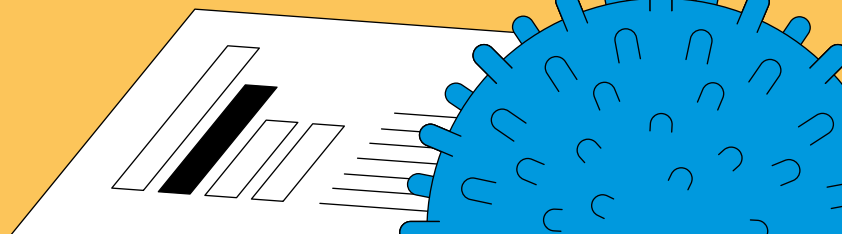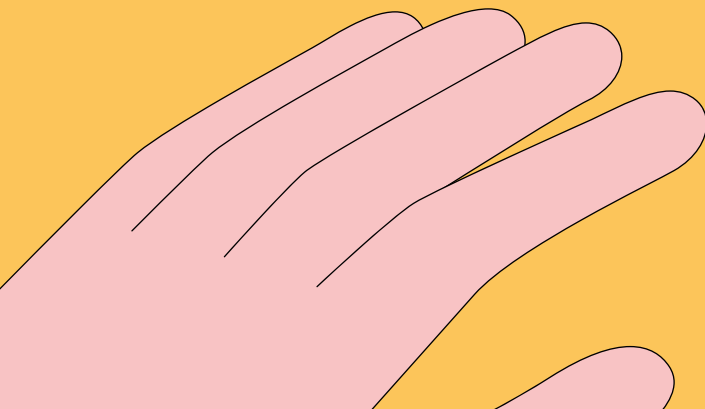ETH zürich

life

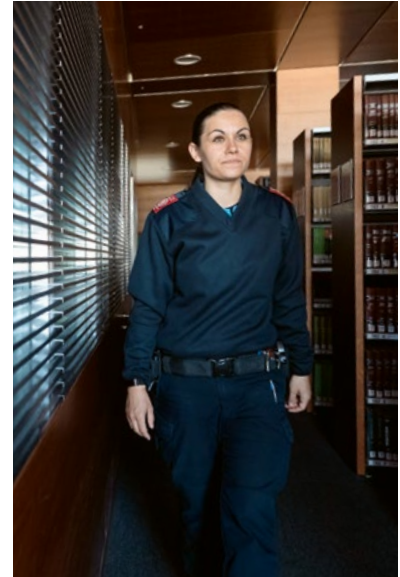ETH community magazine
July 2020

**Really
we're doing OK**

40 %
less energy was consumed
at ETH Zurich in April.

Like all of our professors, Thomas Ihn has been giving his physics lectures to an empty room since 16 March, with students watching the video stream from home.

Angela Käppeli from the uniformed security service does her rounds through the largely shut down buildings on the Hönggerberg campus.

153,981
Zoom meetings organized by ETH members were held in April, with 683,973 participants.

5,515
tickets were opened with ETH's IT Services in March 2020 – an increase of 500% over the same period in 2019.

ETH's Logistics staff – like Hassan Alhamwi – ensured that every package was delivered safely, even during lockdown.

ETH Library had to temporarily suspend its on-site services. During lockdown, staff sent materials to users at home free of charge and expanded the library's digital services.

88 %

less printer paper was used at ETH Zurich in April.

1,060

classes and lectures were held virtually between 16 March and the end of the semester.

As part of the helpfulETH initiative, ETH members helped hospitals tackle the crisis. For example, students used 3D printers to produce 2,300 visors.
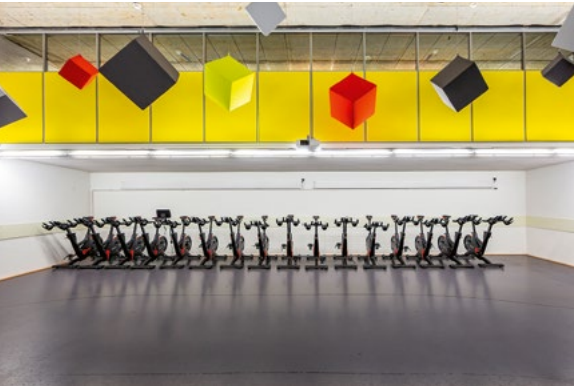
The ASVZ had to cancel all classes between 16 March and 11 May 2020.

More than 60 research projects relating to the coronavirus got off the ground, with 33 of them receiving special permission to work in the ETH laboratories. Shana J. Sturla's group is working on medicines that could potentially combat the virus.

