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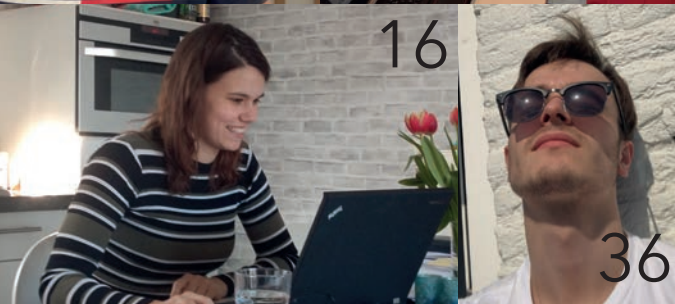
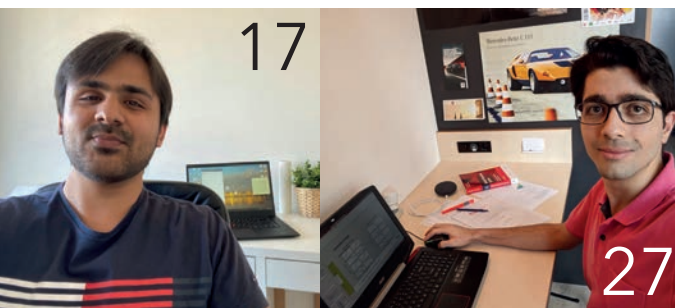
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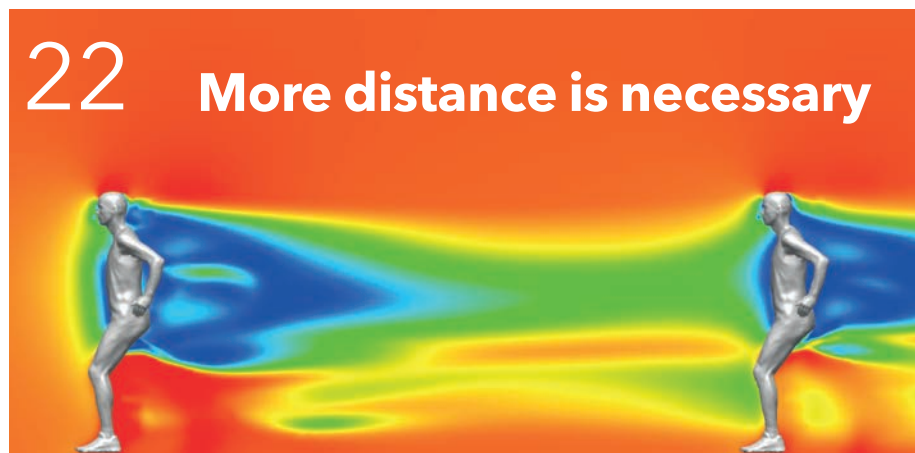
EINDHOVEN
UNIVERSITY OF
TECHNOLOGY



“Touching to see the effect it can have”



We're in this TUgether



More distance is necessary

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

This one-off magazine was published during the corona crisis in April 2020, especially for TU/e employees.

Made on behalf of the Executive Board

Composition, coordination and final editing **Brigit Span**
Design and layout **Natasha Franc, VISID**

In collaboration with **Tom Jeltes, Ivo Jongsma, Han Konings, Barry van der Meer, Norbine Schalij, Nicole Testerink, Monique van de Ven, Enith Vlooswijk**

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Corona creativity



Dear colleagues,

We are now in the ninth week of the corona crisis in the Netherlands. So much has happened in recent times. While in the beginning we were mostly concerned with who was abroad and how to get those people back, which buildings we would have to close, what we would do with the library and wondering if we could offer our education online, we are now in a completely different phase. On the one hand, we are looking at what this new normal means for us as a university, with a new academic year just around the corner. On the other hand, we also carefully consider a gradual and limited restart of our research.

The past few weeks have shown in particular how close the TU/e community is and what we can achieve together if we act in unison. We offer research solutions related to the coronavirus, our education is fully online, and at home we all manage work and our private life as flexibly as we can. Not everything will and can go on a 100%, we realize that and we fully understand that.

It would be an infinite task to name everyone who has worked so hard in the recent weeks. So I won't. I just want to repeat what we as the Executive Board say in many languages in this magazine (see page 38): thank you!

Exactly because we are more digital than ever, you will receive this one-off edition at home in your letterbox. A physical proof of our culture: warm, committed and resilient. I hope you'll enjoy reading this.

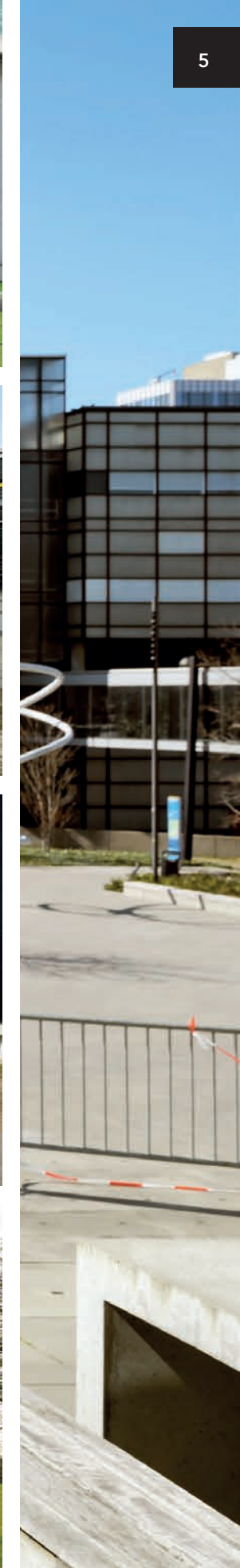
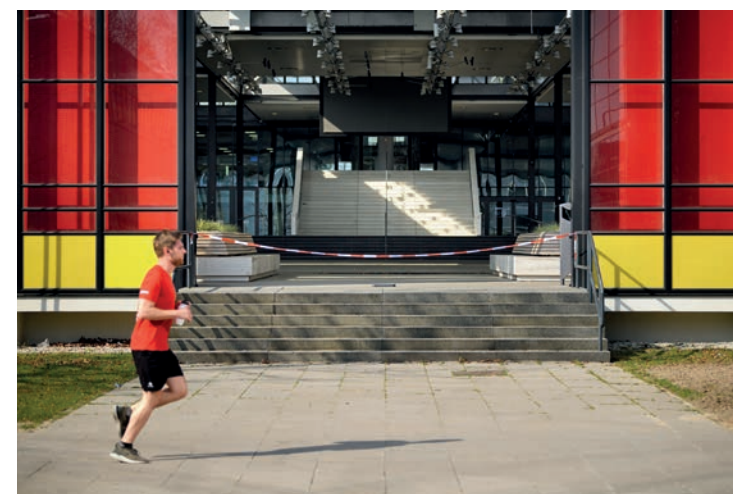
Stay healthy!

Robert-Jan Smits
Chairman of the Executive Board



Photo: Bart van Overbeeke

An (almost) empty campus



We have probably all worked from home once at some point, voluntarily or out of necessity. But how do you divide your day and sort your work or study load now that we collectively depend on our home for a longer period of time? Working from home: Floor van der Heijden and Maarten Hornikx.

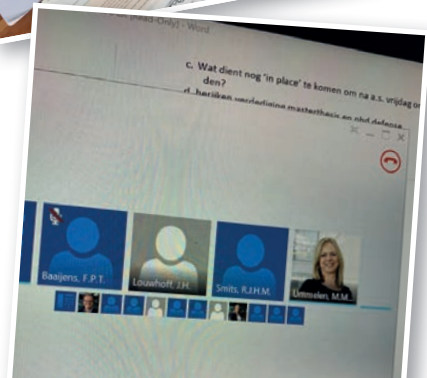


Even though Floor van der Heijden has been in over her head with this crisis for many weeks now, she still sounds cheerful and energetic when we call her. The kitchen table in Berlicum, at the center of her house, is currently the program director of Integrated Safety and member of TU/e's central crisis team's work spot: "I could go up to the attic, but there are also two children around who want to ask me things every now and then."

Her sons (one in grade five, one in grade seven) both received a nice package of home instructions when the schools closed. "We have a planning board that always shows the schedule for the day: work or learn, eat fruit together, have a sandwich, go for a walk together at noon. That fixed structure works very well for us." Van der Heijden's husband, who works for our national defense, currently also works from home as much as possible.

"Since the outbreak of the coronavirus in Wuhan, our team has been working non-stop. For four weeks we have basically been locked up in an atmosphere of enormous dedication and togetherness. I do miss that now I'm working from home."

At TU/e there are currently around fifty people active in the crisis organization, with all disciplines represented. It also contains a core team of about fifteen people, also known as the central crisis team (CCT), which, according to Van der Heijden, continuously exchanges information, developments and thoughts via a Whatsapp group and has a meeting at least once a day through Skype.



"I hope that my children will also remember the positive things"

It is difficult to let that ongoing hotline cool down a bit and ignore it from time to time, Van der Heijden acknowledges. "We have agreed that there is a back-up for everyone and that everyone should be able to check out every now and then. We also accept that from each other, but the implementation of that policy proves to be difficult. We are all so much involved that we are unable to let go."

"We are unable to let go"

But, she also says: "You have to. We try to go for a walk here around lunchtime every day; a moment I really put my laptop away. In the evening we have a few TV shows that we like to watch as a family, then we also put our phones away and we don't answer when someone calls. We really try to plan such moments."

Van der Heijden speaks of unique times, "we have never experienced anything with such great consequences for every individual. That leaves an imprint, yes. I also try to be aware of that, as well as of the beautiful initiatives that arise everywhere. My children will think back to this crisis later: remember when we were home all together so much? I hope they will also remember the positive things." ●

"This yet again underlines the essence of our existence: our health"

Professor Maarten Hornikx just steps out of his front door of his house in Eindhoven, with his two-year-old daughter Louise in the stroller, when we call him. Whether this is an inconvenient moment for a call? "No, it's actually rather efficient."

Two weeks ago, the vice dean at Built Environment last closed the doors of the department building Vertigo on Friday afternoon, he says. "It was really quiet on the campus back then." Well, maybe as a manager he should have set a better example and should have started working from home earlier that week - but the 'captain' in him, who is considered to be one of the last to leave the ship, won.

