some do-group history from our chairman and the usual contributions from programme directors, ENIAC, companies and the chairman, form the I/O Vivat number 36.1.

Enjoy the unique articles and stay safe!

Emma Sloot Chief Editor I/O Vivat

//We are looking for you!

The I/O Vivat is completely made for you by a team of volunteers at study association Inter-Actief. From the very first drafts of articles to the last details in lay-out that you are looking at right now, we work hard on regularly bringing our association magazine to your doorstep.

Do you want to be a part of the process? Do you have a particular talent for or interest in writing? Are you enthusiastic about becoming active? We would love to welcome you on the team! Or, if you do not want to be stuck to us as an editor, why not be a guest writer some time? Interested? You can contact us at iovivat@interactief.net. We look forward to hearing from you!

Puzzle BetterBe

thalescareers.n



150 INTERNSHIPS AND GRADUATION ASSIGNMENTS EVERY YEAR

JOIN US IN EXPLORING

WÖRLD OSSIBILIT

ACTIVE IN DEFENCE, **TRANSPORTATION SYSTEMS** AND CYBER SECURITY



THE MOST ATTRACTIVE EMPLOYER

FIELD OF SAFETY AND SECURITY

OF HIGH TECH JOBS IN THE



end your solution to iovivatpuzzle@betterbe.com and maybe you are in a for a

//Content 36.1



Behind the Kick-In: Changing how you pick your do-group



From the chairman







Youth politics & IT









Cartoon by Florian Mansvelder

Crewmate There is 1 Impostor amon9 us

Imposter Syndrome: this article probably sucks



Do-group Family Tree



Computer-generated opinions









Programme director TCS



Alumni Stories

Digital Affairs in Parliament: the future of the political debate on digitalisation





Multidisciplinary: Civil Engineering

Lustrum Pixelate: creating the picture that is Inter-Actief



Lustrum Pixelate Highlights: a Lustrum in corona times





36.1

The innovation for life

26



Algemene Inlichtingen- en Veiligheidsdienst Ministerie van Binnenlandse Zak Koninkrijksrelaties



//Content





Election Insights: Trusting those in the room where it happened





Play and win with BetterBe!

Puzzle



//Article

Behind the Kick-In

nanging how you pick your do-group



sociations.

by: Sven Mol Editor I/O Vivat

his year's Kick-In has been different to any before it, there was no big tent, no storming of the Bastille and no large parties. However, one thing has remained the same year after year. Dogroups, which are an important and much appreciated part of the Kick-In, not just for kiddos, but also for parents and as-

However, not everyone is satisfied with the current dogroup system. The current ren-je-rot (run like hell) system has seen more than its fair share of criticism. Kiddos consistently rate this as one of the worst parts of the Kick-In, and faculties have also expressed a desire for a fairer system. The possibility of dogroup parents to select who will become their kiddo's is seen as the worst part in an already not too great system.

So, for years we have been thinking about ways to improve this, and in the late spring of 2019, we finally found a different and hopefully fairer manner to let kiddos pick their dogroup by letting them submit their top three favorite dogroups in our online application. The scale and impact of this change, however, would be quite a large project, not just as compared to our usual workload, but also in how much cooperation with different stakeholders was required. In this article, we want to give you some insight into how we planned and managed this transition.

Initial Pilot

The first step when introducing any transition is the validation of the chosen approach, or less abstractly, to check if your ideas align with reality. Without realizing it, our ideas were based on a fair few assumptions, not just on the applicability of our algorithm or how we had chosen to model a participant's preferences, but even if a computer would be more fair than the previous system.

Some of these assumptions were rather self-evident, for others we could clearly explain why we thought they were right. But for a small part, it would be impossible to say if we were right. We could better validate those assumptions during an actual, in-person test of the system.

However, implementing a large system like this comes at quite a cost. And if we were to choose to abandon this ap-

proach after the trial, we wanted to be able to remove it quickly and completely. So besides the earlier requirements, the system would have to be coupled in a very loose manner to the existing code-base.

During the evaluation of the system, there were several issues that had to be addressed. Some were technical, like a mistake in the selection of participants or how websocket connections were authenticated. But others were more fundamental and complex. For one it turned out that preferences should be modelled quite differently from how we had expected.

But, we also saw some positive points in the evaluation. For one, the market ran smoother than any previous edition, even with all the bugs that presented themselves. And even more encouragingly, the participants rated their experience with finding a dogroup two full



Figure 1: Planning of the new do-group choice system, showing the trial phase in 2020.



points higher than their counterparts of other studies.

All in all, we were quite happy with the reception of the new system. The most important stakeholders were pleased with the improvements, and with a fair amount of changes to make, we were looking forward to the expanded trial of 2020.

Five Study Trial

This next set of trials would consist of five studies, which were selected for their comparatively small sizes. This would serve two main purposes. It would enable us to test the system at a larger scale, and it would show if the results of 2019 were universally applicable or just specific to that one study. The concern was that the improved satisfaction could just have been a fluke result.

With all feedback received from the initial pilot and the project group incorporated in the new design, we were planning on implementing the updated pilot in our main infrastructure for the 2020 Kick-In. By doing this we could directly monitor whether our systems would be able to handle the increased load from not only the participants entering their preferences, but also whether the used algorithm wouldn't use too many computational resources.

COVID-19

"Required to move the dogroup markets to an online environment, we opted to directly implement the new approach for every study."

The committees of these studies participated in a project group which helped in redesigning how preferences were indicated. Instead of only providing the top three dogroups, we would now allow the participant to select which dogroups they dislike, but they can also submit a preferred type of dogroup, such as sports, culture, student association or unaffiliated.

implement the new approach for every study. Even though this might seem an obvious choice, we had some concerns about our available resources and the lack of a viable fallback method.

Full Scale Application

As the computational complexity has an approximately cubic relation with the amount of participants, we deliberately chose five small studies for the initial pi-

IK	Time To Disco
Voorkeur 1*	Daddy Kool
Voorkeur 2*	Bit's Lit
Voorkeur 3 *	Het Genootschap Bit
Voorkeurs	
Uitgesloten doegroep	
e	Opslaan

Figure 2: Interface of the do-group choice system, showing the possibility to enter several preferences for do-groups or do-group types.



At the end of April it became clear that we wouldn't have the possibility of organising the ren-je-rot dogroup market for the studies not participating in the five study trial due to the restrictions imposed by COVID-19. Required to move the dogroup markets to an online environment, we opted to directly





lot incorporated in our existing system, but with the full scale application we would need to run the algorithm even for all large studies, while being limited in time. In order to keep the application available for other actions, we opted to limit the computation to a single study per run.

Next to the computational load, we could expect about 1500 simultaneous websocket connections waiting for the computation of their study to complete. Even though this might not seem that much, we've only tested our infrastructure for an estimate of 200 simultaneous connections, achieved during a ticket market where all dogroup parents would reserve tickets at the same time. Conveniently, the window during which the preferences can be submitted is not subject to limited availability and the results become available per study, which we hoped would flatten the connection curve.

Performance Impact

Even though we were expecting a significant performance impact and maybe even stability problems during the high

About iDB

This article was written by our own I/O Vivat editor Sven, who is also part of the iDB committee, with the input of his colleagues. The iDB is responsible for the IT system be hind the Kick-In. This system was since then several students and former students have been working on expanding this system. During the Kick-In, this group is responsible for the proper functioning of the market and the overall functioning of the iDB system.

"If the iDB sounds like a cool promake it even better, why don't you join us? We're always looking for new members to implement more awesome features. If you have any questions, or want to come have a look, you can reach the iD<u>B at idba</u> kick-in.nl."

load scenarios, everything was completed smoother than expected. Compared with the 2019 Kick-In we did have a two to three times higher average load, depending on the type of metrics you focus on. We've noted about 1700 extra assured connections over the 1100 of last year's Kick-In (145% increase), but on the computational load we only noted a 50% increase. Both increases did not impact our availability and seemed to be handled perfectly by our infrastructure.

The increase difference can easily be explained: the connections are mostly from users just waiting for the dogroup assignment computation to be executed and completed, and therefore just don't use a significant amount of computational resources. Secondly, we overestimated the impact of the algorithm on the computational load, as it completed faster than expected.

Conclusion

Introducing large changes is always a difficult process, as it is unlikely that all your assumptions will be right the first time. Certain stakeholders might even





disagree on what a correct implementation of (parts of) the system should look like. Yet, with proper management and by listening to the concerns people have, a lot of trouble can be prevented, even when unforeseen scenarios such as a nation wide lockdown impose certain restrictions.

Even though the evaluation of the new dogroup market approach is not yet completed, we can already conclude that our application is capable of handling the load imposed by the algorithm and the amount of simultaneous connections. The initial feedback from the participants is also promising, but as this was indeed a year like no other we might still decide to use the old method once again next year for half of the studies, so we can properly compare both assignment approaches.



Figure 4 & 5: Connections for the last two Kick-Ins (left: 2019, right: 2020), note that these are aggregate numbers which cannot be interpreted literally.



Figure 6 & 7: CPU usage during the last two Kick-Ins (left: 2019, right: 2020)





espite my best effort, the family tree presented in this article is sadly not fully complete in some branches. Read the article for its entertainment value and look out for a follow-up with a new version of this family tree. If you have any improvements to the accuracy of this article, don't hesitate to contact me (Jelle Maas).

Every Kick-in the first-year students make one of the most important choices of their student life. It is not just about partying/sports/culture, but also about a whole group of people you meet and might become best friends with for the rest of your (student) life. Even though you choose your do-group based on a few words, (most of the time) weird videos and silly questions in a booklet, it might be one of the hardest choices, and some people might even remember running to their favorite do-group (renje-rot). But when you are finally holding a do-group shirt and awkwardly get to know everyone in your group the Kick-In just begins!

As can be seen in the do-group family tree there have been 37 do-groups for Technical Computer Science (TCS) and Telematica (TEL). The first do-group I could find back was the do-group "Bert en Ernie". As they stopped in 2007, they are not the oldest do-group anymore. Do-group Miranda has owned that title ever since, even though they have experienced some difficult years with regards to finding do-group parents. Besides do-groups that sometimes do not survive, there are also new dogroups that pop up. For example, the do-groups Yorinf and Tegel. They both started large numbers of do-groups:

eight and seven respectively. This is fortunate, considering the major challenge Inter-Actief has faced as a result of the massive number of people that suddenly joined the Kick-In in 2016. Eighteen more do-groups have been started since then, a necessity for Inter-Actief to allow all first-year students to join an event that is supposed to be the most memorable start of their student life.