625

approved events had to be cancelled for the period between March and the end of August.

Even though there were very few people working in the ETH buildings, hygiene was still of the utmost importance.

400 %

was the size of the increase in **data traffic on the VPN server** in April.

Really we're doing OK

What has life in lockdown been like for ETH members? And what lessons can we learn for the future of our work? Professor Gudela Grote conducted a large-scale survey to look into these questions.

Text Roland Baumann **Illustrations** Benjamin Hermann, Anja Wicki

Get up. Switch on the coffee machine. Turn on the computer. Have a shower. Put on a T-shirt and jogging bottoms. Check emails. And log onto the first Zoom meeting. That's how my first day working from home began. There were mor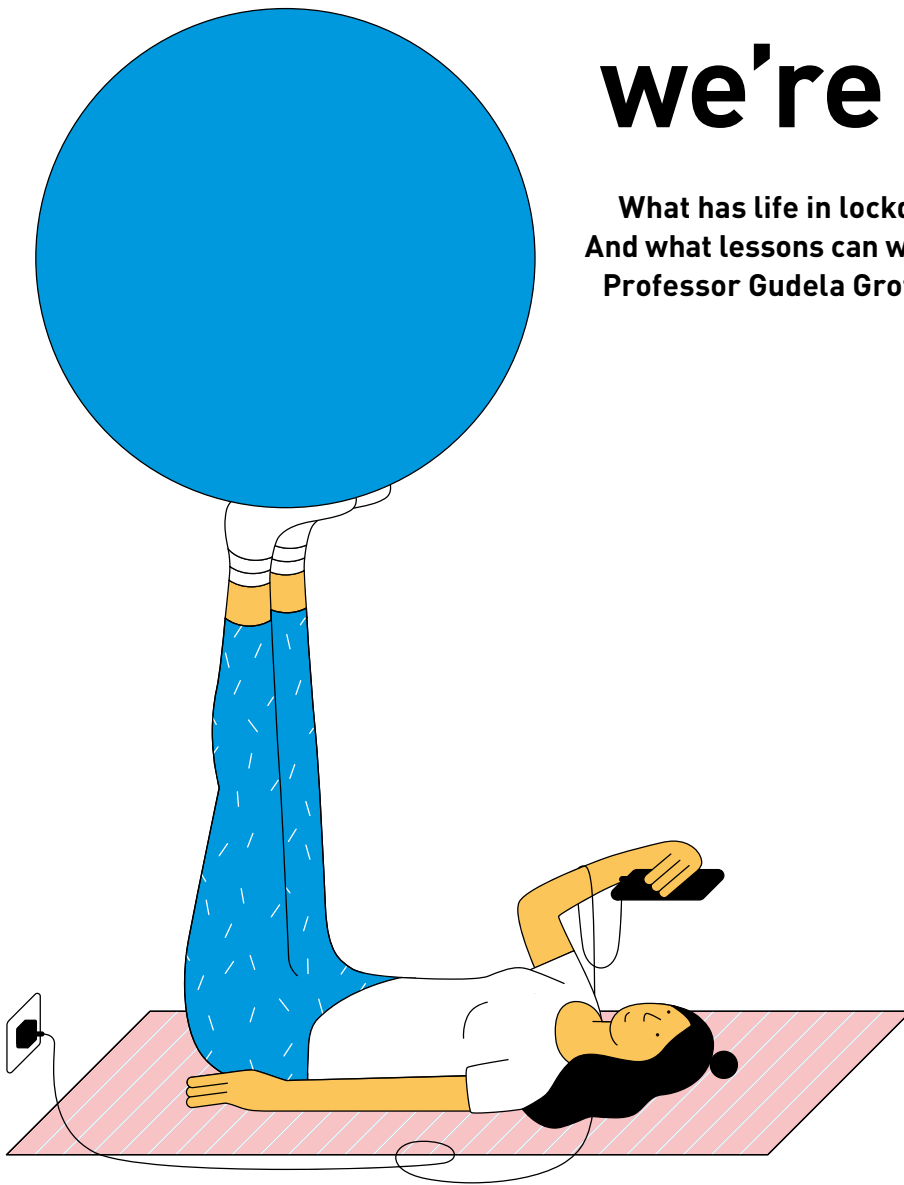e meetings throughout the day, with my colleagues appearing in tiles – some with a swaying palm tree in the background, others offering a glimpse into their homes. In between, I worked on a document and answered some emails. Around midday, my neck started complaining, so I went outside to get some exercise. By the evening, I was totally dead.