The acoustician, who has educational, research and administrative tasks on his plate, always has quite a full agenda, he says. "Now being at home, you actually have more work, while you just can't work as much - if only because of a child who cannot go to daycare. Certain things therefore take a little longer now. And yes, that does cause me to feel some discontent; I'd rather just finish things."



And so the credo goes: set priorities. "I have two promotions in the final phase, those always take priority." And: paying attention to his colleagues within the department. "We all work from home, in other workplaces, which are often far from ideal. Don't sit and stare at such a small screen for eight hours a day. Don't push yourself to finish that paper as you might have planned. Of course it is nice if it works out, but if you subsequently risk physical complaints, you may have to rethink that."

"Don't push yourself"

Moreover, he continues: "We are very busy at work, but what is happening globally, is unique. Some people really feel mentally disturbed by the developments. But it also yet again underlines the essence of our existence - and that is our health. You also see people adjusting slowly. In the beginning we were fed up with a party that was canceled, or a canceled football match. Now that almost everything has been shut down, you see that disappointment

giving way to resignation. People turn to what is most important."

In any case, he hopes to give his inaugural speech in the fall, which was actually planned for May 15. "It is now postponed to September 18; a nice day in Eindhoven (Liberation day, ed.)" But for now: we need to set priorities, don't forget to see the little bright lights and making sure we maintain a healthy balance in daily activities." ●





Photo: Bart van Overbeeke

New caterer Appèl brings Subway back to campus

Appèl from Den Bosch will be TU/e's new caterer. The collaboration starts on 6 July and will run until at least 2025. Subway will return to the Auditorium and Appèl will accommodate a Brownies&downieS branch-store on the ground floor of Atlas. It's also likely that the Auditorium will have an unmanned coffee machine from Starbucks.

Appèl has been providing the catering for the Twente University since 2018, as well as for four universities of applied sciences. They expect to have converted all TU/e's catering locations by the end of August.

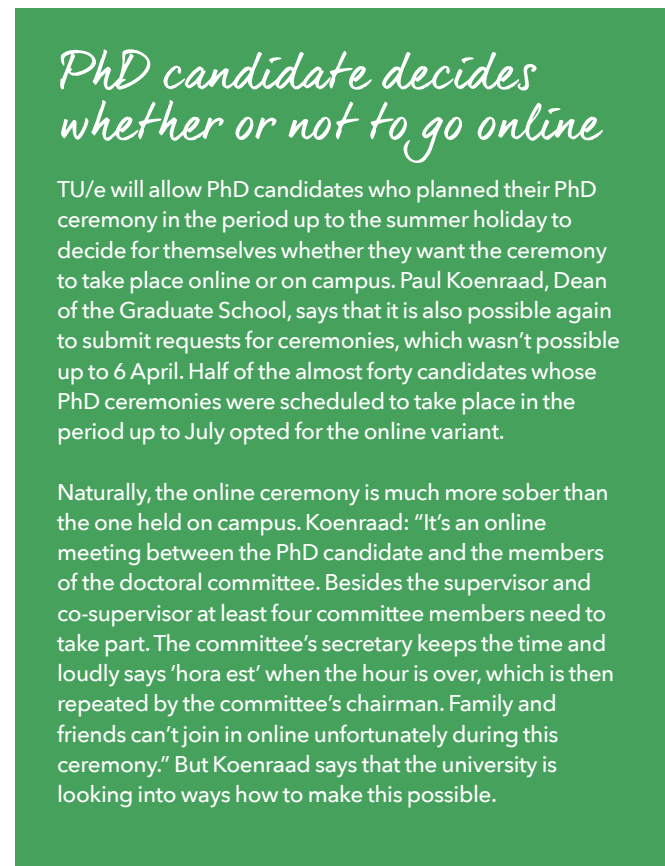
'Use the tools TU/e has rolled out'

Steps were quickly taken during the last few weeks to make work, consultation, education and holding exams online possible. The introduction of Office 365 was expedited, but staff members and students also looked for suitable platforms themselves. Zoom was a popular choice. The Executive Board prohibits the use of this platform for holding exams, and strongly advises against the use of it for other purposes. The reason for this is because there are fears of data leaks, privacy concerns, and for not complying with the General Data Protection Regulations.

Hans Louwhoff, director of Information Management & Services: "Hackers can break into those meetings, the so-called Zoom-bombing, and place all kinds of unwanted content. We see that hard work is being done at Zoom to ensure the safety and we will continue to closely monitor those developments from IMS. But as long as we aren't convinced that Zoom is one hundred percent safe, we will strongly advise everyone at TU/e against using it, and until that time, our motto is: 'use the tools TU/e has rolled out!'"

Advanced Grant for Philip de Goey

Professor of Combustion Technology Philip de Goey has been awarded an ERC Advanced Grant of 2.5 million euros. With this grant, De Goey will be able to hire six PhD students to find out how exactly combustion of metal powder takes place. Metal powder is considered a promising renewable fuel, and is already being researched by De Goey, also in collaboration with the students of Team SOLID.



PhD candidate decides whether or not to go online

TU/e will allow PhD candidates who planned their PhD ceremony in the period up to the summer holiday to decide for themselves whether they want the ceremony to take place online or on campus. Paul Koenraad, Dean of the Graduate School, says that it is also possible again to submit requests for ceremonies, which wasn't possible up to 6 April. Half of the almost forty candidates whose PhD ceremonies were scheduled to take place in the period up to July opted for the online variant.

Naturally, the online ceremony is much more sober than the one held on campus. Koenraad: "It's an online meeting between the PhD candidate and the members of the doctoral committee. Besides the supervisor and co-supervisor at least four committee members need to take part. The committee's secretary keeps the time and loudly says 'hora est' when the hour is over, which is then repeated by the committee's chairman. Family and friends can't join in online unfortunately during this ceremony." But Koenraad says that the university is looking into ways how to make this possible.

Photo: Vincent van den Hoogen

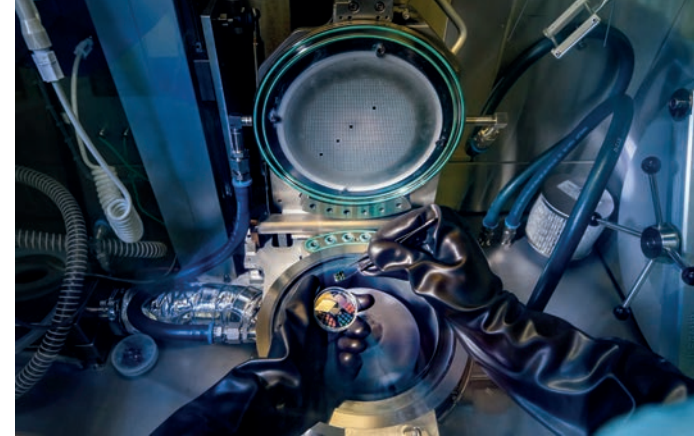


Photo: Nando Harmsen

TU/e researchers pave way for silicon photonic chips

Researchers led by TU/e professor Erik Bakkers have developed an alloy with silicon that can emit light, a feat which opens the way to faster and more energy efficient photonic computer chips based on standard silicon technology. The results have been published in the journal Nature. The team will now start creating a silicon laser to be integrated into current chips.

By replacing electrical communication within a chip by optical communication, the energy consumption can be greatly reduced. Moreover, the speed of on-chip and chip-to-chip communication can be increased by a factor 1000. Data centers would benefit most, with faster data transfer and less energy usage for their cooling system. But these photonic chips will also bring new applications within reach. Think of laser-based radar for self-driving cars and chemical sensors for medical diagnosis or for measuring air and food quality.

Major events in June canceled, form Intro will take still uncertain



Photo: Bart van Overbeeke

TU/e labs donate supplies to health care workers

The laboratories of Biomedical and Chemical Engineering and of NanoLab@TU/e donated a large number of lab coats, overalls, laboratory eyewear, gloves and hundreds of liters of disinfecting alcohol to general practitioners and the Red Cross. There is a serious shortage of medical supplies due to the corona crisis, and since practically all laboratories are closed, there is no need for these materials at TU/e. "It's great that we can help this way," says Moniek de Liefde-Van Beest of Biomedical Engineering.



Photo: Maarten Merckx

The Hajraa Outdoor Tournament, for which some five thousand volleyball players from home and abroad were due to come to Eindhoven in mid-June, has been canceled. Similarly, the Golden Carpet craft beer festival and Fantasy Court in early June will not be going ahead; and the Plugged music festival has been postponed until September. As for the Intro for new students, scheduled for August, a decision is expected to be made later this month.

The decision to strike these events from the spring calendar has been made jointly by the organizations in question in collaboration with the TU/e's central crisis team. The university believes the risk of infection is too great to allow large numbers of people to congregate on the campus - even though it will be another two months before these events are due to take place, which means that for now at least, they are not subject to the ban on major events up to and including June 1st.

The organizers of TU/e's biggest annual celebration MomenTUm, on September 25th, are provisionally working with "Plan A", confirms co-organizer Liesbeth Castelijns when asked. "At the moment we are starting up everything for the normal version. We are currently investigating various different variants in addition to the normal variant. We are now collecting wishes and ideas as we keep a close eye on the developments. Based on that, we will see how we can move forward concretely." ●

Small team, significant impact:

TU/e researchers predict corona outbreak

TU/e professor Edwin van den Heuvel started a new morning routine one month ago. The professor of statistics and his small, close-knit team start their day by making the latest predictions of the number of new infections and deaths from the coronavirus. What started out as a tentative experiment quickly grew into a much-visited webpage with daily updates that helps hospitals in their efforts to contain the crisis.



Suddenly, Edwin van den Heuvel decided to take action. "I saw the growing number of coronavirus cases and realized that this could go dramatically wrong," he says. "I spoke with a colleague: what can we do to help?" They took a closer look at the data for China, performed a few analyses, and quickly realized that they were able to successfully predict corona cases for all provinces in China, for Iran, Italy and South Korea.

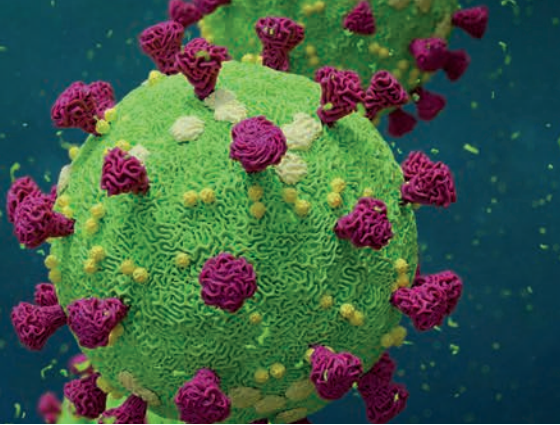
His experience with epidemiology, when he conducted research into what causes people to get sick or how risk factors develop, proved helpful. Nor was he unfamiliar with the curves that describe the spread of the virus. "I worked in the pharmaceutical industry before, where the same kind of curves are used for drug concentration measurements."