Besides TCS and TEL do-groups there are also the Business Information Technology (BIT) do-groups as can be seen on the right of the do-group family tree. I could not find all the information, but all old students gave me a helping hand and showed me some old pictures and I could figure out if they were BIT or TCS. Necessary to say is that BIT has not always been part of the bachelor introduction committee of Inter-Actief. I could only find information from 2002 until 2007, because BIT switched to a different faculty in 2008. Fortunately, it returned to Inter-Actief in 2013.

Assuming that the studies Inter-Actief represents will not become numerus fixus studies, we expect them to continue growing. Therefore, I hope that for both BIT and TCS even more do-groups will be founded, for every first-year student to be able to enjoy their first experience at the university. They should be able to remember which do-group they were in; how tired they were after camp; how much they wanted to join the beer relay or that one party at the Vestingbar or Pakkerij that they really could not miss according to their do-group parents. These experiences are supposed to lead to a few of the best days and first encounters with student life that could have been wished for. Nevertheless, they are just the start. I am just a



fifth-year student, but I can already affirm that even better times are coming after the Kick-In. You'll have to find out yourself where it eventually takes you!

The do-aroup tree



Figure 1: Do-group tree of Technical Computer Science (TCS) and Telematica (TEL), 1998-present ▲



				VA Coq 1
Lawrence		Yolo 1		Conquista 2
		Yolo 2		Lorem Ipsum 1
agwaardig 1		Yolo 3		Lorem Ipsum 2
agwaardig 2		Yolo 4		Lorem Ipsum 3
agwaardig 3	GlasHelder 1	Yolo 5		Lorem Ipsum 4
agwaardig 4	GlasHelder 2	Yolo 6	RedShell 1	Lorem Ipsum 5
egwaardig 5	GlasHelder 3	Yolo 7	RedShell 2	Lorem Ipsum 6
agwaardig 6		Yolo 8		Lorem Ipsum 7
				and the second



._point = (0s.pain.dirname(self.filepath))

viewport_selection = bpy.context.selected_objects

//Company

prt objects
t_list = viewport_selection

if self.use_selection_setting == False: obj_export_list = [i for i in bpy.context.scene.objects]

bpy.ops.object.select_a

Code quality in real life

If use mesh modifiers_setting,

for item in obj_export_list: item.select = True

if item.type == 'MESH': mla_path = os.path.join(folder_path, "{}.obj".format(item.name)) www.export_scene.obj(filepath=file_path, use_selection=True, axis_forward=self.axis_forward_setting,

axis_up=self.axis_up_setting,

use animation=self.use_animation_setting,



boy, was I wrong!

by: Emil Cristen TO OVSoftware Netherlands

first steps as a software

developer started years before going to the university where I really learned about software development. And while I assumed I was an experienced developer at that time... Oh

Sure, as a Software Engineering student I learned all about the basics of design patterns, algorithms, databases, coding guidelines, software architecture and much more; the basic skills every developer at least needs to become successful at their job. Becoming a Software Developer however is even more challenging because of the continuous evolving technology available to us. Mastering a newly learned skill takes time, experience and sometimes failures to learn from. In real life software development projects, these failures can lead to poor software quality which in turn often cascades into high costs of maintainability. So, what can we do about that?

At OVSoftware, developing good software aims to increase the business value for our customer's specific situations. The question, "is good software equivalent to software of good quality?" is what you should be asking. To know that, you should first examine the question, "What is software quality?"

Often, we find ourselves in a discussion with managers and customers on why software development takes so much time and is more expensive than initially estimated. What is the purpose of code refactoring when the application seems to run perfectly? "The program works as expected" can be a valid qualification of good software from the customer's perspective.

We have learned from day to day, real life scenarios that true software quality is more about the maintainability of the codebase, more so than the application running as expected. So, what does it take to write maintainable code from our perspective?

There is more than one way to write code that is highly maintainable, easily extendable and perfectly readable. At OVSoftware we have adopted the Ten Guidelines For Future-Proof Code by

the Software Improvement Group. By adopted, I mean that all IT Professionals within the company are or will be trained and certified as Quality Software Developers (QSD).

One of the main reasons why we chose to adopt these guidelines is that they are applicable to many programming languages, e.g. Java, C#, VB.Net, Scala, TypeScript, JavaScript and many more. All software development will be done with these guidelines in mind. But which ten guidelines are we talking about?

- Write short units of code by limiting the length of methods and constructors.
- Write simple units of code by limiting the number of branch points per method.

	Compliance 7 of 10	sqovsoftware/ fumico Last analysis: a day ago Previous analysis: a day ago	Branch: r) master (default)
a.	Write Short Units	of Code	×	:
*	Write Simple Units of Code		*~	:
8	Write Code Once		~	:
ሗ	Keep Unit Interfaces Small		×	:
88	Separate Concer	ns in Modules	~	:

Figure 1: Screenshot of BetterCodeHub showing the guidelines.



• Write code once, rather than duplicating code with the risk of duplicating buggy code.

- Keep unit interfaces small by extracting parameters into objects.
- · Separate concerns to avoid building large classes handling more than one functional responsibility.
- Couple architecture components loosely.
- Create a balance in number and size of top-level-components in your code.
- Keep your codebase as small as possible.
- Automate tests for your codebase.
- Write clean code, avoiding dead-code and code-smells that indicate more deeper-rooted problems.

With these guidelines, every developer now has the same basic knowledge of how to setup and implement maintainable code. And here the same rule applies; you'll learn the best by doing, discussing, evaluating and refactoring code. You won't always be successful on your first attempt; you will get better every time you try. We've all been down that road, and regularly we will find ourselves back on the same path learning new aspects of writing beautiful and maintainable code. And the fun part is, you won't be alone. In our company we encourage learning with and from each other. We create our own best practices and share our ideas on a regular basis.

In short cycles (sprints) of 2-4 weeks, we develop new features or resolve issues in our codebase. Software updates are checked in into our DevOps environment. From there the DevOps server takes care of building our software, running automated tests and performing a code quality check using Better-CodeHub.

BetterCodeHub is a tool provided by The Software Improvement Group and enables us to run a static code analysis based on the previously mentioned guidelines. Each scan results in a mark of compliance and a detailed report of enhancements in regards to the current code quality.

15 lines occurring 2 times in EddalmageJanitorCrawler.java

	EddalmageJanitorCrawler.java
414	String batchuri = getinstanceBatchuri(region, batch
415	<pre>JsonNode batchResult = null;</pre>
416	Map <string, resource=""> idToResource = Maps.newHashMa</string,>
417 -	<pre>for (Resource resource : batch) {</pre>
418	idToResource.put(resource.getId(), resource);
419	}
420 -	try {
421	<pre>batchResult = eddaClient.getJsonNodeFromUrl(bat</pre>
422 -	<pre>} catch (IOException e) {</pre>
423	LOGGER.error("Failed to get response for the ba
424	}
425 -	<pre>if (batchResult == null !batchResult.isArray())</pre>
426 -	throw new RuntimeException(String.format("Faile
427	batchUrl, batchResult));
428	}
429 -	<pre>for (Iterator<jsonnode> it = batchResult.getElement</jsonnode></pre>
430	JsonNode elem = it.next();
431	<pre>JsonNode data = elem.get("data");</pre>
432	String imageId = data.get("imageId").getTextVal

Figure 2: Screenshot of a Java class in BetterCodeHub.



"You won't always be successful on your first attempt; you will get better every time you try."

Over the last few decades, software development shifted from traditional waterfall to more agile methods like Scrum or Kanban. Agile is characterized as a way of work, through which we are able to deal with and quickly adapt to changes in an uncertain and turbulent environment. Code quality does not always benefit from these quickly changing environments and uncertainties. Although we try to follow the guidelines as best as we can, there still remain cases where we take shortcuts unaware of the effects, resulting in poorer code quality.

since); p(); chUrl);

tch.", e); . d to get valid document

s(); it.hasNext();) {



Per guideline, especially the ones that do not pass the scan, BetterCodeHub provides the developer with a more detailed insight on where improvements can, and preferably should be made.

In the example shown in figure 2 for example, BetterCodeHub identified some duplicate code in one or more files. Although this duplication might be valid in some situations, it is more obvious that it could be refactored into a separate and reusable method. This refactoring creates a more structured codebase, enabling readability, maintainability and testability.

Based on the code quality agreement the team made in their Definition of Done, this mark is either sufficient for further processing, e.g. deployment to an OTAP, or the code has to be refactored and scanned for a new and hopefully better mark.

The best mark is of course the perfect 10-out-of-10, and at OVSoftware we are convinced that this a doable goal. Yes, sometimes it's hard work to get the perfect 10, but it's worth your while. The more you follow the guidelines, the better you get at it and the more satisfying your daily job as an IT Professional or software developer will become.

About OVSoftware

Hi, my name is Emil Cristen, CTO of OVSoftware BV in The Netherland and in this article I tipped the iceberg and briefly reflected on our approach on Code Quality at OVSoftware. If you are interested ject, just send me an email on Emil. Cristen@ovsoftware.com.

//Column

From the Chairman

From the ENIAC board

16:00, why are you still working?

Remember what you're doing it for



by: Jelle Maas Chairman I.C.T.S.V. Inter-Actief

t the time of writing, I am looking at the O&O square, where a group of students is having a lecture. It is one of the many things that are different than usual. In these uncertain times, everyone needs to be creative and think of unique opportunities and solutions. We are no different: to help our members and also let everyone enjoy their time at the university and Inter-Actief.

In the summer we, as the candidate board, organised a few activities. These were online but were nevertheless enjoyed by many. However, they also showed that online, some things might not be as clear as they would have been in a physical form. Our cooking workshop provided an example of this. For a few cooks, the effect of connection errors and white noise on the resulting dish was significant, as they ended up with a fiery hot chilli, instead of one that is just somewhat spicy. Fortunately, it went

well in almost all other cases and caused lots of amusement.

In September, we were happy to be able to see a lot of our members physically again. Not only could we once again organise drinks, but we could also organise activities such as bowling for the freshmen, to get to know the first-year students, and a committee market.

These physical opportunities were short lived, as the new measures introduced in October meant that we could not host any physical meetings anymore. Luckily, we had learned from the last time this happened and became more creative in all sorts of ways, for example through the creation of a kind of delivery service for all members, for online lunch lectures and other activities. Some other types of events could still take place in their usual form, such as the gaming events, which are always well visited among our members.