Really I'm doing OK

When lockdown was announced, it meant a lot of extra work for us in Corporate Communications. In the weeks that followed, we would face extreme amounts of pressure and we were constantly asking each other how we were all doing. "I'm doing OK," I'd reply. I was working hard, often late into the evening, but over time I developed rituals to cope with working from home: first thing in the morning I'd go to the bakery to make up for missing my usual commute. I'd go for a walk at lunchtime to get a change of scenery, and again in the evening to wind down after work. But I couldn't shake off the fatigue. And going for walks like that reminded me of the polar bears in the zoo that I used to feel sorry for as a child.

Really I was doing quite well. And I became more aware of that when I spoke to colleagues who had to look after their children while working, or those who weren't able to work from home. As well as that, hearing the news about the spread of the virus around the world, and about short-time working and failing businesses in Switzerland, reminded me of the privileged position I was in.

But that doesn't mean it's easy

But what was hiding behind that "really"? I was trapped in my little world, spending every day at home with my partner. With Oliver there all the time, it was like having a mirror constantly held up to me – and when I looked back at myself, sometimes all I saw was a robot. All I was doing was working. I couldn't do any of the things I normally do to get a break from it – meeting friends; going to the cinema, the theatre, the gym.

There are similar things that I miss at work: non-verbal communication, eye contact, seeing the body language of my colleagues. In Zoom meetings, everything has to be said out loud – everyone has to be addressed by name. And I miss the informal conversations before and after meetings, and the chance encounters in the corridors or in Polysnack. For me, these interactions are the glue that holds ETH together.

How ETH members are doing

So does my experience make me something of an exception, or did most ETH members have a similar lockdown experience? When lockdown started, Gudela Grote, Professor of Work and Organisational Psychology, launched a survey with her group to find out how ETH employees were coping with working under such exceptional circumstances. There were 10 rounds of questions in total, with more than 2,100 ETH members taking part in multiple rounds over the course of 3 months. It will be some time before the detailed analysis is ready, but the key results are already available. They are presented in the form of aggregated data, but it is worth remembering that there are thousands of individual experiences behind them – just like the one above.

Separating professional and personal life

For all ETH members, separating work from their personal lives was a completely new challenge, and one of the biggest they faced during lockdown. "The dividing line became blurred, which offered certain benefits but also brought a number of disadvantages," says Grote. The more closely employees' work became intertwined with their personal lives, the less socially isolated they felt. However, at the same time they found their day-to-day lives more stressful. This particularly applied to staff who had to look after their children and take care of home-schooling alongside their work. Over time, however, this stress lessened – at least on average.

One of the pivotal questions was whether staff were able to draw a clear line between work and free time. At the beginning of the survey period, a good third of respondents reported that they were having to work outside of normal working hours. Towards the end of the period, a fifth still said that this was the case. "I think that's an important point for managers to take on board," says Grote. "Staff cannot be expected to be available all the time."
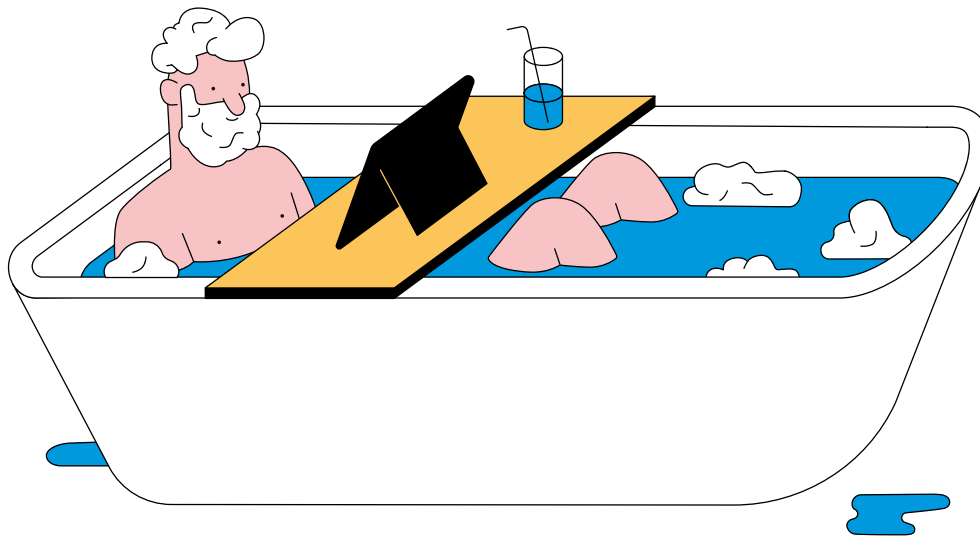
In the last round of questions, participants were asked whether they felt that their managers trusted their teams to work as efficiently at home as they do on-site – and managers themselves were asked directly whether they had this trust. Generally speaking, the answers were very positive, although employees suspected that managers were perhaps more trusting than they expressed. "This is where we have to start if we want to keep getting the best out of working from home," Grote says.

