Vos idées vous appartiennent
Nous vous aidons à les protéger

Brevets
Marques
Designs
Veille technologique
“EPFL is one of the first schools in the world to include computational thinking in its curriculum”

Dear alumni,

Over the last few months, I’ve enjoyed meeting many of you at various events organised by the EPFL Alumni department. I had the pleasure to discuss the School’s upcoming challenges at the Garden Party in September and during my visit to New York in October. During the second edition of the EPFL Alumni Gala on 17 November, I noticed how delighted you were to return to campus and saw that your passion for our school’s science and innovation still stands. At that time, I was also able to reflect on the digitisation challenges that we will face in the coming years, as well as the ways in which EPFL stays ahead of the curve to tackle them.

In Switzerland, digitalswitzerland is one of the initiatives ready to take on these new challenges. This association is made up of 70 members from the public and private sectors - including EPFL and ETHZ - and aims to make Switzerland a world leader in digital innovation. Since summer 2017, I have been honoured to be President of the steering committee for western Switzerland. I work with our partners on various topics such as personalised healthcare, cybersecurity, blockchains, fintech and many more.

Education is, and will continue to be, directly impacted by these technological and societal changes. Our academic programmes must adapt to these new demands and the feature in this Alumnist issue (see p. 28) gives you some insight into how we will prepare our current students and future generations. Computational thinking is one of these decisive challenges. This approach, which uses computer science techniques to rethink problem-solving processes and analyse human behaviour, will now be taught starting in the first year at EPFL. We are proud to be one of the first schools in the world to include this in our curriculum.

In this changing world, you are often the School’s best ambassadors, and rightly so. Your role is incredibly important in representing the school, whether through your career or by investing in your network and in EPFL projects.
Dear alumni,

It is with great pleasure that I write this first editorial and an honour to serve a community as talented as ours. These first months since I took office have been an intense journey through past, present and future.

The past, as I had the opportunity to reacquaint myself with places and faces from my student years, and to relive some of the highlights that mark the journey of all alumni. That includes the first day of the term, with 1,820 new Bachelor students waiting nervously in the starting blocks. There's the always-emotional graduation ceremony, during which 994 Master’s students proudly received their beautiful red diplomas and joined our community. This ceremony also provided an opportunity to present two Alumni Awards to Claudia de Rham (PH’01), whose profile you will find on page 26, and Mattia Binotto (GM’94), technical director of Ferrari’s Formula 1 team.

The present, because this school continues to race towards excellence at the speed of light. The victory at the Solar Decathalon is a fine example of this. For the alumni, the opportunities to witness this excellence are numerous: the Garden Party, during which the start-up Twice presented their exoskeleton designed for paraplegics; the countless events organised by our different chapters, EPFL’s start-up mentoring evenings, and more. The Alumni Gala, which reunited more than 400 people under the stars of the SwissTech Convention Center last Nov. 17, was a wonderful conclusion to this year, with captivating conferences, a quiz bursting with razor-edged wit, and music and champagne flowing into the early hours!

And finally, the future, because it is the future of education to which this edition of Alumnist is dedicated. It will give you an insight into the latest developments that have been taking shape at EPFL. It is also a future that has revealed itself through meetings with a wide range of alumni, the presidents of our chapters, our students, the departments and management of the School... It is, ultimately, a future we will create together, our enthusiastic and inspiring alumni. A future full of pride, the desire to share, and talented individuals ready to get involved. This network is your network and has immense potential. All the molecules are there. It is just a matter of finding the right catalysts and optimizing temperature and pressure to make it explode. Are you ready? !!
SUCCESSFUL ALUMNI IN SILICON VALLEY
This Californian hotspot for entrepreneurship has attracted several alumni. Stories from graduates who jumped in head-first.

THE EDUCATION OF THE FUTURE
New learning methods are being developed using digital technology. EPFL is on the front lines.

NEW APPROACH FOR THE EPFL EMBA
As of autumn 2017, the programme has had its sights set on innovation. It is now available to employees and entrepreneurs.