The situation hasn't changed much ever since October, so we'll still have to keep the activism alive through online activities. Luckily, our active members like organising activities, so there are multiple things on the planning. If you are in any way interested in an activity, we encourage you to participate for some well-deserved relaxation. After all, staying focused and productive all day long isn't the best idea for your mental health. If you are tired of your room, take a walk outside and get back with a fresh pair of eyes. Or maybe even finish a few tasks in Pix, the online Crazy 88 by our Lustrum Pixelate committee.

When we see you again, we will catch up on all the fun and parties we have missed the past months. In the meantime, as a board, we want to stress that the better we keep to the measures given by the Dutch government, the sooner the opportunities for physical gatherings will increase again.

Please stay safe and remember what you're doing it for.

he phrase "It is 16:00, why are you still working?" has become a joke I have had to hear many times in the past six months. Six months ago, that would have meant "time for beer". Nowadays, this joke

is aimed at my job as a civil servant. Transitioning from a student life to a working life has been more difficult than I imagined. Of course, getting up at 7 instead of 11 is a very noticeable change, but others have a more subtle impact.

Moving away from Enschede has been such a subtle impact. I have lived in Enschede for eight years and I was excited to get to know my new city. But as you all can imagine; I have done almost no exploring since moving. I miss knowing which restaurants were great to order from (had a few hits and big misses here), enjoying the coziness of the Oude Markt, and having friends live a 5 minute bike ride away.

Starting a new job in this crisis has proved difficult as well, as many of you can imagine. The reduced contact with colleagues, meetings that are now conducted online, and balancing my work and private life due to staying at home all the time are all good examples. Luckily, I don't really notice these downsides most of the times because I really like my job. Besides, my colleagues and I try our best to structurally organize online social activities which works extremely well. However, I still have to recover from a tough week a while ago due to an online training that lasted six days and involved staring at a screen eight hours a day while listening to a lecturer. I don't think I was able to listen to electronic sounds until two days after.

Working is different from what I imagined. The biggest surprise was the peace I get after shutting down my laptop. This is not always true, as I regularly have to be on call at night. As a student, I had the entire 24x7 week I could use to



Figure 1: Jelle talking to programme director Arend Rensink at the High Beer Drink on September 22nd.



//Column



by: Kimberly Hengst Chairman ENIAC



work on my courses, so this often meant working in the evenings and weekends as well. I also often fell victim to the "if I study this weekend, I can improve this assignment"-mentality. This does not exist in my job, unless I deliberately choose to work outside my working hours. I have to confess; this sometimes happens, but that's just because I am really enthusiastic about my work.

On that note, ENIAC is organizing quite a few (online) activities that I look forward to! For the regional drink of November 13th we organize a beer tasting (with brews from Enschede). Furthermore, we are organizing the graduation speeddates for current Master students.

Although these activities will probably have long taken place when you are reading this, it still gives an idea of what activities you can normally expect from us! We still have to decide on an idea for the drink on February 12th, but we will let you know!

About Kimberly

//Article

Computer-generated opinions



by: Jelle van den Wijngaard Editor I/O Vivat

omputer-generated media of all sorts are gradually becoming very realistic. This is true for text, speech, photographs and videos. As such technologies become more affordable, they will also become more prevalent. Of course, there are benefits to utilising these techniques, but there are reasons to be cautious too.

Over the past few decades, video games have gone from some highly pixelated images moving past some even more highly pixelated images, to displaying detailed worlds that can hardly be told apart from reality. In movies, CGI has made it so that the directors' wildest dreams can come true in terms of special effects. Clearly, the entertainment world has benefitted from the developments in computer generated media.

As is often the case with new technologies, there is a flip side to the coin. Nowadays, belief in conspiracy theories is often limited to certain groups of people. These groups tend to be susceptible to believe in such oddities as a flat earth or 5G-masts spreading Covid-19. More people might start to believe in conspiracy theories when it gets progressively harder to decide whether or not a video, photo or text is real. When computer generated videos become convincing enough, one can only imagine what that might do to democracies.

Luckily, ways to remedy the tragedies that await us all do appear to exist. For example, technologies exist to cryptographically sign videos that are captured by a camera. That way, legitimate news outlets could still be trusted. The



Figure 1: What news is real and what news is fake? It becomes increasingly difficult to distinguish.



real issue would then continue to lie with the groups within society that fail to research the legitimacy of their information sources. We live in a free society, so they will be entitled to voice their computer generated opinions. However, the effect will be disastrous for all of humanity as populists around the world rise to power.

It is undeniable that society currently fails to address certain important issues. The climate crisis is a great example of the ignorance of the public at large. Humanity continues to emit more greenhouse gases each year. Animal agricul-

"It is up to academics to pave the way for change"

ture, which is a leading cause of said greenhouse gas emissions as well as deforestation, is still on the rise. Our oceans are dying rapidly, due to a warming planet and overfishing. The Netherlands cannot build new property or allow its citizens to drive faster than 100 km/h amidst concerns about environmental degradation. The list of reasons to care about climate change is long. Whatever other causes one might care about, it only makes sense to fight for them if climate change is also addressed to prevent societal collapse over the next decades.

The fact that many people still deny that climate change is happening, proves that misinformation can be very dangerous this planet, instead of considering itself above nature. It is up to academics to pave the way for change in the way we deal with refugees, of whom we can expect to see a lot more due to the steady rise of natural disasters. It is up to academics to make sure that rapid changes in society due to disruptive technologies improve life around the world, instead of increasing the gap between rich and poor.

More generally considered, it is up to us to live up to our place in society. It is up to us to step out of our convenient bubbles so that we can try to have a constructive dialogue with the rest of society, such that our planet and our society can be saved in a way that leaves no one



Figure 2: With deepfakes, one can make it seem as if a person says something that they actually did not. Or, you can make people sing a song they probably never sang. For an example of Dutch politicians singing the Wellerman song, go to bit.ly/vivatdeepfake.



indeed. Many of those people appear to feel like their voices are not heard, and sadly they would be right. Populism is on the rise due to misunderstandings. Many people misinterpret or even reject basic facts, while others fail to understand how people can misinterpret or

reject those facts.

It is up to us then, as academics, to try to have a better understanding of why people are afraid of change and why they fail to understand science. It is up to us to convince people that they would benefit from a world in which humanity lives in symbiosis with all other life on



behind and preserves our societies' values. None of this will be easy, but we need to try nevertheless, for there is still a lot of beauty in this world worth conserving.

Deepfakes

Deepfakes (a portmanteau of "deep earning" and "fake") are synthetic media in which a person in an exis[.] ting image or video is replaced with act of faking content is not new, deepfakes leverage powerful tech niques from machine learning and artificial intelligence to manipu late or generate visual and audio deceive. The main machine learning methods used to create deepfakes involve training generative neural network architectures, such as au toencoders or generative adversarial networks (GANs).

Deepfakes have garnered wide[.] spread attention for their uses in celebrity pornographic videos, re venge porn, fake news, hoaxes, and financial fraud. This has elicited re

Want to see some interesting examples? See the article of Tech nology Review:

com/2020/12/24/1015380/best-ai deepfakes-of-2020/

Programme director BIT



by: Maria Iacob rogramme director BIT

t the time of writing, we are approaching the end of 2020, and as usual this time of the year, many of us draw a line and look back to what has happened lately. As you might expect, I am not going to deviate from this pattern and I will use this opportunity to remind you some of the good and bad things we all witnessed this year.

We started 2020 working hard on the transition to TOM 2.0. The standpoint we took when designing the 2.0 version of the BIT BA, was to truly follow the original principles of TOM: project-driven learning and sole integration of those components that can be seamlessly integrated, while the other components will be offered as individual educational units within our existing modules. We consistently followed these principles and ended up with modules that have been divided into logical components and very simple and clear BSA requirements. In the meanwhile, the cohort 2020 started the BIT BA in the new design, and as far as I know it was positively received. From what I can see until now the success rate of our freshmen after almost one semester seems to be much better than in the years before. This is also very much the result of starting this year with several new lecturers and a substantial re-design of the content in the first two modules, and in particular of the programming line. I hope, this will significantly improve the quality of the education process. In parallel to these developments in the bachelor programme, we also significantly re-designed the BIT Master. This meant the development of some new courses, improvement of some other courses, a new structure of the master specializa-

tions, and a new double degree master program on Business Information Systems and Data Science that we are offering together with the University of Munster.

ravelijn 🛛

Then, in February-March Corona happed. Right in the middle of UT's Open days we went into full lock down and within a week we had to move everything online. A few weeks after that, one of our second year students, Seyed Shojeaddin Shams Shoaei, suddenly passed away. This shocked us all, and gave us, even more than before, the acute feeling that the whole world took a serious turn for the worse. Unfortunately, this feeling was confirmed by what happened next: a serious disruption in all layers of the society including education, a tremendous economic decline, and a lot of stress on all of us. Concretely for us this meant, a huge effort put in the complete redesign of our lectures and testing to make them fit for on-line education, and getting used to teaching and learning from home. Serious concerns about testing and its reliability, about study delays, and for the well-being of students have emerged in the months to follow, and, to this day they are not fully resolved.

The summer came with a light relaxation of the Corona lock down, and give us a bit of slack to organize things a little bit better for the start of the new academic year. Nevertheless, the kick-in, the open days, the graduation ceremonies of our bachelor and master students and many other things have been different this year. We also see that significantly less international students (especially from outside the EU) enrolled this year in our programs.



But not everything was bad this year. If we are to learn anything from what happened, then that is how incredibly dependent we are on information systems to maintain some level of normality in our lives, and in the way we work and learn (which makes an education programme such as BIT even more important and desired), but also how resilient we are, and determined to learn from adversity and turn bad into good. The post-COVID19 "normal" will look quite different from the old normal and will assume a significant shift in the current education paradigm. Hybrid education and blended learning are here to stay. Also, we all, students and lecturers, are now far better prepared for a rapid conversion of education resources the in case of disruptions. For me, it was amazing to see how successful our students were, in organizing their graduation projects, and research, and the excellent quality level of their work, even if their interaction with the industry was primarily online.

What a year!

I want to end this column in a positive tone and with optimism. I wish you all a happy, successful, and Corona free 2021! As far as I am concerned, you all did great in 2020.

About Maria



LENE (REAL)



Several hours later...



- Cartoon by Florian Mansvelder -



"I can offer solutions"

Interview with Guido

by: Gabriele Spini

t Cyber Security & Robustness, we focus on two areas. On the one hand, we conduct research into the vulnerability of systems, improve the detection of security risks and draw up security protocols. On the other hand, we develop ways to make systems more efficient and resilient to disruption.