Team spirit boosts motivation
On the whole, staff felt highly motivated when working from home. "Particularly at the beginning, many staff members were excited about the new challenge of teaching and collaborating virtually," says Grote. Employees who stated at the beginning of the survey that they were happy working from home and that they could do so efficiently were especially motivated. Over time, however, their level of motivation grew closer to that of the respondents who were initially less enthusiastic. "They may well have realised that working from home day in, day out is quite different to doing it on a short-term basis," says Grote.

According to the study, the respondents thought that communication was very good. The majority also felt well supported by colleagues, managers and ETH as a whole. For example, participants said that their colleagues had been very sympathetic with regard to the challenge of combining work and homeschooling. Teamwork was rated positively overall. According to Grote, these factors had a positive impact on motivation and became more and more important as time went on.

This was particularly evident in the case of employees whose work depends on input from other people. However, alongside the high level of motivation, the stress levels were also higher for these people and the line between work and personal life was more blurred.

Social isolation and conflicts
Despite team spirit being generally high, "from the frank answers given we know that social isolation was an issue for many employees," says Grote. Over time, the feeling of social isolation lessened, "but that's based on the average values – it doesn't necessarily reflect how an individual might feel," she stresses.

Women were more likely to report feeling socially isolated, and the declining trend was less pronounced in their case. In the descriptions they gave, for example, some women said they felt that they were being written off in their research groups because they had to look after small children at home. Others said that colleagues had set up a Slack group that they didn't have access to. "Managers have a clear responsibility to identify issues like that and tackle them immediately," says Grote.

Findings to be incorporated into rETHink
So what do these results mean for our university? "In a nutshell, they give me and the Executive Board as a whole a reason to redouble our efforts with regard to the rETHink project," says ETH President Joël Mesot.

In a crisis situation, people often pull together and, as a result, get to know each other better. We can see this on a personal level, but it's true in an institution too. The study results are a clear indication of how we interact with each other at ETH and the kind of culture we are fostering at our university. "The results demonstrate the strong sense of

team spirit that we have at ETH and the extraordinary lengths that our members are going to every day – that's something that I can definitely see in my day-to-day work," says Mesot. He is particularly pleased with the feedback, both positive and negative, that has been received. "It shows that we encourage open communication and discussion at ETH."

With regard to the pressure that some employees are experiencing, Mesot is clear that something needs to be done:

"We need to make sure that managers are discharging their duties correctly." It's not just a case of introducing new rules; the reasons behind these problems need to be analysed first. "We need to actively engage with the issue of leadership at ETH," says Mesot. He is keen to point out that this was one of the reasons that rETHink was launched in the first place.

When asked about his own personal situation, he says: "Like others, I'm looking forward to seeing people in person again – the Executive Board, my team and all the other ETH members I have only spoken to virtually over the last few months, even if we're still going to be living in a kind of dual world for some

time yet." At the same time, however, the President has discovered some benefits to remote working: "In between the virtual meetings, I've had some time to reflect more deeply on certain subjects. I'd like to keep that going and will be spending more days working from home in the future." The ultimate aim, he believes, is to foster a culture of trust where all employees have more opportunities to work from home. ■

www.wop.ethz.ch →

"Many students need guidance"

After 16 years as head of Academic Services, Dieter Wüest recently handed over leadership of the department to Hermann Lehner, previously a senior scientist with a focus on education in the Department of Computer Science. We spoke to both of them about the impact of the coronavirus crisis on teaching, and about their specific projects and visions for the future.

Interview Michael Walther **Photos** Gian Marco Castelberg

Dr Wüest, your department is responsible for organising academic operations. The coronavirus crisis has turned all of that on its head. You probably didn't imagine your term of office ending like this…

Wüest: That's true. There was a point at the start of March when I realised that this last semester was going to be very different to what I originally had planned. Everything suddenly changed. For one thing, I was supposed to be competing at the World Senior Curling Championships in Canada in April – that would have been a real personal highlight, but obviously it had to be cancelled too. It was quite a challenge to mentally readjust to the new situation.