What started out as a small exercise grew into a large project within a month. By now, he predicts the number of confirmed infections and deaths several days ahead for no fewer than 24 countries and 4 Dutch provinces. For some of these, he is already able to estimate the maximum number of confirmed infections. He was among the first ones to predict the definitive flattening of the curve in the Netherlands, and he made the first public estimation for the maximum.

Model with three parameters

Van den Heuvel does all this with two regular colleagues: Marta Regis and Zhuozhao Zhan. They start their days with the same morning routine since a month now. "Marta or Zhan collects the most recent data from the websites, runs the simulations, after which we discuss it with each other via Skype," Van den Heuvel says. "We run through all countries and discuss the most notable trends."

The predictions are based on a so-called logistic population growth model developed by Belgian mathematician Pierre-François Verhulst around 1845. The researchers use this model with its three parameters to analyze the officially reported mortality rates, starting at the moment of the first reported death. Based on this 'fit,' his team makes a forecast of the number of new infections and deaths for the next days. They add new data every day to make the estimated number more reliable.



Swamped mailbox

Once his predictions started to appear on the TU/e website his mailbox got swamped with reactions. "That first week was very intense, with lots of reactions and media requests. I didn't expect it to cause such a stir," he says. The reactions come from all corners of society: hospitals and companies that want to use his data, as well as numerous interested people with suggestions and questions, which Van den Heuvel tries to answer as much he can. The page with his predictions broke all records: it has been visited almost 200,000 times now. "I think many people started to follow our daily updates to have some kind of indicator for how the coronavirus pandemic evolves globally."

The many requests led to a concrete collaboration with several hospitals, at first in the region, but by now he also works with a hospital in Rotterdam, for which he translates the expected numbers into hospital beds, for example. "That is what you do it for of course, to have an actual impact in society."

Reliable

He is also in contact with the RIVM, who see that his work contributes in part to solving the crisis. "There were some uncertainties perhaps at first about what we did exactly and how we worked, because we use the accepted diffusion models in a slightly different way, but by now there's good contact between us. Our page is also mentioned on their website with reliable data sources."

However, there were negative reactions as well. "We were told for example that we couldn't be more wrong and that we are a kind of amateurs. We take everything seriously because we want to do the best work possible with the data we have. But I have to say I was surprised by how fast people came to conclusions sometimes, without seriously examining first what it is we do. That can make me angry."

Much of the criticism was aimed at the limited value of the predictions, for example, since the available data is incomplete. "We acknowledge the problems with the data and we are careful not to make strong statements," Van den Heuvel says. "We don't take the traditional route according to which you need good data first to build a model. Instead, we focus on the data and try to retrieve knowledge from that data by testing several different models and making comparisons to other countries. We do much more behind the scenes than people see on the website."

Next steps

Van den Heuvel will in any case continue with the daily updates during the coming weeks. He is also thinking about the next steps. "A PhD candidate is investigating what effects the measures have; I expect to see the first results from that soon. We will also teach a course for math students in the coming quartile year about models for infectious diseases, and I want to try and set up a (research) project in collaboration with the RIVM."

In conclusion, is there anything he would have done differently in retrospect? "If I had known what this would have led to, I might have wanted a larger team," Van den Heuvel says laughing. "Then someone could focus exclusively on the search for better data, and someone else could run more simulations." But at the same time, he is proud of his team. "We are a small, close-knit team. It's special how we came up with this together and then put it into practice. We will keep trying to make a contribution." ●



Stay connected in times of corona

How do you stay in touch with one another and connected as a university community in times of crisis and enforced home-working? This is a question that is currently occupying many people, teams, associations and organizations - and one that challenges us to be creative, show perseverance and collaborate remotely. At cursor.tue.nl we are gathering together all the sporting, creative, musical, social and other types of online initiatives at TU/e.



Corona initiatives

TU/e against COVID-19 | The 'TU/e against Covid-19' platform, which went online in late March, was followed by a wide range of initiatives. The nerve center of the platform is TU/e innovation Space. With Covid-19 as a societal challenge of the first order, all students and staff members are currently focused on coming up with and introducing creative solutions in the fight against corona. With students as a creative and entrepreneurial developmental force, and experts from hospitals and social institutions as a sounding board. In short, a platform for demand and supply. So that solutions can be found that really matter and that will make the difference.

Groups of students are already working hard at four solutions. Such as a **chatbot** for the Máxima Medical Center with which hospital personnel can make its internal question-answer process simpler by using a self-learning app. This allows the doctors, who have a high workload as it is, to concentrate on primary care.

A **social distancing app** is another example. This needs to help maintain the social distancing measure in the 1.5 meters economy during and in particular after the peak of the epidemic in a more natural way than with warning signs or lines on the floor. But the own university won't be forgotten either. A student startup developed an application that can identify the user of a keyboard based on the keystroke pattern. What does that have to do with Covid-19? It's an effective way to **detect exam fraud** now that practically all education takes place online. That has a nice touch: students developing a tool 'against' themselves.

And students are collaborating with the department of Biomedical Engineering to develop a simple yet effective way to **administer aerosol** to young children without the nursing staff being at risk of infection.

tue.nl/en/tue-campus/tue-innovation-space/tue-against-covid-19

TU/e Covid Engineering Fund | TU/e works towards solutions in the fight against Covid-19. To help with this, team Alumni Relations and University Fund Eindhoven have set up the TU/e Covid Engineering Fund. This fund is intended for donations with which we can support researchers and students. Because now more than ever, the role of science is key. We need to rely on the strength of innovation and the collaboration that occupy a central position in our TU/e community. A number of example projects:

- We want more and better testing
- We are searching for drugs to treat Covid-19
- We want to know how the virus affects us
- We want to know whether 1.5 meters is effective
- We are looking for answers together

Donations will be entirely to the benefit of the Covid Engineering Fund. steuntue.nl/covidengineeringfund

Corona portal for expats | A portal with up-to-date information about corona for the non-Dutch speaking community in Brabant. Including tips for a social digital life:

www.hollandexpatcenter.com/corona-portal



Cultural stuff

One minute tips Studium Generale | No workshops, lectures or other events on campus right now, but Studium Generale is still eager to bring you some fun, inspiration and possibly new insights. Just launched: their new series 'The one minute tip'. studiumgenerale-eindhoven.nl/en

Virtual museum tours | Google Arts provides free virtual tours in 500 musea from all over the globe. The Guggenheim in New York? Check! The Amsterdam Van Gogh museum? Yes! The British Museum? Naturally! Just browse and let your mind wander. artsandculture.google.com

See the world without leaving your home | Airlines around the world have grounded their flights. Countries have shut their borders, and ordered everyone indoors. The age of coronavirus has restricted our movement in every way, but it doesn't have to restrict our imagination. BBC provides you with ten 10 ways you can still see the world - all through the wonder of the webcam. www.bbc.com/news/world-52096529



Music for self isolation | They're everywhere: playlists to get you through these times of self isolation. We'd like to point out two great playlists on Spotify: Music for Self-Isolation and TU/e's most requested. The last list consists of request songs that were on radio.tue.nl

Listening to the TU/e list is easy: open Spotify and scan the code on the left. Enjoy!



Stay fit @ home

Workout with the Sports Centre | The Sports Centre now offers live sports sessions on YouTube! Think yoga, core training, BBB, HIIT, stretching, fitbreaks, and all together through YouTube. It feels almost like a normal group session - peer pressure included ;-)

sceindhoven.tue.nl/nieuws/#c265992

youtube.com/user/SSCEindhovenMovies

Mental Health

Staying sane with TINT | Missed out on the previous online mindfulness sessions offered by TINT? Do not panic, you can check them out on YouTube from now on. Also on offer is a new blog by TINT life coach Laura Curta, 'A guide to staying sane', with tips for both your mental and physical health in times of corona quarantine. www.tint-eindhoven.nl

The TU/e Listening Line against loneliness | The loneliness virus is now one of the greatest challenges we face. Where nothing can be done about corona (yet), we can do something against loneliness, says Lara Hofstra, internationalization coordinator at the Student Sports Centre. Together with student of applied psychology Henk Vervoort, she set up the 'TU/e Listening Line'.

It's an online place where students and staff can chat with or call a volunteer, about whatever topic they wish. This can also be done anonymously, if preferred.

Hofstra and Vervoort are still looking for volunteers for the Listening Line. If you want to become a volunteer, the following characteristics are important: available for at least 10 hours a week; good level of English; no phone phobia; able to deal with negative or sometimes depressive stories; able to bring positive energy into a conversation; can provide a listening ear; able to refer people to the right organizations in time if necessary, using the available protocols. Does this appeal to you and do you want to know more or already want to sign up? Send Lara an email. (l.hofstra@tue.nl).

hear.me.tue.nl



Relaxation



Free online newspapers and magazines | TU/e students and employees can use pressreader.com for free - for three months. On this platform you can find so many (Dutch and international) newspapers and magazines. TU/e has started a trial at Pressreader for three months. All you have to do, is make sure you're connected to TU/e via VPN or proxy server and surf to pressreader.com.

Social distancing festival | This is a site for celebrating art from all over the world, showcasing amazing talent, and coming together as a community at a time when we need it more than ever. socialdistancingfestival.com

Watch The PhD Movies for free | We love this gesture, made by Jorge Cham, creator of the PhD Comics. They don't just produce the comics, but have also made two movies: the PhD Movies. And now they are free to watch for all of us via phdcomics.com

The films take a smart and humorous look at the world of Academia through the eyes of four grad students, and features real academics (including a Nobel Prize winner!) in many of the roles. So, are you in need of some distraction? Feeling stressed out and need a good laugh - and someone who understands how you feel? Grab that popcorn and enjoy the show.

PSV | Soccer fans must be having a tough time right now, with so many matches currently suspended, including all First Division matches. To boost the morale of fans, PSV and its partners at Brainport Eindhoven have set up an online platform on which the club plans to share extra content in the coming period. 'To entertain, but also to inspire. #PSVwestandtogether, now more than ever.'

www.psv.nl/westandtogether

Free e-books | Hello keen e-book reader! Could you do with a couple more free titles for your e-reader? On gutenberg.org you can legally download some sixty thousand (!) free books. Many of them are in English, but other languages are also available.