STAR-GAZING
Claudia de Rham (PH’01) is an international reference in the field of cosmology. Her research on gravity has inspired many researchers.
Aluminst

ZIG ZAG

An exoskeleton for seniors

A team of researchers from EPFL’s Foundation Bertarelli Chair in Neuroprosthetic Technology and from Sant’Anna School in Italy have developed the world’s first smart exoskeleton prototype. Light and adaptable, it can detect and prevent falls triggered by a loss of balance. It should be worn like a pair of trousers, from the feet to the hips. Designed mainly for seniors, who are the victims of 40% of fatal injuries caused by falls in Europe, the exoskeleton could also help people with disabilities or those suffering from neurological problems, as well as amputees. Having tested the system in a Florentine hospital, the team is now trying to make it suitable for the outside world by making it more discreet and comfortable, and is currently testing it under real conditions.

OPTIMAL STERILISATION

Sterilux, a start-up whose team is largely made up of EPFL alumni – including its CEO Marc Spaltenstein (SV’15) – was awarded the prestigious Swiss Design Prize for its innovative solution for sterilising medical instruments. The system is based on the use of ultraviolet light and the ozone for optimal disinfection. Its main advantages are that it reduces energy consumption and the need for distilled water.

Every day, 1.4 million people get an infection during medical treatment, according to the WHO. This mainly concerns patients in developing countries. Sterilux’s simplicity and practicality make it a precious tool in these countries.

ETERNAL CULTURE

Could you ever have imagined saving music on DNA strands? The experiment has already been conducted—with success—on two classics: Tutu by Miles Davis and Smoke on the Water by Deep Purple. EPFL’s MetaMedia Center has digitalised and released two extracts of the Montreux Jazz Festival concerts. The US company Twist Bioscience then coded them and transformed them into DNA chains, before sequencing and decoding so that they can be played again without compromising on quality. This highly innovative biotechnology is based on a natural process which has existed for billions of years, and which has enabled living species to perpetuate.

TRACKING DOWN POLLUTANTS

Researchers from EPFL have developed a swimming robotic eel to identify sources of pollution in our rivers and lakes. This 1.5 metre-long device is equipped with chemical, physical and biological sensors, which take measurements and send data to a computer. The eel can either be guided or move autonomously. As part of a project simulating and testing pollution, the artificial fish has already generated maps of water conductivity and temperatures in part of Lake Geneva. The robot takes measurements in real time and swims along narrow passages without getting stuck in algae or mud. This innovation has already been reported in the Swiss and international media, including in Business Insider and on the BBC.
ESSENTIALS FOR GEEKS

Our alumni select the items that they love.

The new-generation vinyl record

“Although it is a modern object, I particularly appreciate this record player’s old-fashioned edge. It produces exceptional sound. Also, I pay more attention to what I’m listening to when I use vinyl records: as the music doesn’t automatically switch from one tune to the next, I have to pick out each song carefully.

My vinyl collection is mainly made up of rock music, such as the Beatles and Pink Floyd, but I also have some classical pieces. This is the standard model, but it also comes in versions with options, like a Bluetooth connection for example.”

A tiny multi-purpose computer

“Raspberry Pi is a geek’s best friend! There are no limits to this tiny computer: you can connect it to a screen, use it to store your phone data, and even connect it to a drone. It is incredibly useful, because it offers the same features as a computer, just without the screen. I mainly use it to download the old open-source video games that I used to love when I was younger. I have installed PlayStation and Nintendo emulators on it, so that I can use it like a vintage game console.

The Raspberry Pi model is fun and simple to use, even for beginners to the world of coding. There are also more sophisticated models available, such as Banana Pi. Its processor is more powerful and includes an integrated microphone.”

Customized Easter Eggs

“This printer can be used to decorate Easter eggs and Christmas baubles. It can produce highly sophisticated pictures and fun designs. You don’t need to be an expert in mechanical engineering to use it, although you do have to set it up yourself. Also, the machine must be configured before each use, depending on the object you want to customize.

It prints drawings on round, medium-sized objects: as well as eggs and Christmas baubles, it can also decorate golf balls. You can either create the pictures yourself or download them online. I once printed a labyrinth on an egg and also a creature from the Angry Birds video game!”

FLEXIBILITY IN ALL SITUATIONS

The first robot completely activated by air vacuum has seen the light of day. Made up of supple pieces, it moves when air is sucked out of them. It can therefore climb walls and grasp objects by suction. Designed at EPFL, the prototype is the first of its kind and is already operational. Unlike more common pneumatic systems, suction robots are less dangerous and simpler to build.