//Company

As a cryptologist, I currently focus on two focal points: I use post-quantum cryptography to look for ways to make normal computers resilient to quantum attacks. And using secure multi-party computation I help to make data analyses possible while still protecting privacy. Such as combining resources in the medical domain or detecting fraudulent transactions in the financial sector. The personal data will then remain encrypted, but you will see the result of your analysis.

PhD in cryptology

I did my Bachelor's degree in Italy before going on to do a Master's degree partly in Italy and partly in Bordeaux. I came to Leiden for my PhD research. And after that I stuck around! The Netherlands is a beautiful country to live in and offers great career opportunities in cryptography. After my PhD I did a post-doc in applied cryptology at CWI in Amsterdam - and that's how I got to know TNO.

Not a separate world

What I like about TNO is the deep and interesting research we do here, but without this being a separate world. What we do is relevant to society and is immediately applied everywhere. TNO is also a great place to make connections



Figure 1: TNO at a Hackathon

with people from different disciplines. The nice thing about my profession is that I can offer solutions - the problems come from other fields and cryptography is often a solution!

Conveying knowledge

& Zorg TTP

It's great that I get a lot of freedom at TNO to develop myself. And to be of value to others. So I my day is satisfying not only when I get a step further in a project, but also when I can convey knowledge through demos and presentations. While I am specialising quite a bit right now, in the field of secure multiparty computing I do cover the entire process from concept and development to delivery and communication. I am mainly concerned with building up knowledge in the post-quantum field, which I then transfer to colleagues.

In the future, I would like to focus on other disciplines, something that TNO also gives us scope to do. Would I consider taking the step from content to

36.1



About Gabriele

Gabriele Spini is a cryptologist at Cyber Security & Robustness. He enjoys using cryptography to come up with solutions to problems that confront colleagues in other fields.

About TNO

TNO connects people and know sustainably strengthen the competitive strength of companies and the well-being of society. That is our mission and that is what we, the more than 3,400 professionals of TNO, work on every day. We do this together with partners and focus on nine different doorking at the AIVD, the

General Intelligence and Security Services is probably one of the more interesting jobs you can land as a software engineer. National security

is of utmost importance, which is also exactly the reason that in this interview we ask Guido about his work as manager of the internal security team.

How did your day start?

When I walked in this morning after a long train journey, I heard a heated discussion between a number of specialists from our team. They were pointing at a screen and on another screen they were writing a script at lightning speed. The conversation was about Acrobat Reader trying to spawn a process that wants to connect to the internet. Where did the document that started this process come from? Can we reproduce this behaviour? In short, a wonderful start to a new day. Never a dull moment.

You are manager of the Security Operations Centre of the General Intelligence and Security Service (AIVD).

I have been happily leading our internal security team for two years now. We protect the networks of the AIVD. No one should survive unseen on our networks. I have an incredibly good team of people with different areas of expertise. An analyst in an SOC, a DevOps engineer, a network engineer, a hacker. All experts in their own field, all willing to learn every day and to share their knowledge with the rest of the team. They work tirelessly for the safety of our organisation.

What are you looking for in new colleagues?

Many young people interested in cyber security are attracted to a role as a pen tester. I understand that. It is cool to use offensive techniques to look for holes and then help fix weaknesses. However, finding holes is a lot easier than closing them or, even better, preventing them. Because there will always be holes, I need a much wider team that can see if someone has sneaked in and is then also able to kick the intruder out.

What knowledge are you looking for then?

Develop yourself broadly in security operations. Don't stare blindly at one area of expertise. Gain knowledge about OS internals (Windows, Linux), network engineering and cloud environments. Also, make sure you can develop software. You do not necessarily need to be able to set up entire frameworks, but make sure you know your way around Python or Go. Gain knowledge with cloud native technologies such as Docker and Kubernetes. Digital forensic techniques, CTFs, capture the flags, are ideal for gaining this knowledge and experience. My colleagues are like that as well: constantly challenging themselves and getting better. And the quality of our security is determined by the people in the team. Those very expensive things are worth nothing if they are not served by very smart people.

Why is it fun at the AIVD?

I have always experienced it as a luxury to work here. That is what I say to everyone. I work with the best people and learn new things almost every day. I work with unique technology and





by: Guido



from a unique information position. I do work that matters. I never have to ask myself that. That's just the way it is. Furthermore, if someone in my team wants to develop as a data scientist, I immediately make that possible in my own team or in another team. There are no obstacles. In fact, it is stimulated.

What was wrong with that pdf?

Nothing. Fortunately not. We made some adjustments in how we handle pdf files and further fine-tuned the use of sysmon. It never stops. Fortunately.

Working at AIVD

The AIVD works to protect the security of the Netherlands and its inhabitants. We look for invisible threats and are alert to events at home and abroad that could endanger our security.

The AIVD is a combination of an intelligence and security service. We investigate and identify covert political intentions of other counnational security (security). From terrorist violence and radicalization to espionage by foreign players.

This combination allows us to paint a complete picture and thus protect our country. Working at the AIVD is therefore versatile and interesting.

king at AIVD, see https://www.aivd. nl/onderwerpen/werken-bij-de-aivd.

Youth politics & IT

Interview with the chairman of a youth party



by: Tjalling Hoogendoorn ditor I/O Vivat

n March 5th last year (just before the corona period) I sat down with fellow TCS student and chair of the Jonge Socialisten (JS) branch of Overijssel: Nicolien Boekhoudt. We talked

about her activities in youth politics and how her study might give her a different perspective from her colleagues. The JS is the youth party of the "Partij van de Arbeid" (PvdA), or the **Dutch Labour Party.**

What is the JS and its relationship to the PvdA?

Our Youth party is actually separate from our mother party. Since they are in the Dutch parliament that determines how much funding we get. If the PvdA is doing great we get more money, while we get less if the PvdA is running out of seats in the second chamber. That is our main connection. Some youth parties follow what their mother party does, however, we are completely free to disagree.

Every municipality and every province has a local PvdA party and since we are the board of JS Overijssel we can be at every PvdA meeting they have as a board or of the politicians themselves. For example, in Overijssel we talked with politician Annemieke Wissink, who is the leader of PvdA Overijssel, about what they are currently doing and what we think of it. We had some issues with the PvdA working together

with the SGP (a reformed protestant political party) because we think they are a bit too extreme in certain parts. We talked with the main party about it and she explained "Well such and such" and asked us about our opinion. In this way, we kinda worked together to see in which way we are comfortable with the decisions they are making and how we can also make it work for younger people like us. We also do this in the other municipalities such as Zwolle, Deventer, and of course Enschede.

The main goal of communicating with the main party is deciding together what we are going to do. They do not really have an influence on what we are saying but we can convince them that they may have to make a compromise or do something else because they apNicolien Boekhoudt Chairman JS Overijssel

preciate our vote, in such a sense that we are their future and they know that.

What does the JS focus on besides their connection with the PvdA?

Sometimes the JS join actions, like the climate march, but recently we started a new campaign called "uitgewoond" (rough translation: outhabited). It is about the fact that there are just not enough houses for people to live in. There are a lot of buildings that are empty but you cannot live in them. A few years ago the "Volkshuisvesting" [a public housing policy, ed.] was removed, and we want to tell the government to look into it again. Because it really is a big problem and something needs to happen fast, as people cannot find affordable housing anymore. this is more



Figure 1: Nicolien (right) together with former PvdA leader Lodewijk Asscher.



aimed to the outer world, to the general public. We actually went camping in Utrecht while it was 8 degrees outside to show you cannot live outside in the

understanding technology because they do not understand technology as much as that it is not what they focused on and specialised in a different field.

"It's not that they do not understand it or that they are too old but it is just that it is not people in technology sitting there"

Netherlands, it's too cold and you need a house. Something needs to be done otherwise more people might end up homeless.

Does your view on politics differ because of your field of study?

Because of my interests. I am interested in technology, and a lot of people are not. If I look at the JS Overijssel, you can see some of them are really strongly opinionated on technology, what should happen and what shouldn't happen, and some people just follow what the media says should happen, because they do not know better. Of course, sure, we know more in the basics because we use it almost every day for our entire lives, but I do not think that is the biggest difference. I still know a lot of people within my department that actually have no clue about technology and will just follow whatever the adults say and that is gonna be it. But I do notice that especially the people who study something technical have a much broader view of what can actually happen.

Even when you look at politics itself it's not that they do not understand it or that they are too old but it is just that it is not people in technology sitting there. In the entire Parliament there is one guy who studied a technical study, I believe a guy from the CDA studied physics. Most of them have studied law or something similar. It's not necessarily their age, it's their orientation. When I finish my study in Computer Science it makes sense I will do something with Computer Ccience, whereas if someone finishes a study in Law or Political Sciece it makes more sense they will pursue a career in politics. It is not so much people not

How could a student who would want to get into politics get involved?

In the Netherlands we have a lot of youth parties and they are all very different. Once you become a member of one it is not necessary to immediately go to protests and stuff. It is like opening a window for yourself and looking at "what can I do." When I started with JS it was right after the Kick-In and I enrolled just to be a member. I did not do anything with it because I was busy with my studies. However, I did join a group chat with a lot of people who were really interested [in politics] and actually started thinking about it more. You hear a lot of different opinions.

I chose a party that aligns with my view of what the Netherlands should be. And if you are really interested you can look around and see what you like. Check what direction you voted last year and check if they have a youth party - almost every party has one — and if they are active in the area. Then you can consider whether you want to be a part of that. For example, JS and Dwars are relatively close, we often have activities together. You could become part of both and see what you like.

It is basically like joining an association, but one that is not on campus. You just join an association and if you want to become active, it is as easy as going to an activity you find interesting. You open up the possibility, and get to know other people who might invite you to something. I think that is really important if you want to do something with politics. You do not even have to join, you can just contact their boards or talk to one



of their members and ask them what they do.

What is the best part of being active in (youth) politics?

What I really like is that I have a way to express how I feel about a certain subject and we can discuss that in a group of people who are alike but not quite the same. Sometimes you get really good ideas out of that which we can share with other people or the PvdA which is great. And I really like protesting, maybe not when it is 8 degrees outside, but protesting is really fun. I like that it is a basic human right within the Netherlands, expressing your opinion, and I feel like too few people do it. When I do it I actually feel like "Yeah, we are a democratic state, we can actually do this and people are okay with it." We can go camping in Utrecht and the Mayor says "Oh, we will put you out of the wind so your tents won't fly away." It's really good, and you are with a group of people who are all standing there for something they really want to achieve. Maybe people do not necessarily listen to you immediately, but you try, actually try to change something and I really like that.