Movies at home | Sure, this activity is a little less social, but if you need to retreat now and again, try this: the International Documentary Film Festival Amsterdam (IDFA) is offering some three hundred documentaries that can be watched free online. idfa.nl

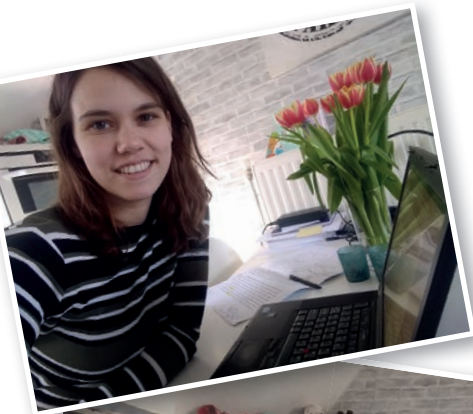
TU/e podcasts | Want to brush up your Dutch and learn about TU/e research? In that case, TU/e podcast series Sound of Science is your place to go to! There are sixteen episodes online. tue.nl/en/research/sound-of-science

Online chess community | Are you a fan of mind games, but currently without opponents to pit yourself against? If so, this online TU/e chess community may interest you. The group is open to everyone. facebook.com/groups/210218353677789/ or search for TU/e Chess Meetups on Facebook.

Home concerts | 'We are homebound, but not without a sound'. Get to know the brand new Facebook channel Quarantine Concerts NL, where musicians from all over the world share their home performances with you - sometimes via a live stream. Let yourself be transported briefly to a concert hall or theater while seated in your recliner. facebook.com/QuarantineConcertsNL

TU/e alumni collect personal corona stories | The corona crisis is creating a great many casualties and plenty of uncertainty, but at the same time it is triggering a good many positives. TU/e alumni Sonja and David Rijlaarsdam are collecting personal stories from across the world, to ensure that when this is all over we don't instantly forget how we experienced this time and weathered its storms. ourcoronastory.com

We have probably all worked from home once at some point, voluntarily or out of necessity. But how do you divide your day and sort your work or study load now that we collectively depend on our home for a longer period of time? Working from home: Brigitte Lamers, PhD student at the department of Chemical Engineering and Chemistry and technological designer in training Tamoor Ali.



“It is actually quite nice to take some time off”

Writing. For most PhD students not exactly their favorite part of the PhD program, but under the given working-from-home conditions, you'd better get the job mostly done already. In any case, researcher Brigitte Lamers who just started the fourth year of her PhD, doesn't have much choice now that 'her' beloved labs in Helix are closed.

Lamers is working in the group of professor Bert Meijer, with whom she last physically met on March 23rd. The campus had already slowly emptied the two weeks before, she says: "It felt a bit ominous; almost as if the world was perishing." The groups of Meijer and his colleague René Janssen bravely continued their work on the condition of 'not having a cold' or feeling sick in another way. "Working at home

is simply difficult, especially if you do a lot of experiments and other practical work."

It took some time to get used to being at home, says Lamers. "As a PhD student, I am used to often working more than eight hours a day. At home that doesn't feel okay. I sit behind the laptop at the dining table, on an ordinary chair.

Ergonomically not really optimal. At a certain point I start to feel my shoulders, so I regularly go for a walk."

Let go

Furthermore, somewhat to her own surprise, she is more able to 'let go' than she expected. "Now I sleep a little longer, I have a quiet breakfast first and only start working around 9:00 or 9:30." However, she must ensure that she does not forget to take a break: "At the university, a colleague always comes to ask if you are going to have lunch. Now, around 13:00, I often realize that I still have to eat. After lunch I always have some trouble to start again, I miss the activity of others around me. Now that I am at home, I have really come to appreciate the small daily chats with colleagues."

Lamers hopes that she can resume her last project in the lab in May, to finish her PhD in April 2021. But for now it is mainly: writing, writing, writing. Video calling with friends ("very nice, even if it's only fifteen minutes"), a visit to the supermarket, visiting her parents every now and then, and trying to keep fit on the mountain bike.

She is not concerned by the corona crisis, except for her parents and grandmother, perhaps, "they are in the risk group. But otherwise I can handle it quite well. This is just the situation we have and we live accordingly." She confesses: "I had my weekends always fully booked, but it is actually nice to take a break." ●

“There's a thin line between being productive and letting go of everything”

Yes, of course, the born Pakistani is concerned about the virus that has gripped the world for several weeks now. But perhaps even more about the behavior of fellow humans who don't understand the seriousness, than about the virus itself. "I go shopping once a week and then I notice how many people still sit outside on a bench, for example."

So he is "not yet fully productive" as he would like to be, the TU/e employee confesses. However, he also acknowledges: "Perhaps in these circumstances we shouldn't be too hard on ourselves." Luckily, this year's first major group project he's involved in, is in its final stages - so the pressure within that project is not too bad. "We are in contact with the team two or three times a week."

According to Ali, he also tries to catch up with some overdue work at home ("there are always things left undone during the year") and he learns Dutch through TU/e: "My exam is coming up."

Family in Pakistan

He maintains close contact with his family in Pakistan, with the obvious mutual concerns. "Pakistan is a rather chaotic country, a developing country, with not really a very decent healthcare system. So I keep telling my family time and time again, for example to wash their hands regularly and to stay away from others."

Ali assumes that the virus will have the Netherlands gripped for more time to come. "I am thinking of late May before we can resume normal life a bit." He has mixed feelings about that prospect. "This is of course very bad for society, and I hope and pray that we will be out of this situation soon. But I can't do much about it, so in that sense I kind of resigned myself to it." Laughs: "But I really have to find a way to become more productive. Because the dividing line between being productive and letting everything go is very thin." ●

Tamoor's view.



Ali has lived in Eindhoven for almost a year now; he is in the first year of his two-year PDEng traineeship at Mechatronic Systems Design at the TU/e. In his student house near WoensXL shopping center, normally live six residents.

Only three are currently in the house, spread over three floors. The social distancing is pretty much accomplished this way, despite sharing facilities such as the bathroom and kitchen. "We don't see each other much, everyone is pretty much living their own life."

Lazy approach

Ali still has to get used to it; planning in particular and continuing to work according to that plan prove to be a challenge. "At the office, everyone is constantly busy with everything,

which motivates me. At home you are on your own. I try to stick to my schedule, but" - he laughs - "I take a bit of a lazy approach."

From physical to online education in one week: a herculean task

About 360 courses that had to go online in one week and shortly after, 371 exams that had to (and could) continue. Teaching staff, services and students were confronted with quite a herculean task in recent weeks. And until the summer holidays all education at TU/e - including the exams of the fourth quartile - will be offered online.

You can easily call the transition from physical to online education at TU/e a herculean task. The Executive Board greatly appreciates the efforts that everyone has made to make this possible. "Lecturers went above and beyond to enable this. One gave lectures from home, the other came to campus to make recordings there. A huge job, also for the employees of Education & Student Affairs, Information Management Services and the support teams at the departments themselves, but we did it," says proud Rector Frank Baaijens.

The first online examination period is now over. No fewer than 371 exams have been taken. For the most part, an alternative form has been chosen, such as taking the exam orally, or making a group assignment. For the 92 exams for which this was not possible, the Proctorio platform was used, with which students can take the exam at home and lecturers can supervise them online. Not everything went smoothly, but things will be improved for the Q4 exams.



Lecturers on online teaching



University professor **René Janssen** heads up the interfaculty research group Molecular Materials and Nanosystems. He counts himself lucky not to have any experience with online lectures. "When I was a student one or two courses were making use of video lectures. That was still in the days of videotape and a black-and-white TV. I managed to watch ten minutes. Then I upped and left, and started reading the book written by the same professor. If online education is the future, I'll be looking for a real job," Janssen says.

Over the past few weeks, however, everything has gone fairly smoothly for Janssen. "During Q3 I was working on three different courses and I taped the last couple of lectures, either standing in front of a surreally empty lecture theater or sitting at home and using a PowerPoint video, which meant staring at a screen. It all worked, but I wouldn't say it was enjoyable. Guided self-study is something I've offered via Skype."

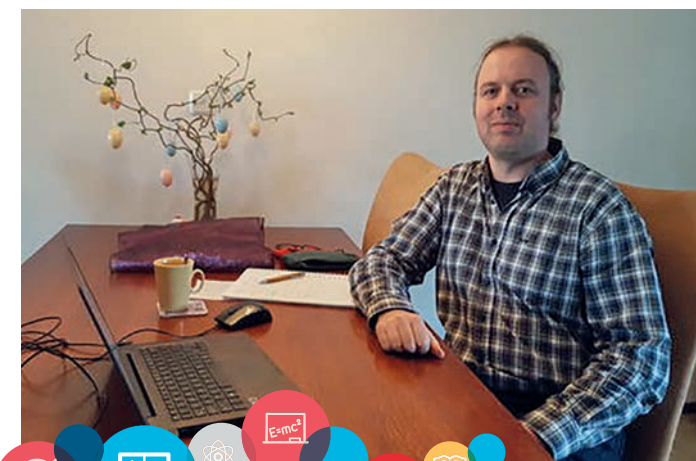
"The Canvas sites that have been created for lecturers are full of tips and tricks. It's also good that lecturers themselves are largely in control and aren't now having to jump through all kinds of hoops and red tape when they want to modify something. That's a lesson for the future."

In Q4 Janssen, together with professor Paul van der Schoot, will be teaching the course 'Thermal Physics' for students of Applied Physics. "We'll be delivering that online. Video lectures from last year are available and all the other information is also already in digital form. In principle, we've got this course sorted, but how to really reach the 250 students is something we are still pondering."

For **Rudie Kunnen**, assistant professor at the Department of Applied Physics, digital education was completely unknown territory until two weeks ago. "My course, Signals & Systems, is Design-Based Learning, and it involves students working on an experiment in groups. So that's now out of the question. Fortunately, part of the assignment involves modeling the system. The model can be simulated, so students will still be able to get some results. So we've gone the simulation route, wholeheartedly. And of course, in the report we'd be delighted to see any experimental results previously gained."

The fact that in the week before all education came to a compulsory halt, individual presentations were planned to take place, was for Kunnen the trickiest aspect of the digital transformation. "What could I do?" asks Kunnen. "To live stream or record an actual presentation every student has to have a large screen or a projector. That's pretty difficult to arrange. We eventually opted for screencasting: making a film of slides with a voice-over by the student."