MOBILITY CONNECTED TWICE OVER

By merging data from two smart vehicles, researchers from EPFL’s Distributed Intelligent Systems and Algorithms Laboratory obtained promising results: an increased field of vision, a better understanding of the situation and enhanced security for road users. This technique therefore serves to reinforce the robustness and error tolerance of existing systems. Software has been developed using simulations and real tests.

ELIMINATING OBSTACLES

The drone industry has reached a new high. EPFL’s Laboratory of Intelligent Systems has developed a small and compact model to deliver packages that weigh up to 500 grammes. Programmed to avoid obstacles, it reaches its destination smoothly and is equipped with a protection cage to keep the goods intact during the flight.
There are an incredible amount of different medicines out there. Two commonly used ones are antibiotics and painkillers. “Antibiotics kill bacteria that are harmful to the human body without harming the body itself,” explains Bruno Lemaitre, who works at the EPFL’s Global Health Institute. Our body plays host to millions of bacteria. While most of them are useful to us, some cause illnesses, such as sore throats, earaches, and diarrhoea. We destroy these bad bacteria by taking antibiotics. Antibiotics are made from very small mushrooms that come from mould. But don’t be disgusted; this mould is precious because it fights bacteria and helps cure us.

As for painkillers, they heal the part of the body that has been hurt after a shock or an injury. “We say that pain is useful; it sends a signal to the brain to warn it that something is not right.” The body then naturally manufactures chemicals to defend itself, which tends to make the inflammation worse.

The messages exchanged between the body part in pain and the brain are what create this inflammation. Painkillers allow these warning signals to be blocked. “When we get hurt and we don’t have any medicines handy, we put ice on the wound, as cold also stops inflammation.”

Bruno Lemaitre
Professor
School of Life Sciences, Global Health Institute, EPFL

During a trip to Asia, Sarah contracted diarrhoea after eating fruits that hadn’t been washed. Her doctor advised her to take a course of antibiotics.

Nicolas had a bad fall from the treehouse he built with his friends, and injured his foot. At the hospital, the doctor put his leg in a cast, but Nicolas was still in considerable pain. He took painkillers.

Antibiotics destroy the bad bacteria in Sarah’s body without hurting her.

Nicolas feels pain because his foot sends a message to his brain that something is not right. Painkillers block these signals and ease pain.

QUESTIONS
Children of alumni ask EPFL experts some questions.

Name: Emily Welig, daughter of Armin Welig (SC’00)
Age: 9
Dream job: architect or drummer

“How does medicine help us get better?”
WHAT’S NEW AT EPFL

JACQUES DUBOCHET, EPFL GRADUATE AND NOBEL LAUREATE IN CHEMISTRY

After graduating in Physics in 1967 from what was then still called EPUL, Jacques Dubochet was awarded the most prestigious scientific prize for his work on cryo-electron microscopy. With the help of a vitrification system, this technique allows the observation, through an electronic microscope, of biological specimens in their natural state; that is to say, exactly as they are in real life. A professor at the University of Lausanne for twenty years, Dubochet is the first EPFL graduate to receive a Nobel Prize.

LEONARDO DI CAPRIO INVESTS IN AN EPFL START-UP

Mindmaze, the start-up founded by Tej Tadi (PhD SV'11), has caused a sensation, raising 100 million Swiss francs in 2016. Today valued at over a billion – making it the first ever Swiss ‘unicorn’ – the company gained a very special investor when Leonardo di Caprio acquired a stake in September. Mindmaze, which uses virtual reality technology to help patients with brain injuries during rehabilitation, hopes to extend its activities into the entertainment industry.

WHERE TO PLAY: A PRACTICAL GUIDE FOR TECHNOLOGY COMPANIES

For all entrepreneurs, the question of the target market is key. Where to start? How to seize the opportunities that will lead to success? Entrepreneurship researcher and Vice-President of Innovation at EPFL, Marc Gruber, along with Sharon Tal, has written Where to play, a practical strategy book designed to guide entrepreneurs through important decision-making processes in the business world. It was published in September.