How has your work changed?

Wüest: Since March, practically all of my work has been focused on managing the impact of the pandemic. We moved our teaching online, exams had to be reorganised and we had to work out how to make workspaces available for students during the lecture-free period. Most importantly, we had to start developing solutions for the autumn semester. Hermann Lehner has been involved in that work as well.

And in the midst of all that, you are giving up your role as head of Academic Services – it sounds a bit like trying to jump from a moving train…

Wüest: It's definitely an unusual situation. On the one hand, it's an uncomfortable feeling to simply bow out in the middle of the crisis and leave others to sort things out. But on the other hand it's a relief to know that, for me personally, I'm coming to the end of what has been a difficult period.

Dr Lehner, what has it been like for you, having to hit the ground running?

Lehner: It's been very challenging. I'm essentially learning most of the role on the job, in the middle of a crisis. The advantage is that, in some ways, you get to know people better because you have to work together so closely in order to find solutions as quickly as possible.

From your experience on the front line, how is the pandemic changing teaching?

Wüest: The current situation is not what we would describe as ideal teaching conditions. We are first and foremost a bricks-and-mortar university. There's no question that the digital world can help to improve teaching, but the pandemic has demanded that we introduce changes overnight.

Lehner: By forcing our hand, the pandemic gave us the chance to try out lots of new concepts. If we're lucky, this will speed up the digitalisation of our teaching – not by having one replace the other, but by using digital technologies to supplement face-to-face learning so we can harness the best of both worlds. One way we can do this is by making materials available online at any time so that lecturers can use face-to-face time to expand on certain points, answer questions and encourage discussions.

Wüest: In spite of all this, my feeling is that traditional forms of teaching will continue for many years to come. We have a wide range of students here – and some of them need a lot of support and guidance. Forms of teaching which require a great deal of independence are extremely demanding. If a student's first semester consisted entirely of teaching forms where they had to work through the content themselves and then apply it in a flipped classroom scenario, I don't think it would work. Many of the students would fail.

What direction do you think teaching should be moving in?

Lehner: I agree with Dieter – digital teaching can't replace traditional lectures, but it can complement them. Digital technologies can also help to ensure that teaching at ETH Zurich is accessible to as many people as possible. I would like the digital component of the teaching to be as open as possible so that anyone can access it. In my opinion, that's part of ETH's mandate.

> "In spite of all this, my feeling is that traditional forms of teaching will continue for many years to come."
>
> Dieter Wüest

Which projects are at the top of your list?

Lehner: The academic applications. In the future, rather than just focusing on operational tasks such as entering marks or registering for courses, they should allow students, lecturers and administrators to carry out analyses and evaluations on a day-to-day basis. The scalability of academic operations is another key point. We need to be able to accommodate more and more students – we're not just talking about applications here, but classrooms and timetables as well.

Wüest: In the past, applications were useful tools. Today, IT systems are whole environments where all of the teaching can take place, just like on a campus. This is truer than ever in the time of coronavirus. Courses are held using these systems, all of the data is stored there and all of the processes take place within them. There is still a way to go, however, before they can truly be seen as an integrated digital campus rather than a collection of tools.

Dr Wüest, what are the standout moments from the last 16 years for you?

Wüest: I don't have one particular highlight from the last 16 years. The thing I'm probably happiest about is the way we managed to deal with any major challenges that came our way. We were always well prepared, and any significant changes that we made proved to be successful.

What was the hardest part of the role for you?

Wüest: Making difficult decisions regarding staffing. There were times when we had to break up teams, for example, and find new solutions for some of our employees. Unfortunately, those are the things you remember the most.

You both studied at ETH yourselves. How have things changed here since then?

Lehner: The structure of the courses was much more straightforward back then. How you started a degree, how it progressed and how it ended was all relatively clear. Today there are many more options and possibilities, making our degree courses more complex.

Wüest: Yes, that's true. Switching to the Bologna system – with Bachelor's and Master's degrees – made the study programmes much more intense. In our day, there weren't always exams at the end of a semester like there are today. And if you don't pass,

Dieter Wüest
grew up in Burgdorf in Switzerland, studied electrical engineering at ETH Zurich and completed his degree in 1985. After working in various positions at ETH, he became head of the Academic Services department in December 2004 and remained in the role until June 2020. He is not leaving ETH, however: from August 2020, he will be taking on a role in the organisation of the university's central administrative units as part of the rETHink strategic project.

it's virtually impossible to catch up and still stay on track timewise. That's why there are more students now who don't finish their degree within the standard period of study. Even students with good marks often need longer nowadays, just because there are so many different subjects to cover. I don't know whether the degrees have got harder, but they are definitely more intense.