To maintain the interaction with students, Kunnen and his fellow lecturers decided to make themselves available to answer questions via Skype during the normal working hours of the course. "Even so we are noticing some initial hesitation among students," says Kunnen. "Whenever we walk among the groups in our usual rooms in Flux, questions arise unprompted. Things are a little quieter on line at the moment. But students seem to be adapting, more questions are starting to trickle in."



Neither one of her group had any experience with live-streaming a lecture from their living room, says professor **Bettina Speckmann**, head of the group Applied Geometric Algorithms at the department of Mathematics and Computer Science. "My co-teacher Arthur van Goethem and I really wanted to keep things interactive, so we decided to try a live-stream with Zoom." Her department has a license for this platform.

However, the Executive Board has now banned the use of Zoom for taking exams and strongly advises against using it for other purposes. This is due to fear of data breaches, privacy and non-compliance with GDPR guidelines.

But the platforms offered by TU/e do not meet Speckmann's needs: "For example, it is not possible to have an interactive meeting with more than sixteen students at the same time. I have groups that are larger than fifty students." According to her, Zoom has worked hard to improve on the weaknesses in the security of the system. "It would be a good plan if TU/e purchases its own license to use Zoom. This would guarantee privacy in conversations between TU/e employees and students."

According to what Speckmann heard the students were quite positive about the Zoom lectures and the interactions (chat, non-verbal reactions such as 'yes/no' or 'thumbs up/down'). "In fact it seems that many more students feel comfortable to ask questions in the chat than in a normal class room. It was also nice to see many faces (Zoom supports up to fifty simultaneous camera feeds) and talk to an actual person. Well, a live video stream. The interactivity was really valued and students said that it was clearly better than a video lecture." •

Busy times for student with barrel organ: “Touching to see the effect it can have”



Barrel organ music is requested for an unsuspecting birthday girl or boy and, before you know it, an entire audience is singing along from their balconies overlooking the square. It may be only a small bright spot in difficult times, says Mechanical Engineering student Thijs Haenen, but “it’s terrific to be able to do something like this.”

Haenen, a master’s student of Control Systems Technology, was only a child when he became fascinated by the barrel organ. For a good number of years now, he has been out and about giving performances. With bookings averaging ten to fifteen a year, he regularly finds himself retrieving his barrel organ (the ‘Fata Morgana’) from storage in Tilburg. But this month the counter has already passed fifty.

“The barrel organ is an easy way to reach a large number of people, to lift their spirits, and you can do so at a distance. You can reach an entire apartment block all at once.” Take Thursday evening, for example. He was standing in a square in Tilburg to celebrate the birthday of someone who currently cannot leave their home. “I started with ‘Happy Birthday to you’ and eventually the balconies overlooking the square, which was surrounded by tall apartment blocks, were full of people singing along and clapping. The man was staggered. It’s touching to see the effect it has on people on such an occasion.” Sounds lucrative, but as Haenen points out, “I’m not looking to make a profit from this. Instead I’ve deliberately dropped my fee. After all, it’s great that I can do this, but I’d rather it wasn’t necessary.” ●





Research
TU/e professor
Bert Blocken

Walking, running and cycling: 1.5 meters is not enough

www.urbanphysics.net/COVID19.html

Keeping a 1.5 meter distance is not effective when people are walking, running or cycling. This is the conclusion of professor Bert Blocken based on aerodynamic research. The preliminary publication of his findings attracted global media attention, but there is sharp criticism as well. Blocken: "I will resign if the study is incorrect."

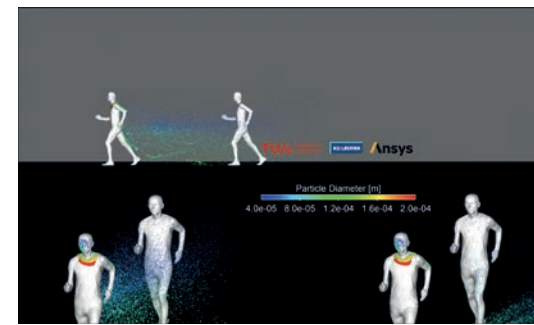
He hadn't exactly foreseen the media storm that broke out. "Suddenly, I get media requests from Australia and Japan as well as the US and Canada," Blocken emails on Maundy Thursday. "That will keep me busy for some time." That's why he doesn't spend the next day on his bicycle, as planned, but on the telephone.

The findings of the study he published in a white paper a few days earlier are already starting to gain worldwide attention at that point. His research focuses on social distancing during walking, running and cycling. Just when everyone is getting used to the 1.5 meters measure, his conclusion is that this distance is not enough in certain situations. At least, not if you look at the distance droplets carrying the coronavirus can travel from our mouths. According to Blocken, people would do well to keep a distance of four or five meters when walking behind a slow walking pedestrian. In case the person in front of you is a jogger or a cyclist, he advises ten meters, and twenty meters for racing cyclists. He doesn't want to cause a panic, Blocken emphasizes, but the results speak for themselves. However, some scientists, mostly virologists and epidemiologists, challenge his conclusions. They say that the risk of infection is hardly higher in practice.

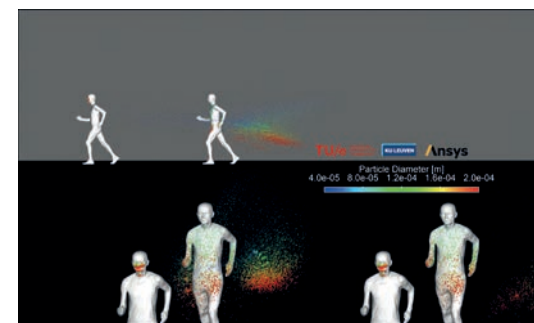
Wheelsucker

Blocken, professor of Aerodynamics at the universities of Eindhoven and Leuven, has spent many years investigating the movement of droplets in streams, and how airflows swirl around objects. His study into the slipstream of cyclists drew international attention eight years ago. A wheelsucker (a cyclist who rides closely behind the leader) can make cycling slightly less strenuous for the lead cyclist, he concluded. His current research is comparable to such 'slipstream research,' Blocken says.

"Eight months ago, we worked on a project in which we measured and simulated particles in our wind tunnel in Eindhoven. We combined that with wind tunnel experiments from Indian colleagues, who measured how droplets move in a certain airflow and how they evaporate and become smaller." That, combined



Slipstream simulation (walking).



Slipstream simulation (running).

with existing data on droplet dispersion when breathing, was processed in a computer model by Blocken and his colleagues.

Images clearly show how a spray of droplets moves from the person in front to the person right behind. The larger droplets, which are the most infectious according to virologists, mostly reach the groin and the hands - less of a risk than in the face, but still undesirable.

Criticism

Blocken's research does not just stir up commotion among journalists. Colleagues from different fields express their support on social media, but interestingly enough there are also some sharp remarks, heated reactions, and reactions to reactions. The simulation model used by the researchers from Eindhoven and Leuven supposedly wasn't realistic, the boundary conditions weren't sound, and so on. "Many reactions are based on misunderstandings," Blocken says. "For example, one person wrote that it is a bad sneeze simulation, but we don't simulate sneezing at all."

Blocken is a bit surprised by the fierceness of some reactions. "Some people even claim that my research is a public health hazard, while my conclusions don't differ that much from what you can come up with using common sense. When you exhale droplets and walk forward, those droplets will remain in your slipstream. Simple and logical."

Nevertheless, the commotion and resistance caused by Blocken's publication isn't that surprising. The study wasn't peer reviewed, meaning that it wasn't checked by colleagues in the field, as is common practice. Instead of an extensive description of the methodology and results, the text consists merely of a short summary of less than three pages. That's practically asking for misunderstandings about the chosen approach.

Unethical

Blocken acknowledges that they deviated quite a bit from the golden standard in science, to put it mildly. They did so because the conclusions seemed logical and undisputable to them. And in addition, the conventional method would have been far too time consuming. "I discussed that with the research team and we unanimously agreed that it would have been very inappropriate, unethical even, to wait six to eight months before coming forward with these results. To say: sorry, we could have told you eight months ago, but we thought our publication was more important."

Blocken isn't the only one with such an unorthodox approach at the moment, scientists all over the world are temporarily flouting the generally accepted standards. There is a veritable explosion of publications because the slightest bit of information might save lives. "In the US they test medicine on people now without following the normal procedures of publicizing or testing on animals first. These just happen to be unusual times."

Hate mail

Blocken has by now published a more extensive article online, which does meet all the requirements. He trusts that this will silence criticism in time. In the meantime, he's willing to accept the 'hate mail.' "People write that I'm incompetent, an alarmist, and use other strong words I rather not repeat. At the time, I had the same experience with the cycling research, with which I also came forward before the official publication. I also received many comments on that, but eventually everything turned out to be right. I don't mind if you write this down: I will resign from both universities should the study turn out to be incorrect. I think this is a matter of honor, ethics and reputation."

Will he go out for a ride on his bicycle during Easter anyway? The professor laughs. "Yes, I think I will. But on my own, without wheelsucking." ●

Tips for remote workers

Quickly changing a diaper between two meetings, updating your email during your child's homework time or working until late because no movie night is going to take place anyway. In this era of corona, work is slightly different for everyone and people compromise. This leads to additional tension for many remote workers. TU/e professor of work and organizational psychology Evangelia Demerouti gives tips on how to improve on working from home.

We've all been working from home - if possible - for some time now, and it looks like it will stay that way for some more time to come. An interesting 'experiment' for professor of work and organizational psychology Evangelia Demerouti. Normally she studies which factors at work motivate people and which make them ill, now it is possible to investigate what that's like in a collectively forced stay-home situation. She recently received a fast-track data grant from NWO to do research on strategies for working at home.

"This is a little different from the working-from-home day which some people have once a week, which is often seen as a welcome change from days full of meetings and colleagues coming in unannounced. Now we long for that brainstorming moment or coffee break. You can't just take your work home with you; give yourself time to make a plan. What strategies do you need to stay

healthy and function well, both at work and in your private life?"

Accept and adjust

Sometimes these things are obvious, Demerouti admits, but when stress and crisis are involved, the simplest tips are quickly overlooked. Taking a time-out, considering, accepting and adjusting your situation can be very refreshing, she says. "Now that we are alone, we need to adopt a more proactive attitude. That means organizing more things, but also making clear agreements and asking for help when needed. Who knows someone who has expertise on a certain topic that you are stuck on? Who can take over a certain task from you? Or very practical: can the girl next door watch the children every week when you have that important meeting?"