EPFL WELCOMES 1,955 NEW STUDENTS

The number of students beginning their studies at EPFL continues to grow. In 2017, 1,955 students began their undergraduate, master’s or PhD programmes – a 7% increase compared to 2016. The sections that attract most new first-year students are Mechanical Engineering (277), Microtechnology (253), Life Sciences (222), Architecture (211), Physics (190) and Computer Science (179). The latter has experienced the largest growth rate, with an increase of 62 students. The percentage of women remains similar, with 30% at undergraduate level compared to 29% in 2016.

SIX EPFL START-UPS IN THE TOP 10 UP-AND-COMING BUSINESSES

Organised by startup.ch, the Top 100 Swiss Start-ups acts as a ‘radar’ to locate the country’s young innovative companies. Two EPFL start-ups will have a spot on the podium this year. L.E.S.S. (whose co-founders appear below) proposes a system of nano-active optic fibres that will reduce the energy consumed by car headlamps by 30%. Flyability is developing a drone equipped with a HD camera, capable of bouncing off obstacles and reaching places inaccessible to humans. MindMaze, Gamaya, Bestmile and Lunaphore also feature in the Top 10 of a leaderboard that has been particularly favourable to the School’s start-ups this year.

MORE THAN 5,000 VISITORS FOR EPFL’S DRONE DAYS

From 1 to 3 September this year, more than 5,000 people were treated to drone races, a robotics showcase, a conference and demonstrations at EPFL’s Ecublens campus. Research and innovation took centre stage at stands presenting the drones of the future, as well as demonstrations and workshops for young and old alike. A highly successful first event – it’ll be back!
ARTIFICIAL-INTELLIGENCE EVENT IN BEIJING
SEPTEMBER 23RD

What are the next challenges when it comes to artificial intelligence? What role does China have in developing AI? EPFL and IMD alumni met to discuss the subject and participate in a conference led by a panel of researchers and specialists. Nearly 30 EPFL alumni were present for the event, which was the largest gathering of the school’s graduates in the region since the opening of the Beijing chapter of EPFL Alumni.

MARTIN VETTERLI MEETS ALUMNI IN NEW YORK
OCTOBER 20TH

While in New York, EPFL’s president took advantage of the opportunity to meet EPFL alumni living on the east coast of the United States. Mr Vetterli was thus able to communicate his strategy, as well as EPFL projects currently under way and in development, to alumni a few months before the end of his first year as head of the school.

MEETING AT THE SWISS EMBASSY IN RABAT
OCTOBER 15TH

Over 30 alumni and their guests attended, renewing their ties with Switzerland while getting to know their representatives in Morocco. The graduates were welcomed in person by His Excellency Mr Massimo Baggi, Swiss Ambassador to Morocco. Leïla Ojjeh, director of EPFL Alumni since August 2017, was also present to welcome the alumni living in the region.

CLASS OF 2017: WE WELCOME OUR 994 NEW ALUMNI!
OCTOBER 7TH

994 new alumni obtained their diplomas during the commencement ceremony on 7 October. During his congratulatory speech, President Martin Vetterli encouraged them to follow their dreams and, as Gandhi once said, “be the change they wanted to see in the world.”

The Alumni Awards were also presented on the occasion. The cosmologist Claudia de Rham (see profile, page 26) and Mattia Binotto, technical director of Ferrari’s Formula 1 team (see profile in Alumnist #5), were honoured for their exemplary and inspiring careers.
The EPFL Alumni Gala brings together over 400 people

More than 400 people gathered at the SwissTech Convention Center on Nov. 17, 2017 to hear speakers of high calibre, meet people and sip champagne with music in the background: the EPFL Alumni Gala was a superb occasion for graduates to reconnect with their school, to show their companions around the campus, and to have a fun evening with friends.

During the official part, dedicated to “EPFL in the era of digitalisation”, Martin Vetterli (PhD IN’86), EPFL President, and Pierre Vanderheynst, EPFL Vice-President for Education, talked to alumni about the challenges that the school will face in the future, as well as the strategies and innovations they will use to respond to them. For his part, Igor Perisic (MA’91), Chief Data Officer at Linkedin, came from San Francisco to explain how artificial intelligence is transforming the professional social network. Jamie Paik, Director of Reconfigurable Robotics Lab, introduced the graduates to origami robots, which are revolutionising the field. Finally, Sam Sulaimanov, Bachelor (EL) student and founder of the Octanis association, inspired our alumni with his moonshot thinking, explaining that it’s only by reaching for the stars that you develop your skills. He used one of his association’s projects to illustrate this: the construction of a rover – an exploratory robot – that runs on solar energy, sent to the Antarctic at the end of 2016.