About Nicolien

Nicolien Boekhoudt started he studies at the University of Twente n 2018. Born and raised in Enschede where she obtained her high school diploma at the Bonhoeffer College

During her studies, she moved to Hengelo and soon became a member of the Jonge Socialisten. From nization in Overijssel which says

ther js.nl or the website of the local department: overijssel. js.nl.



ontrol a linear motor with nanometre accuracy. And this, of course, as efficiently as possible. That is one of the challenges that the people at Prodrive Technologies face every day. And with success, because Prodrive is a global leader in this (and other) technology.

Linear motors have a wide range of applications: from innovative new lift systems to the production of data chips. Especially in the latter kind of applications, accurate positioning of the motor is essential. And that requires exceptional performance of the hardware, firmware and software. And thus also of the people within Prodrive who are involved in this.

A small introduction

For those unfamiliar with Prodrive Technologies: the company has five branches worldwide, from which it develops and produces unique technical solutions in many different industries. From automotive to medical, from semi-conductor to industrial, motion and much more. Prodrive's head office is located at the Science Park Eindhoven in Son.

One of Prodrive's many great projects includes the development of linear motors. These motors work on the basis of magnetic fields, which are created by permanent magnets and electrically driven coils. The control of these coils, the motor-drive, is being developed by Cas Bakker (drive design architect), Sander van den Hoek (firmware developer), Tom Thevissen (motion software developer) and Remon Damen (drive design developer), among others. Together with many others within Prodrive, they enjoy biting into the technology behind the motor-drive.

High end application

Where it must be possible to control a motor at nanometre level, strict 'requirements' apply to the drive. Technical requirements that require the utmost of existing techniques, or even a little more. The challenge for the people at Prodrive is to push the boundaries of technology. For example, the drive in this story requires a very precise output current and very low noise. At the same time, the motor has to move from A to B as quickly as possible in order to achieve the most efficient production line for the customer. "This requires a technical masterpiece," says Remon Damen. "We have to be very precise in the

gain errors, offset errors and linearity, so that we can make power with very high precision. It is also very important that the position of the motor is constantly monitored by means of all kinds of different sensors. "This really is a high-end application. One of the best drives you can get on the market".

Producing fully customised products is, of course, beautiful, but extending the customised product to a broader level, so that it can be sold as a generic product 'off the shelf', is also one of the things Prodrive does. That is why, according to Remon, it is important for the drive to be able to communicate via various protocols, such as Ethernet and EtherCAT, for example. This is achieved by using a SoC (multi-processor system-on-a-chip), which contains both embedded processors and an FPGA (field-programmable gate array). The use of the SoC offers a great deal of



Figure 1: Drive Render X-motor



flexibility, allowing the drive to be used both stand-alone and in a real-time communication network as EtherCAT.

Prodrive Motion Platform

The drive runs PMP (Prodrive Motion Platform) software. This not only ensures that exactly the right amount of current is given to the motor to make the right movements right down to the smallest detail, but can also facilitate

extremely comprehensive diagnostics. And that is, according to software developer Tom Thevissen, the strength of this software platform. "Four years ago we

From the PCB to super-low-level programming, the software platform and the APIs that link to the customer's systems: everything can be developed inhouse by Prodrive. And that can sometimes be a major challenge. Sander van den Hoek: "We used to use a separate

"Within Prodrive you get a lot of challenges: you can go very deep technically."

started developing this platform from scratch," he says. "And its diagnostics work extremely well. We can very easily track exactly what is happening on that controller. A customer can simply say: 'I now want to know what my current is at exactly this point, and what's wrong here with the position of the motor, what that encoder sends out and what that temperature sensor measures. And I want to have all that in one picture. Whether it's at 1 kHz, 10 kHz or even 250 kHz, so with a super high frequency, you can see exactly what is happening. If we didn't use this software platform, it would be much more difficult".

To enable communication between the PMP (which runs on the drives) and the customer's system, Prodrive provides APIs. The customer can 'talk to it' in various programming languages, such as C#, C++, Python and MATLAB. In this way, each customer can obtain its own customer-specific data and diagnostics.

From chips to lift shaft

Just like the hardware and firmware, the software must be able to be used for many different customer requirements and with a wide range of specifications. The system is therefore modular. The customer can then indicate which building blocks are needed in his specific case. According to Tom Thevissen this also makes it a lot of fun: "From the production of super small chips to medical X-ray arches and a lift that theoretically could be a kilometre high... It can all be controlled by our software platform. I processor and a separate FPGA for these linear motors that were linked together via a PCB. We receive the MPSoC (combined chip), but we make the code that runs on the processor ourselves. We make the hardware description that runs on the FPGA ourselves, we make all the interfaces and hardware around it ourselves, and we do the PCB design ourselves. There has been a lot of challenge in setting all this up properly. All we get are components. But we succeeded. And it is precisely this challenge that makes it so interesting.

If you develop everything in-house, that may be a challenge on the one hand, but on the other hand it also leads to a better result. According to drive design architect Cas Bakker, in order to achieve that optimum result, close cooperation is needed between all kinds of different disciplines within Prodrive. "As a hardware designer, I have to ensure optimal interaction with, for example, mechanics. You facilitate each other and help each other further. For example, every piece of circuit in the drive is documented and reviewed by colleagues to see whether we have chosen the best concept. Production is also involved in this. Because in the end, of course, we have to develop a drive that can also be produced. I really like the interplay between all those disciplines within Prodrive. It's also easy, because we have an organisation in which everyone is treated as equal. There is virtually no hierarchy, and that promotes cooperation.



think that diversity is one of the nicest things about my work".

Everything in-house



Technical depth

In addition to the close cooperation with a large number of fellow specialists, the technical depth of the projects within Prodrive is also praised by the employees. Cas Bakker: "Within Prodrive you get a lot of challenges: you can go very deep technically. You don't sit still, you are never bored and you are challenged. But in addition to your own

little piece, you can also work on the bigger picture if you wish. I sometimes sit around the table with a client, I often go through the design process from start to finish. First there is something in theory, then it is written down on paper and finally

there really is something in the lab on which you can take measurements. This makes us very enthusiastic!

Working at Prodrive

Would you also like to work or graduate within a globally successful company that is at the forefront of technological developments and innovation? With plenty of challenge, responsibility and the best engineers around you? Then choose a position at Prodrive Technologies in Eindhoven.

Take a look at www.prodrive-tech-

Crewmate

There is 1 Impostor amon9 us

This article probably sucks and other things we tell ourselves because everyone else is better



//Article

by: Emma Sloot Editor I/O Vivat

ou just got a really nice promotion for which there was a battle between you and one of your colleagues. You both have a similar background, there's not a noticeable difference in your experience or previous

education. You, however, have better numbers on your side. Your reports are finished faster, and you're finishing up more projects than they do.

All in all, it's not weird that you're the one who gets the promotion. Nevertheless, you still feel like you do not deserve it. Your reports are finished faster because they are bad contentwise. Your projects are finished faster because they are completely freeloading off your better colleagues. They deserved it. Not you. Nothing can convince you otherwise, not even all your colleagues telling you that you deserved it and that your work is good.

This may sound weird to you. When you're promoted, you're usually happy about it, and why would you go for a promotion you don't think you deserve? It's hard to answer these issues with logic, but that's also because the subject of this article is not about logic. It's about emotions, and about how illogical your brain can get. It's about imposter syndrome: something not everyone has to deal with personally, but which may explain the responses of some people around you.

"It's about emotions, and about how illogical your brain can get. It's about imposter syndrome."

The imposter syndrome is an item that is gaining more and more attention. Quite some people have recognized the term and felt like it fit them. However, it is not an officially registered mental issue.

What exactly is the imposter syndrome?

In short, it is feeling like you are incompetent and got to where you are now due to pure luck or bluffing even though outside confirmation tells you otherwise. This article will focus on the imposter syndrome itself and issues surrounding it.

Asking for confirmation

One big part of the imposter syndrome is constantly asking for confirmation. Someone might be a long-time secretary, who has always gotten top grades for their formal letters and they will still second-guess every sentence and get almost every mail proofread by someone else.

36.1 🔶 //26

This may not seem like a big deal to start with, but it does cause delays and people will see the person as insecure and/or incompetent. Some things that may not be wrong but more of a preference can be highlighted by people checking their work, making them even more insecure as they think it's another mistake.

In general, this may not seem too bad, but looking, and being, insecure can cost you your promotion. It can make your job harder because you let people walk all over you, or it can make you appear inefficient, costing you your job.

Is it a real thing?

You may think that the imposter syndrome is not relevant for your field of work, or that it's still not real and people are just insecure. "We already have a word for that, so why add a new label?" This, however, is an entirely new level of insecurity. You feel like a fraud. You feel like everyone in the same field is more competent than you. You feel like you do not know what you're doing while everyone else does.

The way you feel with 'regular' insecurity is more like 'what if I'm not good enough?' whereas the imposter syndrome is closer to 'what if people figure out I have been faking all along?'

Famous people

There are multiple well-known people that suffer or have suffered from imposter syndrome, one of the most famous ones being Brian May[1]. You may know him as the guitarist from Queen, but he also earned a doctorate in astrophysics, which he passed cum laude. He

"Having imposter syndrome can severely impact your ability to work in a group, and it can negatively influence your ability to stand up for yourself."

himself has gone on the record saying he felt like people would figure out he's a fraud in both fields. Other famous people with this problem include Emma Watson, John Green, Neil Gaiman, and more. You can read their stories about this by googling.

Computer science

Irrelevant as it may seem, imposter syndrome also shows itself a lot within computer science. It's people working on a project together and feeling like they're not pulling their weight. It's people staying silent during a discussion as they feel that contributing to it will show that they're a fraud. It's people not pointing out a mistake because hey, they might be wrong themselves.

When working on a bigger project, you don't want your teammates overworking themselves just to prove that they are good enough. You want as much input from experts as possible, and you want people to point out flaws to improve the system. Having imposter syndrome can severely impact your ability to work in a group, and it can negatively influence

dressed. For example, the syndrome more common among women.[2] Why is this? Probably because women are facing issues that make them struggle with confidence on the work floor on a near-daily basis. An entire word, mansplaining[3], has been brought into our language to pinpoint the issue of men explaining items to women that are the experts on it. I don't know about you, but if I constantly got my own expertise explained to me by someone else I'd also really start to doubt it.