Of course it is not always easy. An uncertain time, illness and death, extra informal care. But try to keep reflecting positively, especially now, Demerouti emphasizes. "Now we are not distracted by social contacts and our fast pace of life, which is nice in itself. During this time, try to work on yourself - you now have the freedom to arrange things differently - be creative in seeing opportunities. By keeping yourself focused and fit and living by a structured daily routine, you are less sensitive to uncertainties and you can make yourself more resilient. If we can take that back to the workplace in the near future, we gained something valuable from this crisis."



TIPS!

Know yourself

Listen to your body. Are you a morning person? Then plan tasks that require more thought in the first half of the day. A negative mood? Work on a 'check-off' task, and do something positive. Are you tired? Maybe you can make your day less full, do some simpler tasks and take an extra break to get a breath of fresh air. Stay active by exercising indoors or outdoors. In short, keep an eye on your body battery.

Adjust expectations and tasks

Your daily tasks are different than usual, and not everything can be done at home. Lab experiments in the attic? Mission impossible. Make clear agreements with your manager about your new role and tasks and ensure that your work remains manageable. Do you have less time because you have to take care of children or provide informal care? Then adjust your expectations and drop some tasks if possible.

Ask for help

Make an inventory of your duties. Do you have everything you need to meet those? Schedule meetings to keep sparring with colleagues and use each other's network to solve problems. Be proactive: you must indicate what you need to continue to function properly.

Keep yourself motivated

Continuously switching from one video meeting to another is not satisfactory at the end of your working day. Try to vary your tasks, do fun things as well and ensure that you work on tasks that have a clear end to them.

Work-life balance

Normally you close the door behind you in the morning to go to work. Even now that you are at home all day, it is important to keep these two domains separate. Create a permanent workplace and make clear working hours, but also be creative in organizing your work days to suit your home situation.

Avoid being 'on' constantly

It is tempting to continue working in the evening. Your calendar is empty, or you feel guilty for working less efficiently. Hanging up laundry in between, having lunch with the children - and checking your mail constantly. Don't do it, it will eventually lead to exhaustion. At the end of the day, allow time for relaxation so that you can let go of your work. Find a new hobby or finish that one maintenance job; now you can. And keep seeking social contact, via a screen or take a walk through the park where you also see other people.

Keep reflecting positively

This period will come to an end. And in the meantime it saves commuting time on a daily basis. ●

We have probably all worked from home once at some point, voluntarily or out of necessity. But how do you divide your day and sort your work or study load now that we collectively depend on our home for a longer period of time? Working from home: Rianne van Eerd (DAZ) and Caspar van Bommel (TN) who when they aren't working are busy making bonbons, and Vehzan Rustomji from India, who defended his master's thesis online.



Boxes are still available to buy (at 16 euros). For Mothering Sunday, they will produce a new batch in May. You can place an order via info@artandco.nl.

Working sweetly at home in chocolate studio

Coloring, airbrushing, molding, filling, hardening, releasing. Do these terms ring any bells with some readers? TU/e employees Rianne van Eerd and Caspar van Bommel were run off their feet with these tasks in the lead up to Easter. Under the name ART & CO chocolates - ART are Rianne's initials and CO are Caspar's - they produce a considerable number of handmade chocolate bonbons.

Rianne (staff member at the Research cluster at DAZ and information analyst in the BI team) and her partner Caspar (research technician at the Department of Applied Physics) both work from home. "I have an office job, my meetings are held via Skype or MS Teams. I can easily collect data to compile rankings from home, and am working with the project team on the Open Science Policy plan. But of course it is nicer if you can see your colleagues in person and be together," says Rianne.

Lab work

For Caspar it is a little more difficult to carry out his normal work as a research technician with the Plasma & Materials Processing group. "My work normally consists of 80 percent lab work and 20 percent at the computer. The latter has become a hundred percent. We can't do any maintenance work on machines or adjust their settings. I try to do a couple of hours' computer work and, for the rest, to make preparations for tasks we plan to do at a later date."

Chocolate leave

What has kept Rianne and Caspar extremely busy in recent weeks is coming up with ideas for and producing a whopping seven hundred (!)

handmade bonbons. This is something they do four times a year in their former garage and now chocolate studio at their home in Lieshout. Christmas, Valentine's Day, Easter and Mothering Sunday are top days for chocolate lovers and with ART & CO chocolates they meet their needs lovingly. "We plan our leave around these dates so that we can make the bonbons," says Rianne.

Pineapple-turmeric

Sixteen different bonbons have been conceived and made by the couple. Caspar is good at developing recipes. Which filling would be right, which tastes go well together? Caspar: "In winter we choose more spicy recipes, such as orange and cinnamon. In the spring collection it's lighter, think of strawberry or pineapple-turmeric."

Coloring the bonbons is a task Rianne enjoys very much and finds relaxing. And working like this, after six days they have produced forty boxes, each one holding sixteen special bonbons. These they deliver together to friends, family, acquaintances and colleagues who have placed an order. At the appropriate physical distance, of course.

And finally the big question: how many of these chocolate bonbons disappear into their own mouths? Laughter from the other end of the Skype line: "A number that's a little on the high side! But that's why we exercise every day." ●



Vehzan defended his master's thesis online

'Yes', Vehzan Rustomji admits, the master's student of Automotive Technology had imagined his defense a bit differently. He would have loved to have some friends and fellow students around him - for the moral support "and I was just really looking forward to telling people about my work." But above all, he says, he wants to close the book after a long and difficult graduation process. An alternative graduation in a stripped-down online form, via Skype with three professors, will do.

The master student has been working from home - his room in the Luna campus building - for more than five weeks. 'Thank god' was his first thought, he said, when the urgent work-from-home request came from the university. "I had just finished my graduation thesis and just had a meeting with my supervisor. Everything was approved, I just had to dot the i's and prepare my presentation. That was all fine to work on from home."

Not that he really likes working from home per se: "I am really a lot less productive at home. Things that you normally do in half a day will quickly spread over two days."

Looking for a job

Most of his friends are also graduating, or just started looking for a job with their degree still fresh. Although the latter is not easy now, in times of corona. Interviews are mostly being postponed and vacancies are being withdrawn again, he notices. "Nobody knows how long this will last and companies are also waiting."

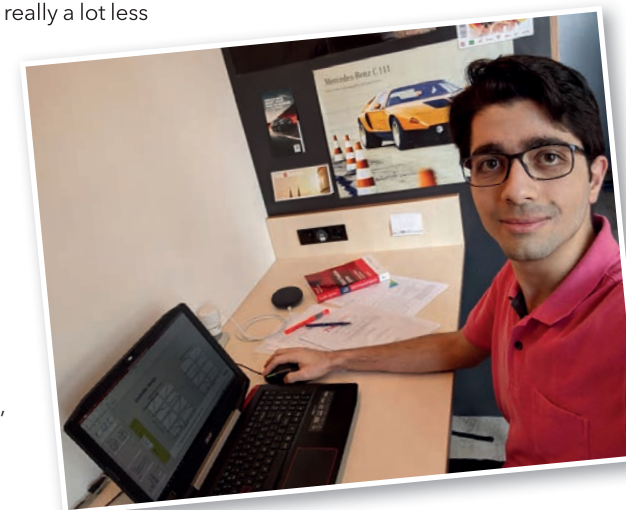
For Rustomji, his social life currently mainly consists of joint online games (such as Modern Warfare and Psych), and some chatting in between. "In my surroundings, everyone neatly keeps the advised distance. Here in and around Luna it feels like it's weekend every day, it is very quiet."

India in lockdown

Actually, after graduation, he was supposed to go to his family in India for two weeks (Rustomji was born in New Delhi, but went to school in Mumbai), whom he hasn't seen for over a year and a half. But he already postponed that trip a few weeks ago, as a precaution. India has been in a complete lockdown and in principle no one is allowed in or out of the country.

This is a good thing, the master student thinks. He also explicitly told his parents to take proactive measures. "They are a bit older and therefore more vulnerable. I had already urged them not to travel by public transport, for example, and asked my father if he could work from home."

Conversely, his mother is especially concerned about him, Rustomji knows. "My father has a little more confidence, both in my choices and in Dutch healthcare. But I do understand that as parents they would prefer to have me with them in India under such circumstances." ●



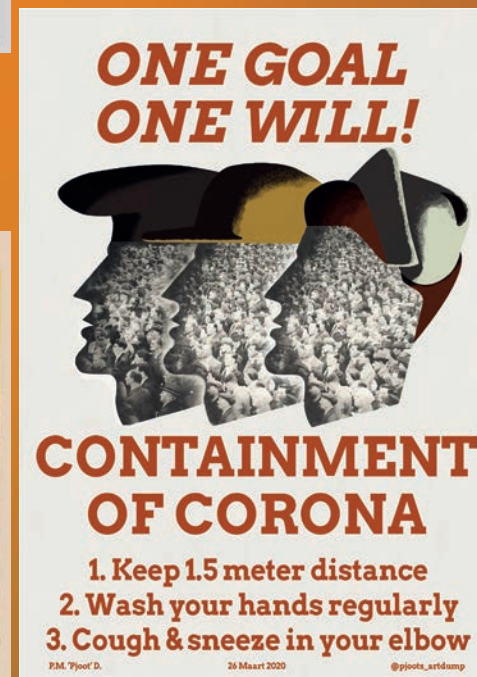
Creative in times of corona

When life is frozen for a while, creativity often flows. And beautiful things are emerging at the moment. Mechanical engineering student Peter "Pjoot" D. seeks his creative salvation in modernizing old propaganda posters.

It is an old hobby that the student picked up again in quarantine because of boredom; editing old posters digitally, with a touch of corona. He started with a poster about the hoarding of toilet paper, several weeks ago and shared it on Reddit. "That led to many positive reactions."

So he kept going and also posted his creative work on Instagram (@Pjootsartdump). He has made twelve posters so far. "I heard that people even printed my posters and hung them up." He received a request from a teacher to make a design for keeping a meter and a half distance. And he's working hard to translate the posters into English, and maybe even French. "Although that will be a challenge. I try to make the texts sound like they really fit in the style of the past."