There was also a fun quiz for our alumni, and winners were rewarded with elegant watches and Ultimate Ears speakers by our sponsors Tissot and Logitech. Also, participants could make use of a photo stand, see an exhibition, and, of course, celebrate until the early hours of the morning. Don’t miss the next edition!

THANKS TO OUR SPONSORS:

Tissot
logitech
EPFL and partners win the 2017 Solar Decathlon competition

The Swiss team and its solar house, the NeighborHub, has won the prestigious Solar Decathlon 2017 competition in the United States. It received the highest prize and won six contests out of ten.

After more than two years of intense preparation, the Swiss team can be proud of the performance of its students. All in all, over 250 students from four partner schools (EPFL, HEIA-FR, HEAD and UNIFR) contributed in the design and construction of a solar house called NeighborHub, the big winner of the international sustainable housing competition Solar Decathlon 2017.

The 44 solar decathletes surpassed themselves on the competition site in Denver to build and show visitors around their house. “During the construction phase, I was impressed by the team’s determination. It was really hard, we were wet, tired, and cold, but everyone was driven by the project, because deep down, we believed in it,” says Florian Meyer, telecommunications student. The house travelled over 10,000 kilometers through the ocean, rail and road; a perilous route made even more difficult by hurricanes Harvey and Irma. The NeighborHub convinced the jury, and won six contests out of ten. Most members of the jury appreciated the bold proposition of a solar community house, rather than a family home. They granted the first place on the following criteria: architecture, water management, health and comfort, home life, energy, and engineering. The bet is won. With a solid lead of 50 points, the Swiss team won the competition. “Such a big gap is rare!” says Linda Silverman, Solar Decathlon 2017 director.

TEAM COHESION, THE GREATEST TRIUMPH

This adventure could not have been possible without the expertise provided by the four partner schools, and the unfailing support from 48 partners with their financing, expertise and know-how.

A natural explanation of this great success would credit the synergy and convergence of people from different backgrounds towards a shared goal: architects, engineers, as well as communicators and economists.

Joëlle Baehr-Bruyère, civil engineering student says: “Everybody was curious about one another’s disciplines. There was such a strong intellectual energy!” “Everybody struggled to make themselves heard and to have a chance to bring what mattered to them in the project,” adds architecture student Alexandre Rychner. “So yes, we all had to make concessions, but now we are all very proud, because the project is consistent, everything is well integrated, and everything’s been pushed to the limit.”

The strength of the Swiss team consists in its multidisciplinary cohesion; everybody went along with it, regardless of their background. Joëlle Baehr-Bruyère adds: “We worked together, and we succeeded together. We helped and carried each other.” The Swiss team applied the NeighborHub values all the way through by the principle of sharing the key to its own success.
The values of a family should not be tested by wealth.
With an eye for aesthetic and a strong work ethic, Youri Kravtchenko lights up when he talks about the places he’s designed. One might say that he and architecture are a match made in heaven. But it wasn’t always so, as Kravtchenko’s studies at EPFL weren’t part of his plans. “At first, I wanted to be a film director, but my girlfriend at the time was studying architecture at EPFL and I decided to follow her. If she had gone to culinary school, maybe I’d be a chef!”

Architecture quickly became an obvious fit as well as a space to be creative and experimental, however. One person in particular sparked this shift – Cyril Veillon, Director of EPFL’s Architecture exchange platform Archizoom. “He is the one who showed me the scenographic side of architecture – the part that involves organising and directing the space. He helped my ideas take shape”. Veillon remembers Kravtchenko as already being original, with an innate artistic sensitivity. “Youri did the scenography for two of our exhibitions. The second, which was dedicated to the cities surrounding Lausanne and their structures, was highly theatrical and presented as a police investigation. The unlikely setting was so successful that it was reproduced in Zurich and Lucerne.