But why is this important? It shows that resolving the issue of imposter syndrome is not an overnight achievement. The systematic occurrence of it in some groups shows that these groups have been, and still are, pressured to overachieve and feel like they're failing if they're doing any less. To resolve a systematic problem, systematic change has to be made. This is already going on on a large scale, so who knows? Maybe in a few years, there will be fewer people struggling with imposter syndrome, and/ or the people that are struggling with it will be more evenly distributed over dif-



What can we do about it?

The imposter syndrome hurts people on an individual level quite a lot and can have negative influences on projects. Therefore, it would be beneficial to both the individual and the team to find a way to resolve the issue.

Sadly, it's not as easy as popping a pill and feeling better. Most often, the imposter syndrome has an underlying basis of issues that should be ad-

your ability to stand up for yourself.

36.1 🔶 //27

ferent groups of people.

There's of course the other group: the individuals that don't have a clear systematic reason. For them, it can be hard to resolve the issue. One can battle the 'symptoms' like shyness or overdone humbleness by asking more questions to a specific person or giving more genuine compliments. However, the root of the problem will still remain.

There's a lot of information online, and some sites have solutions. impostorsyndrome.com is one of these, with their separate article about 10 steps to resolve it. However, these may not work for everyone, and looking at them, they give a similar vibe as a lot of the "mental health self-care" lists that you see everywhere. Maybe they work for you, maybe they don't. You will never know until you try, but at least you may now be able to explain why you feel and act the way you do.

References

[1] https://www.newscientist.nl/ blogs/menno-pot-ontmoet-brianmay-oplichters-onder-elkaar/

[2] https://www.bbc.com/worklife/ article/20200724-why-impostersyndrome-hits-women-and-women-of-colour-harder

[3] https://www.sciencedirect.com/science/article/pii/ S2211695817300910

Additional reading:

https://neil-gaiman.tumblr.com/ post/160603396711/hi-i-read-thatyouve-dealt-with-with-impostor





by: Arend Rensink Programme director TCS

"You are all different!" Brian: Crowd (in unison): "Yes, we are all different!" Lone voice: "I'm not!"

Whoever does not recognise the above delightful altercation, and is not liable to be shocked by a (very) irreverent attitude towards religion, is strongly advised to go and watch "Life of Brian" this Christmas. You will find it a rewarding, meme-rich experience.

Yes, everyone is different; yet in this world we must work together to achieve anything worthwhile. That is true in general, but especially also in Computer

Science: the time when a system design or programming task could be given to a single person is long past. So then, how do you work together in a diverse group? This is a skill that most of us have to acquire; and the only good way of acquiring it is through practice. Hence the many projects in our curriculum.

When it comes to composing project groups, there is a choice in front of us. What is the best policy for doing so? Roughly, the choices are: (i) to leave this to you, the students, possibly with some conditions; (ii) to impose groups, based on a random choice, or (iii) to impose

groups, based on further constraints to ensure a good mix.

When faced with a choice, one should always look for requirements: what do we want to achieve? On a high level, that's actually easy to answer. We already established that project work should be a learning experience; so a policy in which the largest number of students learn the most (or inversely, the smallest number of students are left behind) is preferable. Let's look at what that means concretely, by serving up a few observations.





• You learn best by collaborating with project partners on your own level. Both working with someone who is far ahead of you and with someone far behind can be quite frustrating. We have actually tried this

in the past, out of the idealistic and, as it turned out, naive thought that, if A is ahead of B, A increases her own expertise (teaching being a well-known way of improving yourself in the subject)

"Our first-year students come from dozens of difthen by explaining stuff to B, ferent countries, and many of you know no-one when you start your studies. "

and B gets better as well. Not so, however, if the gap is too large: A does not want to explain everything all the time, and B is likely not to understand the explanations.

- You can learn a lot by working with someone from a different background. This, of course, is the part of the point of an international study programme in the first place: to come to the realisation that your own mindset is culturally determined and not the only way to approach a task. Learning to appreciate different points of view, even (or especially) if they do not make sense to you at first, is very rewarding - not easy, but rewarding.
- In the workplace, you don't get to choose your project partners. Most of you will eventually get a job in a company or institution where you have colleagues that you did not select, and whom you nevertheless have to learn to work together with and appreciate. This is an acquired skill, and being able to do so makes you a more valuable worker. It stands to reason, therefore, that you should get a chance (or rather: be forced) to hone that skill in the course of your curriculum.
- It can be hard to find suitable project partners. Not everyone is born with the same set of social skills, and has an easy time finding a project partner when left to themselves to do so. Our first-year students come

help everyone in overcoming their reticence, shyness or awkwardness in reaching out. Inclusiveness dictates guidance.

All of the above observations lead us in the direction of solution (iii), out of the list above. One disadvantage - or rather, an advantage of solution (i) - is then altogether ignored, however; and it is not to be wondered at that this is a main point of discussion and criticism. By taking it upon us to tell you with whom to collaborate, we take away part of your ability to shape your own learning process, and we deny you the option to work with a group of fellow students with whom you know you have a good rapport and will achieve the best final result. Indeed, you may feel that your grade will suffer because you're stuck with one or more underachieving project partners.

I'm not going to claim that this never happens; that would be silly. Rather, I'm claiming it's a question of balance. By far the easiest solution would be (i): we take no responsibility, failure or success is to some degree determined by your ability to find good project groups. However, for all the reasons discussed above, we've chosen not to take this easy way out: we truly believe that our educational system is made better, for the largest number of students, if we actively take matters in hand.

As you get further into the study programme and you get older, wiser, more skillful in collaborating and better ac-



from dozens of different countries, and many of you know noone when you start your studies. Though in the Bachelor, you are thrown together in do-groups and (nowadays) houses, that does not quainted with your peer group, the need to impose groups grows less. By the third year of the Bachelor, when you come to the Design Project, we've retreated and do leave it up to you to find your own project and project group. In

the Master, there are anyway fewer cases where we feel it to be beneficial to take such decisions for vou.

The upshot of the above? You may be asked to work with fellow students who are all different, except for sharing your choice to study Computer Science



at the UT. We expect that, in the long run, you will see that this enriches your experience; despite, or maybe even because of, frustrations you may encounter on your path.

About Arend





by: Niels de Groot . Editor I/O Vivat

tarting at midnight, I was stuck to the couch. It was the night of November 4th and with a TV and several other screens in front of us, a small group of friends and I patiently waited for the first exit polls of the US

Presidential election. Election nights have turned into watch parties in recent years, as anyone with an internet connection and some interest in politics can look at a flashy and live-updated dashboard while waiting for yet another 'key race alert'. Transparency in elections is highly important in a democracy, but don't we onlookers help tear down the very process they stand for?

In past times, some form of live results were already available, of course. TV stations and other news outlets would have reporters outside the polling stations in key districts, calling through any major developments to the studio. The presenter, oftentimes an experienced and trusted anchor of the station, would tell the viewers exactly what was happening. Later on, the introduction of fancy computer-generated graphics only made it easier to attend to the curious citizens wanting to know who would be their next president.

In those days, the TV stations decided what you would see, how you would see it and when you would see it. Still, in current days, the media in the United States are highly subjective and remain in control of what coverage their vie-

wers get to see. However, with the use of the internet everyone willing to do so can share their opinion on anything, anytime. One could debate whether this is a good thing, but in this case it did not take long before everyone had turned into an election expert, widely discussing their ideals and theories and throwing out their expectations for anything closely related to politics.

We all knew that it would become a historic evening, whatever the result would be. We also knew that it was not likely for a result to become clear during this evening or the night after. It did not make us refrain from actively guessing, speculating, discussing and posting about the most recent results. We weren't the only ones. Social media was filled to the brim with Breaking News



Some or all of the content shared in this Tweet is disputed and might be misleading about an election or other civic process. Learn more

We are up BIG, but they are trying to STEAL the Election. We will never let them do it. Votes cannot be cast after the Polls are closed!

(1) Learn about US 2020 election security efforts

9:49 PM · Nov 3, 2020 · Twitter for iPhone

View Quote Tweets

Figure 1: President Trump actively spreading misinformation on Elecion Night.



headlines saying some state had just counted another thousand votes and CNN's John King reminded us every couple of minutes that "the Democrats and Republicans are creeping closer together".

During the evening, as delayed counting and the large number of mail-in votes both had their part in promptly flipping complete states from red to blue or vice versa, the tensions grew, and not only in the streets of Washington where protestors from both sides were present. Social media users were collectively clenching their buttcheeks in anticipation of the outcome of this vote. They wanted a result, we wanted a result. None of my friends present, me included, are US citizens, this wasn't even our election. But we were part of it.

In the end, I went to bed at 7:30 in the morning, sleep-deprived and with an unfulfilled urge for a conclusion, one more tweet with an announcement, one more expert giving his or her hot take on live TV, one more blip on the map that would change color. The first media outlet called the election for Joe Biden on Saturday afternoon, half a week after the restless though - quite frankly - immensely boring night my friends and I had sat through. Had it been worth our time? Probably not.

In the weeks and months after the election, starting shortly after I went to sleep that morning, sitting President Donald Trump would repeatedly claim he won the election. The social media storm of that Election Night on the night of 3 to 4 November, that massive interference from the general public, it had been more than enough momentum for Trump to spread false information about the election. We saw the discontent that arose from this misinformation and the President's encouragement to protest return at the capitol on 6th January and up until the very day of the inauguration.

In the end, I wondered, wouldn't it be better if we didn't watch the democratic process like that from our armchair, at home, in front of the TV? Nobody likes to be watched when they need to focus on something important, especially if that important thing is counting votes to maintain democracy. It is of no use

"Social media users were collectively clenching their buttcheeks in anticipation of the outcome of this vote."

for citizens, let alone random people around the world, such as ourselves, to look at live-updated counts. There are election supervisors present from both parties, at the polls, and at the counting. The technology that gave us the power over such large quantities of data can and, in this case, did turn against us, or at least our democracy.

Whereas the unprecedented insights that we have into the election process nowadays would have been a dream for those pressuring transparency in the late 20th century, before the internet was as widespread and powerful as it is today, we now know the other side of the coin. The dangers of concerned citizens who want to get their recourse heavy-handed has always been present, but never before did malicious parties have social platforms like today. It may seem far-fetched, but the effects of social media on democracy have been worrying for some time already. Though the doom scenarios of widespread civil war have so far been suppressed, events such



as the Capitol storming are bound not to be a guaranteed one-time event.