And how has ETH itself changed?

Wüest: My feeling is that the university's interests have become much more diverse. We have an incredible range of initiatives, projects and developments being launched right across ETH. I also think there is an expectation to pursue as many ideas as

> "I would like the digital component of the teaching to be as open as possible so that anyone can access it."
>
> Hermann Lehner

possible. I welcome this hands-on approach, and we have been involved in many projects ourselves. As the department that actually puts these things into practice, however, it's not always easy to get them off the ground.

Dr Lehner, what are your main areas of focus going to be? What is important to you?

Lehner: Our task is to make life as easy as possible for students, lecturers and administrators, and to support them effectively with the services we provide. We need to digitalise our academic operations in a way that supports our students and staff, and reduces complexity – by automating processes where it makes sense to do so. That leaves everyone room to concentrate on more important things.

What motivates you in your new role?

Lehner: I am passionate about teaching, and I have been for a long time. I come from the world of computer science – but I believe that IT is a tool and an enabler. We work with people and for people, and ultimately that's what it's all about. ∎

www.ethz.ch/academic-services →

Hermann Lehner
grew up in Bürchen in Switzerland, studied computer science at ETH Zurich and received his doctorate in 2011. After spending some time working in the business world, he returned to ETH in 2016 where – alongside his teaching activities in the Department of Computer Science – he developed the innovative learning platform Code Expert, which is used by students in virtually every department. From 2017 to 2020, he was the study programme coordinator for the Department of Computer Science.

Keeping a careful eye on exports

ETH knowledge and ETH technology are highly sought after around the world. However, sharing them with foreign countries may be subject to legal restrictions or even banned altogether. ETH's export control service is on hand to advise ETH members and ensure that they comply with the necessary regulations.

Text Norbert Staub **Cartoon** Stephan Lütolf

At the start of the 1980s, it emerged that Western suppliers had played a part in the construction of a poison gas plant in Iraq. This discovery was one of the triggers that led to the establishment of international agreements on arms control. These agreements regulate the distribution of expertise, goods and software for the development or production of arms and dual-use (military and civilian) goods. Switzerland followed suit and subsequently defined its own laws on export control. The EU has similar provisions, while the US is one of the most dominant global powers in this field: whenever controlled goods of US origin are involved, no matter where they are in the world, the country insists that its rules are followed to the letter.

This applies not only to companies looking to sell their products abroad, but also to all economic entities, including public institutions – and, hence, universities. "For researchers at a globally networked institution like ETH, this is a real challenge because, in principle, they are entitled to share their knowledge internationally," says Silvia Nast, who works in export control at ETH Zurich. Her task is to investigate matters relating to export control and to support researchers in this regard. Before coming to ETH Zurich, she spent over ten years as an export manager at a number of international companies, ensuring that export activities were carried out legally. She joined ETH Zurich in 2017 and is the only specialist with this focus at a Swiss university.

Silvia Nast holds an Advanced Federal Diploma of Higher Education in Export Management. She has worked as an export control officer for over ten years – previously in industry and currently at ETH Zurich (since 2017). She has an additional qualification in law, possesses extensive knowledge of Swiss, European, and US export control legislation, and advises ETH members on all matters relating to goods exports.

Use for destructive purposes?

"Cases where research findings may be used for both destructive purposes as well as civilian applications are referred to as 'dual-use' cases. Researchers at ETH have to think about whether export control applies to their day-to-day work and whether they need to obtain official permission before sharing it internationally," she says. "It isn't always obvious. And I don't want to be too dramatic, but breaching the regulations – even inadvertently – can result in heavy fines, or even jail sentences, for the individual in question."

Export control considerations do not apply to teaching up to and including Bachelor's level, as it is only at Master's level that projects start to involve in-depth, active research. And two categories of research that are central to ETH are also excluded: any research results that have already been published, and any fundamental research, provided it does not involve producing prototypes and exporting them abroad. So where exactly do you need to be careful? "Typical examples include goods in the fields of nuclear technology or infrared technologies, but semiconductor technology and telephony may also be affected. Goods in these fields may be used for numerous constructive purposes, but can also be used destructively in weapons systems," Nast says. It does not matter whether someone

produces a product themselves or obtains it from a supplier. "If the product is going to leave Switzerland, whether it is being sold, loaned or gifted, you have to check whether it comes under the export control regulations first."