Peter will continue as long as the crisis continues, provided that he keeps finding enough interesting perspectives. "It has to remain original, I try to look for niches. Oh well, it is a good exercise in Adobe programs." ●



“We should now quickly scale up the number of tests”

We are doing our very best to minimize the spread of the new coronavirus, but without medicines to treat patients and vaccines that can prevent a new outbreak, the end of the corona crisis is not yet in sight. TU/e professor of Precision Medicine Willem Mulder gives his views on the medical possibilities for tackling the virus.

Let's begin with the question of what makes the present virus so special. Willem Mulder tells that most corona patients who do not survive the infection die of a complication known as acute respiratory distress syndrome. “This is a powerful inflammatory response whereby the lungs fill up with immune cells. In effect, these patients drown in the excess fluid in their lungs. The strength of this inflammatory response is truly unprecedented.”

The professor of Precision Medicine is himself an expert in the field of what is known as nano-immune therapy, and so this unusually vigorous reaction by the immune system has captured his attention. “The problem is that as yet we cannot inhibit this inflammatory response. That's why this virus is so dangerous,” Mulder points out. “And because it is a new virus, every one of us, in principle, can get it. In this scenario, even if only a small percentage of patients suffers severe complications, the absolute number of fatalities becomes very high. This may happen while the vast majority of those infected have only mild symptoms.”

This is why a way must be found as soon as possible to suppress the powerful inflammatory response suffered by the sickest patients, Mulder explains. “A rapid and cheap solution could perhaps be provided by hydroxychloroquine, an old antimalaria drug with an anti-inflammatory effect. This is now being widely reported, but no one knows exactly how it will work against the complications of COVID-19, nor how well.”

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Primitive medicine

As well as being a professor at TU/e, Willem Mulder is also head of the Nanomedicine Laboratory at the Icahn School of Medicine, the medical faculty of Mount Sinai Hospital in New York. Coincidentally, Raphaël Duivenvoorden, internist at the Radboud university medical center, working in collaboration with Mulder's American lab, recently discovered a protein that hydroxychloroquine appears to have an effect on. "He had been working on this for a year before COVID-19 appeared, but now he has received fast-tracked authorization to draw blood from corona patients being treated with hydroxychloroquine at the Radboudumc. In Nijmegen, Duivenvoorden has all the equipment and cooperation he needs to ensure that any results can be shared with the medical community as quickly as possible."

Mulder sees a medicine like hydroxychloroquine as being a slightly primitive way of gaining a small degree of control over the immune system.

"A more refined alternative does exist, namely the more costly approach based on drugs known as biologics. These are already being used to treat rheumatic diseases. In these diseases, too, the immune system becomes overactive, which results in the body's own joints being damaged. Obviously, rheumatic drugs are also being studied for their potential in combating COVID-19."

Antibodies are proteins produced by the body itself to fight a pathogen, a disease-causing agent. A few weeks ago it became evident that the Rotterdam professor and Spinoza Laureate Frank Grosveld, working with colleagues in Utrecht, had discovered an antibody against SARS that also appeared to be effective against COVID-19. This antibody, produced as a medicine by genetically modified mice, was being kept in the fridge and was as yet untested. "If you inject patients with such antibodies, you can help them beat the virus. It is a form of therapy known as passive immunization."

To protect healthcare workers and at-risk groups against the new coronavirus, vaccines are essential in the long run; prevention is, after all, better than cure. "Traditional vaccines are based on antigens," Mulder explains. An antigen is a molecule on the exterior of a virus or bacterium by which our immune system can recognize the pathogen. "A vaccine contains a weakened version of a pathogen, or a component of it, which our immune system is then stimulated to make antibodies against."

If, later in life, a vaccinated person encounters that particular pathogen, it is immediately recognized and disabled: the vaccination has created an artificial form of immunity. In fact, the body reacts exactly as it would if you had had the disease and recovered from it. In that case too, you are usually no longer susceptible to the disease - for a certain period - nor can you pass it on to anyone else.

"Once it has been established that an antigen (or a combination of antigens) is suitable for making a vaccine, these proteins have to be produced on a large scale, which requires recombination in the lab," says Mulder. "This involves a great deal of work; cells have to be genetically modified using a plasmid or via a viral vector, next these cells have to be grown on a very large scale. Once this cultivation is underway, procedures have to be developed for extracting and purifying the product. It will probably take at least a year to produce a vaccine like this in the traditional way."

Genetic drugs

Yet it is possible that a vaccine will be available earlier than this. This is because companies are working on what are called genetic drugs, whose development involves searching in the genetic code of the virus for the piece of code that serves as the blueprint for an antigen. A vaccine could then consist of an injection of that piece of genetic code (mRNA), which would stimulate the body's immune cells to themselves produce the correct antigens.

"In principle this is a very quick method, because these days you can reveal the genetic code of a virus in no time at all with the help of sequencing," Mulder explains. "The challenge is the next step: getting the mRNA into the antigen-presenting immune cells. This has not yet been done on a large scale for viral infections; genetic immunization is mainly used with immune therapy against cancer. BioNTech based in Germany and Moderna based in the United States are working on this." At Moderna they started patient studies last week, and they say that their mRNA vaccine may well be available as early as this fall for (American) healthcare workers.

Also of interest in this context is the work of the Romanian-Dutch Spinoza Laureate Mihai Netea, Mulder tells. Although vaccines have traditionally been intended to enable our immune system to quickly recognize particular viruses or bacteria, vaccinations are proving even more beneficial than expected. "It was Netea who discovered 'trained immunity', a primitive memory function of our innate immune system. Trained immunity is the reason why vaccination against, for example, tuberculosis can have a protective effect against other types of infection. After vaccination, the innate immune system becomes temporarily more alert."

In many countries, the BCG vaccination is included in the vaccination program for children, but not in the Netherlands because tuberculosis rarely occurs here. However, earlier studies in Africa have already shown the protective effect of the vaccination against other infections, which appeared to decline by roughly half. Supported by an ERC Advanced Grant, Netea was already planning to research in the Netherlands the extent to which the BCG vaccination can protect seniors against infections, but decided in January with Marc Bonten of the UMC Utrecht to conduct an accelerated test among healthcare workers, in the hope that a vaccination will enable them to stave off coronavirus for longer. "A further idea is that those who nonetheless contract coronavirus will get over their symptoms more quickly thanks to their activated immune system," says Mulder.

Predictions

Willem Mulder has his doubts about the estimates made by Dutch health organisation RIVM. "At the end of January they estimated the likelihood of the virus coming to the Netherlands as extremely small. Likewise, their assumption that you are not contagious if you are displaying no symptoms was not supported by any evidence. Celebrating carnival wasn't thought to pose any problem at all since people supposedly socialize only with their close family and friends. Hopefully, the Dutch government's measures have been introduced in time."

He feels positive about the current measures. "A temporary lock-down that still leaves scope to go for a run is fine by me. The main concern now is to quickly scale up the number of tests, to assess whether someone has COVID-19, as well as to establish whether someone has already had it. Only then can we check whether people have indeed become immune. Then people will also know whether they can safely be around corona patients or family members in the at-risk groups. Hopefully, this will get public life up and running again so that the disastrous economic consequences don't cause even more harm than the pandemic itself." ●



Stay in touch via TU/e Community Radio

Bringing together the TU/e community, without it being physically present on campus. That's the goal of TU/e Community Radio, which was set up mid-March. Every afternoon and evening there is a radio program with music and interviews broadcasted from a radio studio in Atlas. For and by TU/e people.

Community manager Erik de Jong decided in mid-March, when it became clear that TU/e would close its doors, that something had to be arranged. "We want to support the community - and especially the internationals who live alone, without family and friends. Letting them know what is going on, that they are being thought of, being in contact with them," De Jong says. Radio is the perfect medium for this, he believed.

During the last Intro, GEWIS, study association of the department of Mathematics and Computer Science, made a daily radio program. De Jong contacted GEWIS and action was soon taken to use this channel during this time again to boost the sense of community. The hardware was hastily arranged via IMS and a studio was built in Atlas.

The 'core' of the radio team consists of students Wout de Ruiter, Sabine Jongerius, Thomas Wiepking and Melvyn Williams. The radio station now has a different presenter almost every day. The goal is to get the entire TU/e community to participate in this initiative.

Presenters have already been sent on behalf of ESA, study associations, student teams, Studium Generale, the department of Mathematics & Computer Science, the Student Sports Centre and TINT. New ones are welcome, both staff and students! You can register via the site.

You can find TU/e Community Radio online:
radio.tue.nl


It broadcasts live daily from 2:30 pm to 5:30 pm and from 7:00 pm to 10:00 pm.



This is how you scan a shared code

1. Open Spotify and go to the search screen by tapping the magnifying glass;
2. Press the camera icon at the top right of your screen;
3. Scan the code via your camera and you will be sent directly to the music or playlist. Just listen to the music!





TU/e's most requested

The most requested songs heard on TU/e's Community Radio. Tune in on radio.tue.nl.
Created by spanneke · 38 songs, 2 hr 24 min

[PLAY](#)

No radio program is complete without request songs. TU/e listeners have already requested their favorite songs a lot via radio.tue.nl. These are the highlights from the list, combined for you in a playlist on Spotify. So scan the code, turn on your speakers and enjoy TU/e's most requested!