Obviously, it is important that elections are transparent and run correctly. Democracy does not function in the dark. However, whether the responsibility for fair elections should fall upon the couch potatoes among us seems clear cut. It probably shouldn't. We should let those whose job it is to guarantee fair elections and democracy do their work. We can wait for the final results. We should wait for the final results. And if, by then, the result is questioned, it can - and should - definitely be reviewed, aided by those who were there, in the room where it happened.

Figure 2: On Saturday afternoon (CET), November 7th, CNN anchor Wolf Blitzer announced that they were projecting a win for Joe Biden 🔻



//Column

Alumni Stories

Hiring and Getting Hired



by: Viet Yen Nguyen Alumnus

iet studied Computer Science at the University of Twente. After his graduation in 2007, he started his first job as a research assistant at the RWTH Aachen University, Germa-

ny. Under professor Joost-Pieter Katoen, he worked on several European Space Agency technology transfer & research projects applying formal methods to spacecraft engineering. This led to his PhD in 2012. After that, he joined Fraunhofer to work on safe and reliable automotive, farming and energy control systems. In 2016 he made the leap to the private sector and since then has been the CTO of Hypefactors, a Copenhagen-based startup in reputation and media intelligence.

The competition for qualified science & engineering professionals runs hot in nearly all developed countries, especially in expertises we hire for, for example big data engineering with Scala, Artificial Intelligence/Machine Learning using probabilistic methods and neural networks, as well as developing and operating large scale web applications.

That also means: the candidate should not only convince me as a hiring manager, but I should equally convince the candidate to join one of my teams.

I'm in a continuous hiring mode - ongoing growth demands me to further staff my teams. And therefore I also continuously fine-tune our hiring playbook. We have several of them. For example, the way we bring in seasoned veterans is substantially different from hiring talented fresh graduates.

No matter the details of the playbook, the hiring experience is similar: through several steps, we go deep fast, learn to know each other, and develop a mutual appreciation for each other's strengths and talents.

What do you look for in a candidate?

I look for skills and experiences that supplement and enhance the current team. To that end, I develop a clear mental picture and imagine how the candidate would fare right away, in the short-term and how the candidate grows along with us in the long term.

Starters have little to no experience. My imagination has to stretch more. I focus more on discovering potential rather than directly relevant working experience. Instead of going through the candidate's past works and debating how theory and practice connected there, we go through the university transcript and debate the theory in their coursework. A thorough understanding of how things work is in my experience a prere-



Figure 1: Public Github repos by the company or its team members give a concrete idea of the working style, preferences and abilities.



I find one aspect common among starters and experienced veterans: a significant chunk of engineers and scientists are poor at selling themselves. This makes it harder to get appreciated for their potential. I sometimes have to go through great lengths in creating a comfortable ambiance before discovering their full range of abilities and strengths.

I frequently encounter applications of people that are not playing to win, but rather play not to lose. Their application indicates no relevance to the organisation's described needs.

This epistemological relevance is important for later hiring phases too: some people show little to no curiosity in the company, team, product and services. Without these valuable insights, it is more difficult for the candidate to genuinely understand what the company needs; and the hiring manager as a consequence will believe the candidate does not comprehend what the job entails.

Related to that is some stick the narrative only on what they can offer. While this is relevant, this single-sided way of thinking and behaving can lead to overestimation of one's ability with respect to the magnitude of the company's needs. Also here, the hiring manager will more likely than not conclude a poor match.

Even though it is an employee's market right now, and hiring managers may overlook minor nuisances, it does not mean they have no choice. More often than not, there are multiple candidates running. If a qualified candidate shows more interest, curiosity or alignment over a lesser prepared candidate, then the choice is easily made. And alternatively, hiring managers can decide not to hire at all if they feel none of the candidates are suitable.

Before day 1: study everything you can about the company, team, product and services. All tech companies leave a digital footprint. There is a wealth of

"I frequently encounter applications of people that are not playing to win, but rather play not to lose."

information available on LinkedIn, Github, Gitter, Discord and the company's website. Your knowledge will compound faster in the first days, and this will impress people.

I also recommend organizing wellprepared "getting-to-know-each-other" lunches and coffee-breaks with as many colleagues as you can. You can learn about their main business problems, their personal motivations and understand how the company's goals and objectives relate to their day-to-day work activities.

Many companies organize a buddy or a mentor from day one. And if they do not, then I recommend finding someone in the company who will mentor you, explicitly or implicitly. Mentors often see this as a rewarding experience, for being the one that flywheels young talent into the company and their career.

I once witnessed from the sidelines how a senior executive got up to speed into a large billion-dollar multinational. Simply said: he was on fire.

Though his official starting day was still months away, and while wrapping up his current job, he organized video calls with all his future colleagues in all layers of all places. It did not matter whether it was the Canadian, London, New York or any of the other offices, nor which time it was. Well before he started, he knew this large and geographical spread out organization better than most of his colleagues. On top of that: the organization got to know him very well too. He quickly became the go-to guy for many questions.

Using those insights, he shaped up the company's strategy and an accom-





panying action plan with milestones. He knew exactly what had to change, what had to be done, how it should be done, and who would be doing it. Then months later, on his first day, he started to implement this plan.

He was not waiting to get onboarded: he onboarded himself!

From the alumni

//Article

Digital Affairs in Parliament

he future of the political debate or



by: Wouter Kobes . Guest editor I/O Vivat

n the 6th of October 2020, the Dutch Second Chamber voted in favour for the instalment of a permanent parliamentary committee for Digital Affairs. This was one of the main

recommendations from the report of the temporary committee "Digital Future". In this article, I will dive into what we can expect of this committee, and how it will change the representation of IT in the Dutch political system. Will this solve the everlasting problem of failing ICT projects by the government?

The motion formally proposing this committee could count on wide support, as of the 150 members only the fraction of the Party of Freedom (PVV) voted against [1]. The acceptance of this motion means that the Dutch parliament will install a permanent committee after the next general elections, in March 2021.

In the Dutch parliament, committees play a prominent role [2]. While all official decisions are made during plenary sessions of parliament, most of the negotiations take place during committee meetings. Members of parliament are divided over the various committees and discuss the topics related to the committee's theme. As a result, the plenary meetings can be shortened, and be more focused on the points where the Chamber is in disagreement.

The absence of a committee designated for Digital Affairs means that relating topics have been handled by various other committees, for example with the topic of privacy in the committee Justice and Security. This fragmentation, according to the report, has led to underexposure of the risks, chances and social values of digitisation in debates.

Report by the committee "Digital Future"

The 56-page long concluding report of the committee is topically titled "Update required" [4]. In the report, they consider ongoing societal developments that require more governmental guidance. The findings are used to construct the main take-aways: five concrete recommendations for future parliamentary

work on the subject of digitisation. Let's dive into these recommendations.

digitalisation

The first and main recommendation is to instate a permanent committee for Digital Affairs. This committee would take the lead in finding coherence and the integral approach in all topics somewhat related to digitisation. Furthermore, it would be the main point of contact for the cabinet, businesses, science and other interested parties on this subject.

Another issue observed by the committee is that the parliament often lacks the knowledge to address technological policy issues. This leads to uninformed decisions, with outcomes that may cause more harm than good. The second advice is, therefore, to create an annual



Figure 1: The temporary committee Digital Future of the Dutch parliament.



knowledge agenda in the field of digitisation to address the knowledge gaps present in parliament.

Digitisation cannot just be discussed as a separate topic: all ministries, regional and local governments and public organisations deal with the issue every day. That is why the third advice is to make the new committee a source of information for all other parliamentary committees as well. In essence, they would also carry out a supporting role to decision-making processes in other committees that are in some aspect related to digitisation.

The fourth advice sets out another task for the committee, namely to assess whether the current legal framework suits the needs of the fast-paced digital sector. While Dutch law tends to be written in a techno-neutral way, we have seen that the lawmaking process is often slacking to keep up with the developments. An example is the legal framework around drones, which was until the 31st of December 2020 based on laws designed for model planes.

The final advice insists on a stronger focus on European lawmaking. In the past few years, numerous laws concerning digitalisation have been accepted in the European Union, of which the new drones law is a recent example. The report states that the current Dutch involvement in these processes could be improved by adding the right knowledge to our parliament.

Beyond the report

While the advice listed in the report feels like a logical step in addressing the issue of digitisation better, it can also be considered unconventional. For starters, the permanent committees usually align with the ministries or portfolios of ministers in our governments. Yet, there is no Minister of Digital Affairs in the Netherlands. During the plenary debate, the committee indeed admitted they would also recommend the installation of this minister. The reason this was not explicitly mentioned in the report is simple: this decision is to be made by the coalition in a formation, not the parliament.

Another critical remark made by Martin Bosma (PVV) concerns the fragmenta-

tion of the subject. No other committee has a general theme that plays such a prominent role in all other committees as well. In his eyes, this could lead to unnecessary overhead in the division of topics over the committees, and possibly to work being done twice.

In my opinion, this committee will have an added value to the political climate. While 'ordinary' digitisation, being the transition from paper to computers, may not require a separate committee, the increasing complexity of digital subjects dó require extra attention in parliament. To name a few, the use of artificial intelligence in governmental decision making, the extensive data gathering by techmonopolies and disinformation campaigns by foreign actors require technical know-how to fully understand the ethical and privacy implications, and thus for effective policymaking.

All problems solved?

I doubt whether this committee can be considered 'the' solution in the stereotypical problems around IT of our government. Nonetheless, it is certainly a step in the right direction to improve the attention to IT in the Dutch parliament. After the upcoming elections in March, the committee will start its operations. It has to be seen if the formation parties also welcome the idea of a new ministerial post.

Yet, these elections may also cause a new challenge for our IT representation. Of the mere number of members of parliament with technical experience, a large proportion has announced to not return on the electoral lists [6]. On the electoral lists that have been announced at the time of writing, I observe very few candidates with a background in IT on electable positions. Something to think about when hitting the polling station this March!

In this problem of participation, we, students and alumni in IT-related subjects,



In this problem of participation, we, students and alumni in IT-related subjects, should also play a role."



should also play a role. For this, you do not need to be a member of parliament. Political parties are desperate for technical experts to give their opinions in consultation meetings, while municipalities organise participation sessions where citizens can aid in the formation of concrete plans. We, as experts in our fields, can make a difference by sharing this expertise, without the need of being strongly politically opinionated.