Personal interactions require caution
According to the export specialist, even verbal exchanges can have consequences with regard to export control if there is a chance that critical, unpublished knowledge may be disclosed – whether at academic conferences with international participants, either in Switzerland or abroad, or on a business trip. Furthermore, research contracts with academic or industrial partners may include export-specific clauses. "The entire partnership may depend on strict compliance with these

clauses," says Nast. It may present a problem, for example, if an individual from an internationally sanctioned country is involved in a collaboration project where export-controlled knowledge is being shared.

It's not only goods that come under export control regulations, but people too. So it is important to be careful when hiring foreign employees or sharing information with academic guests.

Support in cases of doubt
When it comes to deciding whether something is subject to export control regulations, the devil is in the detail. And given that ETH's research involves complex subjects, the classification rules can be a hard nut to crack. The Swiss government provides comprehensive, binding lists of

dual-use goods and arms to help exporters in this regard; corresponding lists are also provided by the EU and the US. "These lists are the crucial source of information if you want to find out whether something comes under export laws," says Nast. "Anyone involved in research and development work and anyone who produces, buys or sells products should be familiar with these lists of goods, or should at least consult them on a regular basis." The lists can be accessed via the ETH export control website. The website is there to help ETH members resolve any doubts or questions they might have about this subject. "My aim is to ensure that they are legally protected so they can focus on what they do best – research and development." ∎

www.ethz.ch/export-control →

Rosa Visscher
Doctoral student at D-HEST,
AVETH President

In motion

Text Karin Köchle **Photo** Florian Bachmann

"I am fascinated by the interplay between the brain and the musculoskeletal system," says Rosa Visscher. Her doctoral project focuses on paediatric movement disorders resulting from brain damage sustained during pregnancy or birth. She hopes that an algorithm she has developed will one day help doctors choose the best form of therapy for each individual case. Her work places her at the interface between patients, doctors and engineers – precisely where she wants to be.

Visscher grew up near Utrecht in the Netherlands. Thanks to an Excellence Scholarship, she came to ETH in 2016 to pursue her Master's degree. "Dutch people are very open and direct. The first feedback I got from a Swiss colleague was that my questions were too personal," laughs the 24-year-old. What she likes about ETH is the freedom she has to make decisions herself. And in her new role as President of the Academic Association of Scientific Staff at ETH Zurich (AVETH), she has some definite ideas that she wants to set in motion: "I want to help prepare the scientific staff for the challenges of the future." And she wants to support doctoral students who are finding themselves in a difficult situation due to the coronavirus crisis.

When she needs a break from work, Visscher's favourite hobby is cycling. As a child, she raced at regional and national level, and even progressed to international level later on. Back in the Netherlands, there are lots of movement scientists working in the field of cycling. Through their influence, she saw how important it is to tailor your training carefully to your musculoskeletal system. "That was one of the reasons I decided to study movement sciences." ∎

Katharina Poiger
Secretary General

Illustration: Kornel Stadler

Working together to secure ETH's future

After three months of lockdown, life is returning to the ETH campus – cautiously, of course, and with strict hygiene and distancing rules in place. It is amazing to see how well our university has coped with the coronavirus crisis so far. The outstanding efforts of our members allowed teaching, research activities (those that could be done without lab work) and administration to all move online. Operations continued to run effectively and everyone put their best foot forward.

As the pandemic starts to come under control, it is time to address an important question: what does this watershed, this unprecedented experience, mean for ETH Zurich? How will it affect the way that we work and collaborate in future? "The new normal" was how ETH President Joël Mesot described the situation in his column in April. ETH will remain true to its values and objectives – and to its mission to perform at the very highest level. But our desire to do this is precisely why we need to ensure that we take the right lessons from our lockdown experiences and incorporate them into the development of our organisation.

We already have the necessary framework – thanks to the rETHink project that was launched by the Executive Board last summer. It was set up in recognition of the fact that ETH is facing more challenges than ever before: growing international competition to secure the best talent, for example, with new private players such as major global technology firms joining the competition; the ever-increasing expectations of society at large; and the growth of the institution

itself. When it comes to looking after more than 22,000 students and managing more than 12,000 employees, professional standards are a must – and the university is increasingly being measured against these standards.