FOLLOWERS 0

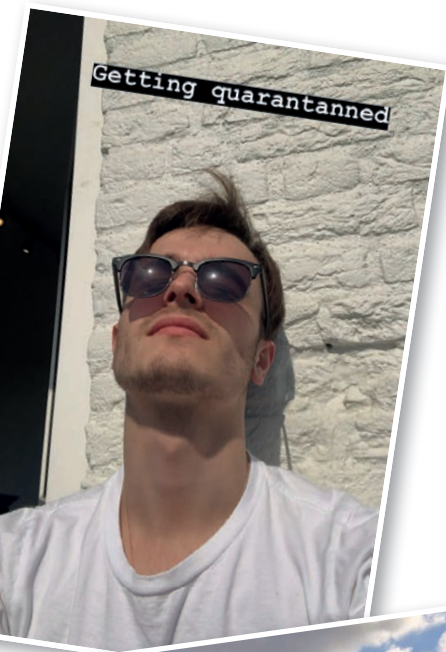
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TITLE	ARTIST	ALBUM		
Don't Stop Me Now - ...Revisited	Queen	Bohemian Rhapsody (The Original Soundt...	a day ago	3:38
I Will Survive - Single Version	Gloria Gaynor	20th Century Masters: The Millennium C...	a day ago	3:18
Piano Man	Billy Joel	Piano Man	a day ago	5:36
Are You With Me	Lost Frequencies	Less Is More	a day ago	2:18
One Step Beyond	Madness	One Step Beyond	a day ago	2:18
Kings & Queens	Ava Max	Kings & Queens	a day ago	2:42
Firework	Katy Perry	Teenage Dream	a day ago	3:48
Gold	Spandau Ballet	Gold - The Best of Spandau Ballet	a day ago	3:51
Thunderstruck	AC/DC	The Razors Edge	a day ago	4:53
Sad Supermarket Song	Mozes and the Firstborn	Dadcore	a day ago	3:56
Laat De Zon In Je Hart	Rene Schuurmans	Vanaf Vandaag	a day ago	3:26
Just Can't Get Enough	Depeche Mode	Speak And Spell (Deluxe)	a day ago	3:41
Wij Zullen Doorgaan	Ramses Shaffy	Favorieten Expres	a day ago	4:22
Wish You Were Here	Pink Floyd	A Collection Of Great Dance Songs	4 days ago	5:21
Vivo per lei	Andrea Bocelli, Giorgia	Bocelli (Remastered)	4 days ago	4:26
People Help the People	Birdy	Birdy	4 days ago	4:16
Liefde In De Lucht	Kraantje Pappie, Joshua Nolet	Liefde In De Lucht	4 days ago	3:32
Don't Panic	Coldplay	Parachutes	4 days ago	2:17
Let's Talk About Sex	Salt-N-Pepa	Blacks' Magic	4 days ago	3:33
Let's Dance - 2002 Remaster	David Bowie	Let's Dance	4 days ago	4:08
Summer Of '69	Bryan Adams	Reckless (30th Anniversary / Deluxe Editi...	4 days ago	3:36
The Real Deal	GoldFish	Caught in the loop	4 days ago	4:50
Fuifje	DoeMaarDave	Fuifje	4 days ago	2:35
The Scientist	Coldplay	A Rush of Blood to the Head	4 days ago	5:10
Happy - From "Despicable Me 2"	Pharrell Williams	G I R L	4 days ago	3:53
9 to 5	Dolly Parton	9 To 5 And Odd Jobs	4 days ago	2:42
Africa	TOTO	Toto IV	4 days ago	4:56

2:19 3:29

We have probably all worked from home once at some point, voluntarily or out of necessity. But how do you divide your day and sort your work or study load now that we collectively depend on our home for a longer period of time? Working from home: PhD student Ralf Mackenbach (Applied Physics) and SG director Lucas Asselbergs and CEC staffer Jeanette Schoumacher.



“There is a pandemic going on, I have plenty of time,” Mackenbach responds with a laugh at the start of our Skype session. We are connected to his home in Eindhoven, where he has spent the majority of his time since March 10th. His main company is his brother, who lives one floor up and who, according to the doctoral candidate, closely followed the news from China early on. “I followed it on the side, I was aware of what was going on, but not of how fast the coronavirus would come to the Netherlands. But from the moment it became relevant here, I immediately took it very seriously and followed the advice.”

Staying home is therefore simply not a point of discussion for the doctoral student. In a situation like this, I rely very much on the experts and I’m not going to make a fuss. I immediately went home when asked to do so.”

He can manage at home, the researcher says. “I have my laptop here and I turned a few books into a laptop riser. I do work more efficiently if I can really keep ‘work’ and ‘home’ separate, but we have no choice for now.”

The main pitfall for Mackenbach and therefore his most important working-from-home tip for others: “If you stop at the end of the day, really close your laptop immediately. Otherwise you will soon get stuck in your work.”

“I trust the experts and I’m not going to make a fuss”

Mackenbach has just finished the first three months of his PhD trajectory, within the nuclear fusion department under the supervision of Josefine Proll. “This time has mainly revolved around reading up on the topic. Now I am slowly moving towards trying to get new results; playing with the things you learned, making some toy models.” He says he mostly does “theoretical and numerical work; I really only need an internet connection for that.”

Virtual office

Every Monday he checks in to the weekly group meeting via Zoom. “That works fine. In addition, we have also set up a kind of virtual office within the group, where you can chat and hang out. But I do miss the normal dynamics of my job.” And that is no different for his private life. “My brother lives above me, but I don’t see anyone else at the moment. Instead, I call my friends a lot. Dinner dates, also on Mondays with our family, we now have online via Skype or Whatsapp. We then chat, cook and eat. It’s working.” ●

“This virus reaches into every nook and cranny”

While enjoying a breath of fresh air on a footpath beside the Dommel, this Cursor reporter happened to see them sitting on a boardwalk in their own backyard. The couple Lucas Asselbergs and Jeanette Schoumacher, together responsible for organizing no small number of essential TU/e events, including Intro Week and the Luna Festival.

The first week of working from home, Lucas and Jeanette spent on their own; their children have already left home. “It’s a familiar set-up for us because we’ve often worked together, and spent many hours working from home, for example when preparing for Dutch Design Week and the Lustrum,” says Lucas.

“Our youngest daughter and her boyfriend, who are both studying psychology in Amsterdam, recently joined us in Eindhoven. It’s going well with four people working from home. For Skype meetings we have to move to the kitchen or garden a little more often, but it’s perfectly manageable.”

Seeking digital creativity

Studium Generale, it’s hard to imagine anything less digital. What is a performance without an audience? Where Lucas’s work is concerned, the digital challenge is “huge. It’s a big adjustment, but I have to say it has also forced us to be creative. What’s important is that our digital offering must truly add something to what is already in digital existence. Personally speaking, I’ve always been very pleased with the old school nature of our programs, that you can look your audience in the eye and experience the atmosphere in the Auditorium, that you can really involve people.”

Intro

Jeanette is already busy working on the Intro to the next academic year. “As long as the risk of infection is still present, it won’t be possible to organize the Intro on its usual scale. You can’t have four thousand people standing together in a field, that’s too many people to guarantee social distancing. So other formats will have to be devised,” says Jeanette.

Lucas’ greatest worry is that the world lies in ruins and we’re not out of the woods yet. “This virus reaches into every nook and cranny and it we won’t be rid of it anytime soon. I notice that Jeanette is less focused on the problems than I am; she probably has better survival genes.”

Jeanette takes a somewhat lighter view: “I think in a crisis people often come up with new ideas and recognize opportunities and possibilities for the first time. Look at the rapid realization of online education at TU/e. It brings out the best in people and that is wonderful to see.” ●





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Yanja José Yankun Lars Fenna Elle Yanxi Pieternel Abe Yari Yasmina Ye Ying Yizhou Herm Rutger Knud Koen Ryoichi Zandrie Hjalmar Hoessein Ligang Winnie Hüsnu Brian Anahita Kalouda Felix Yous Alicia Emira Enrico Alvaro Brandon Alwin Jessica Tammo Anke Boudewijn Llewellyn Reza Bram Caiyang Mariska Remco Chengjie Andrew Marius Katharina Agnes Mark Martijn Varun Dimitrios Jim Liang Amy Lieke Dirk Ekaterina Lambèr Elham Ab Onno Zahra Annemarie João Ewelina Faas Igor Ilja Fabienne Kees Achyuthan Fabrizio Monique Hao Jacob Harry Mykola Fahim Lin-Lin Ali Rens Wim Hay Ronald Clemens Mariam Lisette Akshay Jan Friso Jaya Alain Loek Kitty Idelfonso Lucienne Akke Coen Valentina Gabi Harald Oxana Cindy Harm Varvara Ian Gianluca Olaf Gijs Femke Jelle Brigit Jeroen Francesco Sonja Frank Stefan Wouter Catarina Marvin Benedictus Wybo Antal Freek Georgios Nicola Gerard Barry Marwan Gonny Hadi Hanneke Emanuel Aziiz Wojciech Henry Arno Yizhen Mohammad Vanessa Pelle Momen Ozan Gabriela Maartje Elisabeth Steven Yu Madis Bart Baukje Maged Elke Geert Prasoon Kinga Lex Geoffrey Roger Maryam Vishak Yuhan Feixiong Felipe Yulong Zeinab Marlies Pantea Patricia Frédérique Zohreh Ingrid Aant Irina Iris Rudi Pieter Andrei Saeed Sandro Özge Murat Pallabi Kevin Cathelijne Khulan Panos Eddy Heidy Anton Heinrich Wina Henk Paul Sabine Jaap Zeynep Valerie Sachin Pavlo Pedro Koert Steffen Putri Isabelle René Aarnout Isotta Ivan Maarten Faranak Olivera Yvonne Fausto Magnus Ivana Marcella Sharon Zeger-jan Pieta Ismail Shashank Ivo Deyu Zahide Domine Eefje Zha Emelieke Jack Giorgio Jacqueline Sam Jom Joop Lenne Joost Sander Doetze Dolf Sandra James Adrienne Jan Otilia Jeffrey Céline Jérôme Gamze Jesus Jiadong Maria Jie Yesim Jochem Aki Joep Johan Chernelle Hind Chigo John Marnix Jorge Claire Julia Ka-Hon Norbine Karel Huu Nastaran Karlijn Bruno Karsten Karthik Adrian Gagandeep Ageeth Camiel Jolanda Carlo Marieke Caspar Jeanette Cees Aatef Ömer Dan Jing Darian Abouzar Chantal Kunal Lada Ilse Lafayette Jaleesa Lennart Keita Philip Kelin Leon Ot Steven Coby Owen Liesbeth Ahad Iggy Ignasi Aleksandr Karen Alessia Collin Daan Ad Lorenzo Adam Daisy Marijana Luis Arthur Baker Amin Barbara Joyce Masoud Juan Beatriz Luyang Masi Maud Meivan Andreas Guido César Gang Guus Andrey Sofia Oliver Olivia Stijn Floor Francesca Susanne Tamara Tamoor Lesley Levi Abhijit Jaime Andries Myrte Nando Gerben Indre Gerrit Faisal Faizan Han GertJan Deniz Ghislaine Diego Gökhan Nicole Amirashkan Nermin Cesar Oindrila Wout Marios Ouafae Peggy Angelique Piet Eline Mahmoud Emad Enzo Prasoon Puck Qihao Quan Quentin Issa Quintijn Massimo Zeeshan Fang Metehan Ming-Wen Federico Feie Annaluisa Oscar Kirill Harshita Tommaso Harun Ruby Edoardo Wiebe Colette Hedwich Rabia Aart Rachel Leny Yannick Saba Levena Wensi Rahul Kim Anneroos Konstantinos Arnout Rina Kristof Silvia