Youri Kravtchenko creates an entirely new world for each place. The architect is photographed here at Toasted, a concept bistro in Geneva. From American diners to industrial settings, this spot is a place where different atmospheres and influences converge. It dazzles bankers and students alike.
Alumnist Profile

Yuriy Kravtchenko’s originality can also be seen in his final project at architecture school with his classmate Guillaume Clivaz. The pair’s work is dedicated to cities with high population densities. It was directly inspired by the paintings of Edward Hopper, suggesting new housing models based on the apartments featured in the American artist’s works. This approach was clearly off the beaten path – it was awarded the Social Impact Award (SIA) in Switzerland, which goes to master-level projects with superior architectural qualities, and was submitted to Wallpaper magazine, a major publication for design and architecture.

BOTTLE BROTHERS: GATSBY IN JEANS
“When I finished my studies, I thought I would join a firm. But it never happened. Work just always kept coming in on its own”. The first project Kravtchenko took on came by word of mouth shortly after graduation. He had to design an 800-sq. m retail space for Le Passeur de Vin, a wine merchant in the Acacias quarter. This large-scale and successful project built up his reputation and led him to establish his own firm, Ykra, which now has six employees.

His works are synonymous with Geneva’s most happening spots today. He designed Bottle Brothers, the most frequented bar in Eaux-Vives. He’s also to thank for Toasted, a fusion concept bistro that dazzles bankers and students alike. Voisins – the three co-working spaces/cafés tucked away between Carouge and the Gare Cornavin – are by him, too. Brasseries, restaurants with menus from all over the world, chic shops... The list goes on. Apart from his architectural feats, his already stellar portfolio now includes one-off events such as ultra-chic underground pop-up restaurants Antichambre – spaces for secret dinners held at locations only revealed to guests at the last minute – and scenography for Geneva’s La Bâtie festival, an ode to performance art that happens every September. In essence, the science of architecture blends with artistry in Kravtchenko’s case. This is the basis of his personal trademark. “Every space is an opportunity to create an entirely new world – to tell a story. For example, Bottle Brothers is about the juxtaposition of an old, worn-out location and flashy decorum. If it were a person instead of a place, it would be ‘The Great Gatsby in jeans leaning against the bar’.” Eager to explore his artistic flair even further, Kravtchenko received a grant in 2015 from Rome’s Istituto Svizzero and worked on a theatre project there for nearly a year. This experience gave him an overview of the stage – scripts, directing, costumes – from which he could draw fresh inspiration for architectural works to come. He keeps a sharp eye out for EPFL’s physical and intellectual evolution, and is proud to see the school take on bold projects like the Rolex Learning Center. “It’s a huge success in my opinion. You can sit in the library and hear the soft, distant murmur coming from the cafeteria... More than just an architectural achievement, I think it’s remarkable to break open the space like that.” Kravtchenko’s expertise and creative methods also drew attention from the Geneva School of Art and Design (HEAD), where he became professor of interior architecture in the autumn of 2017. It’s certainly a way to keep his ear to the ground by working with students who have new and inspiring ideas. He will undoubtedly find new stories to tell with them.
Augmented Reality
Helping Firefighters

Since 2009, over 50 start-ups created by EPFL graduates have benefited from the EPFL Alumni mentoring programme. Darix is one of them. It is a company, created in 2014, that has developed an augmented reality solution to help firefighters. We met up with its co-founder and 2008 IT graduate, Adrien Birbaumer.

How did you come up with the idea of Darix?
When carrying out their duties, firefighters are faced with many challenges. They have to find their way around buildings they are unfamiliar with, be able to assess dangers, find potential victims and fire sources, all with reduced visibility caused by smoke. Current technology doesn’t offer enough help in these difficult situations.

What is different about Darix?
Today, firefighters have a thermal imaging camera but they don’t use it much. This is because it is hand-held, meaning one hand is out of action, and because it cannot be used while moving. So far, attempts to build this camera into the helmet have been unsuccessful, with the image displayed being too low compared to the firefighters’ actual field of vision, and being too close to their eyes, making them feel nauseated.

Our solution is different in that the helmet has both normal imaging and thermal imaging built-in, which offers greater comfort for the user. It is the first solution that takes full advantage of the potential offered by augmented reality in improving safety for firefighters and helping them as far as possible to complete their missions.

THE WATCHFUL EYE OF A MENTOR

“Darix is led by a creative team and its concept has a large scope of application, meaning it will provide real added value for other companies and the community in general. The support I provide helps this start-up make the best operational and financial decisions, thus maximising its short- and mid-term value, without forgetting the long-term either of course. I’m finding the experience very inspiring and greatly rewarding.”