What's for sure is that I will be following the progression of this new committee from March onwards. Whether it will be a success is to be seen, but, quite frankly, it feels nice to now have political representation of our field of study. Oh, and even better, all committee meetings of our parliament are held in public [7].

References

kamerstukken/detail?id=2020Z176 55&did=2020D38187

[2] https://www.tweedekamer.nl/

missies/tcdt

[4] https://www.tweedekamer.nl/

nl/kamerleden-en-commissies/ commissies/ti jdeli jke-commissieeindrapport

artikel/digitale-kaalslag-deze-itpolitici-verlaten-de-tweede-kamer

mer.nl/commissievergaderingen

/Column

Multidisciplinary

Civil Engineering



Student Civil Engineering

ing! The door of the elevator opens, I arrive on the 11th which is my destination this morning. It is 8:53 am, 8 minutes after my lecture started. Thoughts rush through my head: "Why do we have this lecture on the 11th floor of the Horst Tower?" "Has the lecture already started?" (answer: yes of course) And maybe deep away in the responsible part of my brain the question would arise: "Why am I always late?"

When my fellow Civil Engineering students would see me, the question that would pop up in their head would be: "Is setting your alarm 10 minutes earlier really that difficult?" and sometimes also "Why does this guy always carry half a bread with him?" But the last question is not important for now.

Entering the room I would try to do my best not to disturb the lecture, after carefully opening and closing the door I would take the easiest accessible seat in my sight. Today I saw an empty spot on the first row conveniently right in front of my friends, who were gazing at me with the same look they would have every time I would be late (so pretty much every day). It was a little smile coupled with a slight headshake in disbelief that would read the words: "Why are you always late?".

I never disappointed them, especially today because today was special. It would be special as there was something wrong with the spot that I eyed on the first row: the chair was gone! The moment I tried to take a seat, I realized I had made a mistake. I halfway fell to the ground and pretended sitting on an invisible chair, but in reality it was more like awkwardly hanging on the table in front of me. My friends behind me couldn't stop laughing and the rest of our classroom joined in. They had a good reason to do so, because it must have looked ridiculous. However, my goal for that moment was not met, I had tried my best not to disturb the lecture with my late entrance but spectacularly failed.

In this example I am the opposite of a typical Civil Engineering student. I am unorganized, late and while unintentional I was attracting a lot attention. The typical Civil Engineering student can be more described as no-nonsense, reliable and sometimes a bit invisible. Not the star of the show, but also not the reason for failure. Actually that kind of makes sense, since the most real 'stars' can be found elsewhere in related fields of work. The best architects or interior designers are often well-known, while a smart scientist might win a prize for finding a new construction material. And to be honest, while taking the train, driving in a car or living in a town below sea level, you barely ever realise how special our infrastructure actually is, especially here in the Netherlands.

In a similar way, work in information science can also be a bit underappreciated. Many people take current technology for granted and know nothing about the software behind their smart systems. What Civil Engineers are to physical infrastructure are Information Technology/Science experts to our digital infrastructure. Even in physical infrastructure there is more and more advanced use of smart technology in operation and maintenance. In a world full of people, we can't do without connecting with each other and in both our



study fields we provide people with various opportunities to do so. I suggest we continue to do our best looking for even more improvements to our infrastructure, in doing so we would contribute to a better society.

'Multidisciplinary

ince it is almost 40 years ago that our association was founded, this is the perfect moment to look back at where it all came from and what we have to look forward to in the upcoming years. During this academic year, we celebrate our 8th Lustrum!

ixelate

Lustrum Pixelate

Inter-Actief has changed over the past five years. For instance, since our last lustrum year, we hit the milestone of 1000 members, hosted four editions of the "Dikke Vrienden van Grolsch Live", and organized two study tours, six unique symposia, and over 1000 other activities for our members, our alumni and all other students of the UT.

Next to these relatively small changes, there have also been some rather big changes. During our last lustrum year, for example, Inter-Actief was still a completely Dutch association, since both its Bachelor programmes were still taught in Dutch. This changed in September 2016, when several UT programmes transferred to an English-taught curriculum. In the years following, slowly but steadily the association adapted to this: General Members Meetings were held in English, the I/O Vivat changed its language policy in March 2017, and internal documents were translated.

As a consequence of this adopted university policy, the influx of freshmen rapidly increased. In 2015, 233 students enrolled for the Bachelor Computer Science. In 2019, this number had already



increased to 614. As one can imagine, it became increasingly more difficult to arrange the educational matters for

As you can see, a lot has changed over the past five years. This is why we look back at these years, but also look forward to the future during this lustrum year. We named this lustrum "Pixelate" to represent the thought that every member is part of the picture that is Inter-Actief and every new memory adds a pixel.

Since March 2020, we have been working hard on organizing the most spectacular and entertaining lustrum so far. However, as one can imagine, we are limited by the current COVID-19 pan-

groups this large. Whereas in 2015 all students could easily fit in Waaier 3, in 2019 Waaier 1+2 was barely enough! The study programme of TCS came up with a solution: introducing student houses. Since 2018, students are put in a - sadly less magical (and desirable) - version of the Harry Potter student houses, where each house has lectures, tutorials, and practicals together. These houses are named after a colour, for example, the Blue House. Besides the practical side of these houses, a house competition is hosted by the study programme, where houses can earn points for several study-related as well as nonstudy-related matters.

Besides the language change, there was a second major change in the past five years which many students still remember. After the dissolution of study association inbitween in 2019, which had been a cooperation between study association Stress and Inter-Actief, we welcomed all Business & IT students as members of our own. Since then, BIT students are a primary member of Inter-Actief and optionally a secondary member of Stress.





by: Frank van Mourik Chairman Lustrum Pixelate

demic. That became clear once again when we planned the physical lustrum opening on October 16th. One week prior to the event, new measures were taken by the Dutch government and consequently, the activity had to be cancelled. However, we did not lose hope and rolled out plan B, which we had already prepared for a couple of months: "Pix or it didn't happen", or "Pix" for short. This scavenger hunt-like activity was released during the online Lustrum Opening and will be a significant part of the lustrum year.

When looking forward to the second half of this lustrum year, we depend on the developments concerning the pandemic. Several large activities are being prepared, but up until now, it is unclear what the upcoming months will look like. For now, we stay optimistic and dedicate us to the same goal we set at the start of the year: organize the most spectacular and entertaining lustrum so far!

Lustrum Pixelate



Lustrum Pixelate

o matter the circumstances, the Lustrum of Inter-Actief is taking place this year. As you could read on the previous page, the Lustrum committee has worked on Lustrum Pixelate tirelessly. Some may have already heard a lot about the lustrum and may have participated in its activities, but for others, we are happy to give some insight into what the Lustrum has been like so far!

On March 19th, 2020, the Lustrum committee was formed. The committee started brainstorming about a theme and quite soon the idea of using pixels came to be. The golden age of the arcade video games in the late seventies and early eighties happens to coincide perfectly with the the foundation of Inter-Actief in 1981, and the idea of many pixels forming one greater picture on a display resonated well with our field of study. On July 17th, the Lustrum committee presented the theme 'Pixelate' by means of a theme announcement video in which many familiar faces from the past and present of the association played a part. You can watch the announcement video at ictsv.nl/lustrumtheme.

On October 6, 2020, the Lustrum year was officially opened. Originally, there were plans to have a physical activity, but due to new corona measures, these had to be replaced. Luckily, an online alternative had already been in the making. Pix (or it didn't happen) was announced as a way to fulfill challenges by yourself or in small groups and gain points by handing in proof of said challenges. During the lustrum opening, more than five hundred submissions were sent in. Throughout the year, several Pix events were held and will be held for participants to gain extra points and become the overall winner at the end of the year. To highlight some of the best entries, an aftermovie was made. The aftermovie can be found on the Pixelate blog, which is updated regularly with new posts. The blog can be found at lustrumpixelate.nl/blog.

Of course, physical activities are hard in corona times, however, that does not mean that we cannot do anything at all. In November, a Lustrum cocktail workshop was organized with the help of friendly bartender Prem who instructed participants and, in some cases, their housemates, to make some cocktails. The whole





operation took some preparation as ingredients had to be delivered to almost 140 participants divided over almost 30 different addresses. With a van packed with alcohol, limes, mint, ice and other ingredients and accessories the Lustrum committee drove through Enschede and its surroundings. At the end of the day, a livestream from the industrial looking warehouse of earlier mentioned bartender Prem commenced and showed participants the fine details of the profession of master mixer. Not only did this make for a night full of fun with whoever participants were teaming up with for the workshop, it also caused a lot of (online) interaction between participating student houses, which has probably been dearly missed in corona times.

For the now infamous Inter-Actief Top 100, the Lustrum committee provided some Lustrum content for during the broadcast. Not only were small radio-like gameshow items included, there was also a small teaser for project that was kicked off around Christmas of 2020: the Pixelate Podcast. In the Pixelate Podcast, the Lustrum committee talks to several Inter-Actief members about topics that may be of interest to the association. The topics are serious, such as a discussion about the quality of education and women in Computer Science or career prospects, but also fun, with topics like Pandora and the drinking culture within Inter-Actief. The Pixelate Podcast has several episodes which are available through the Lustrum website (lustrumpixelate.nl/podcasts) or Spotify.

Lustrum celebrations would not be Lustrum celebrations without a beer. And so, the Lustrum committee set out to brew a beer of their own. The recipe, which was made in cooperation with an experienced hobby brewer within the association, was sent to a company from Friesland and soon some Lustrum committee members took a ride all the way North to mix the ingredients themselves. By the time you read this, the first beers will have been delivered to those who ordered them in the pre-sale and it will be only a matter of time before everyone can toast to the Lustrum with the beer which was fittingly called PXL8. If all goes to plan, the beer will still be for sale by the time you read this, so if you want to enjoy a light-sour saison beer with a nice honeylike aftertaste in the spring sun, you can find more information at lustrumpixelate.nl/beer.













Play and win with BetterBe!

Below you find a nonogram. There is a grid of squares, which must be either filled in black or left empty. The lengths of the runs of consecutive black squares on a certain row are listed beside each row of the grid. The lengths of the runs of consecutive black squares in a certain column are listed above each column of the grid. Between each run, at least one square must be left empty. Your aim is to find all intended black squares and form an image.

When you've found the image, send in a picture of your solution to **iovivatpuzzle@betterbe.com**. Among the correct submissions two €10 cinema vouchers will be awarded.



Transforming automotive leasing worldwide

Better >< Be