Work on the rETHink project has been progressing despite the coronavirus crisis, albeit with reduced resources. Understandably, tackling the crisis has involved a great deal of effort from all ETH members, and this has meant that certain projects had to take a back seat. Our organisational development project has therefore been delayed by around a quarter; however, its content and objectives remain the same. In the context of the rETHink project, the participation and interaction of ETH's members are crucial to securing the university's future. So my message to you all is simple: take this opportunity to help shape rETHink and the future of ETH. You can contact the president of your university group via the link below. ■

Katharina Poiger

About the author

Katharina Poiger is Secretary General of ETH Zurich and the director of the rETHink project
www.ethz.ch/rethink-project →

The Urban Mining Experiment

Mobile phones are made up of metals mined all over the world, mainly in Africa. Unfortunately, mining – especially of gold – is often insufficiently regulated or even illegal, which can lead to loss of habitats, pollution, and child labour. One way to alleviate the negative impact is to repair broken devices and recycle devices that are beyond repair.

The average Swiss person replaces their phone about every two years. We estimate that there are 6.7 million unused phones lying around in Switzerland. In other words: 135 tonnes of copper, 95 tonnes of aluminium and 300 kg of gold lie unused.

To find out how to increase recycling rates, the Development Economics Group launched the campus-wide Urban Mining Experiment in collaboration with ETH Sustainability, the Institute of Science, Technology and Policy (ISTP), Campus Info and *life* magazine. With the October 2019 *life* magazine, about 15,000 envelopes were sent out that could be used to return old phones for recycling.

The envelopes were designed with different messages, for example, assuring ETH members that their data will be protected or asking them to recycle for the environment. Some came with postage included, others did not. The study should help in future recycling campaigns.

The initiative was successful: 931 phones were collected. This is a return rate of 5%, which is higher than the return rate in similar campaigns.
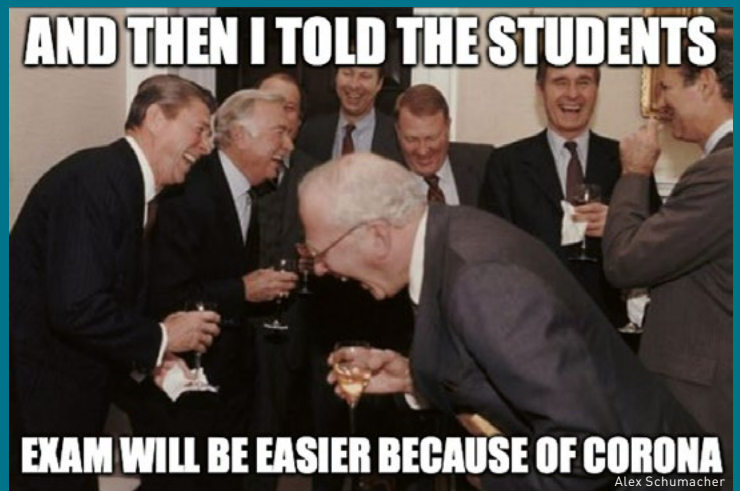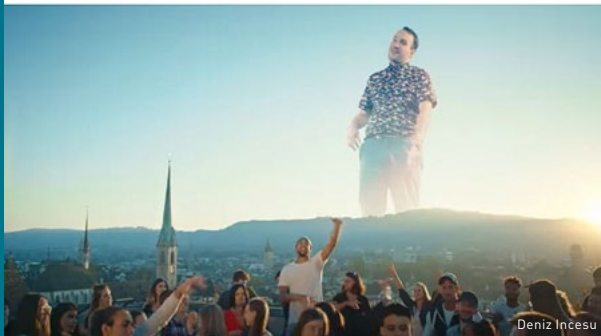
For more info on the project or further results of the experiment, please visit us online.

Antoinette van der Merwe, ISTP doctoral student
www.urban-mining-project.ch →

Coronavirus 2
ETH
zoom
PARTIES
FESTIVALS
THE WORLD
LECTURES
EXAMS
RESEARCH
Adrian-Bozhidar Stefanov

Due to reduced pollution, Mad Steve from the ETH master video can now be seen from the sky
Deniz Incesu

AND THEN I TOLD THE STUDENTS
EXAM WILL BE EASIER BECAUSE OF CORONA
Alex Schumacher

Laughing in the face of adversity

Adapting to life in lockdown was a huge challenge for ETH Zurich and its members. But no matter how difficult and strange a situation may be, a little bit of humour always helps to lighten the load. Which is why social media was full of funny, tongue-in-cheek images and videos throughout lockdown, with people doing their bit to make others laugh during the crisis. *life* has gathered together a small selection of the memes created by the ETH community for you to enjoy.