Olivier Abulker
Senior Finance Executive

“After more than 20 years of working in sales, marketing and product development, I wanted to share my experience with entrepreneurs about to introduce a new product. The EPFL Alumni mentoring programme was the perfect opportunity to do this. Once a month, along with two other mentors, I meet up with Darix. We have very rich discussions and are aiming for one thing: to make their technology a financial success.”

Jakob Bovin
Product Marketing Director with Bobst

“The main reason why Darix sparked my interest was the challenge to position a niche product within a B2B environment that is highly competitive and international. Furthermore, Darix had to define the right product and market development strategies to help the start-up establish itself as a high-quality company that not only sells products, but also services around the product. Personally, I enjoy supporting young entrepreneurs and using my industry experience to help them ask the right questions – and ultimately find answers to them.”

Sabina Rehmann
Marketing & Customer Experience Specialist
JOIN THE EPFL ALUMNI MENTORING PROGRAMME

The EPFL Alumni mentoring programme works by assigning three mentors to a young EPFL entrepreneur. The aim is to help him/her with the professional, technical and personal challenges associated with creating a company. Since 2009, nearly 150 mentors have helped over 50 start-ups.

WHY YOU SHOULD JOIN THE PROGRAMME IF YOU’RE AN ENTREPRENEUR?

To receive advice (on technical aspects, marketing, sales, legal issues, etc.) and have access to the networks of three mentors

To get an experienced outsider’s opinion on your decisions

To work on your soft skills

WHY BECOME A MENTOR?

To share your experience and contribute to a young entrepreneur’s development

To support the innovation ecosystem in French-speaking Switzerland

To maintain contact with EPFL and develop your innovation network

Interested? Email Emilie Michel (PH’07), head of innovation programmes at EPFL Alumni, at innovation.alumni@epfl.ch

“THE HELMET HAS BOTH NORMAL IMAGING AND THERMAL IMAGING BUILT-IN, WHICH IMPROVES SAFETY FOR FIREFIGHTERS.”

ADRIEN BIRBAUMER

How far along the development stage are you?

We have a working prototype which has been tested by different fire departments. The results have been extremely positive. We are now working on the device’s physical aspect, particularly its electronics and industrial design. The next phase will be making sure the technology conforms to different international standards. We’ll then have to work on mass production and distribution channels before finally being able to commercialise the product. With regard to funding, we’re currently looking for strategic investors. This will enable us to have the best possible positioning and will open up new markets for us.

How does the EPFL Alumni mentoring programme help you?

The programme covers so many areas, from product development, marketing and funding, to certification, legal matters and more. Given where we are now, it’s impossible to have all the skills we need internally. Thanks to the EPFL Alumni mentoring programme, we are able to draw on the skills of professionals from various backgrounds. We can also use our mentors’ networks, whether it be for suppliers, mass production or even potential clients. We found four of our possible future clients among our mentors’ contacts. Their help has also made a valuable difference in our positioning and marketing.

Where do you see Darix in five years?

We expect Darix to be an innovative technology company whose solutions are used on a daily basis by fire services in multiple countries. We’d also like to enter new markets since this technology is applicable to many other fields, such as healthcare and the remote maintenance of infrastructure.

What does being an entrepreneur mean to you?

It means having an objective and sticking to it while also listening to advice. You of course have to have an open mind and be able to adapt, but more importantly you have to trust yourself and your vision.

“The helmet has both normal imaging and thermal imaging built-in, which improves safety for firefighters.”

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It means having an objective and sticking to it while also listening to advice. You of course have to have an open mind and be able to adapt, but more importantly you have to trust yourself and your vision.
Credit Suisse is among the 15 biggest employers of EPFL alumni, many of whom play a central role in the company’s innovation projects.

From financial technology and artificial intelligence to data security, innovation is a key issue in the banking sector and Credit Suisse is no exception.

In fact, it is so important for the bank that it has increased staff numbers in the Lausanne team dedicated specifically to innovation, from 8 to 23 members since it was created in 2014. The team works on areas as diverse as fighting fraud, developing applications, and even machine learning and big data.

To increase innovation, Credit Suisse is testing and applying new management models inspired by holacracy. This approach enables employees to be creative and take initiative, making it possible for projects to progress more quickly and for new ideas to come to light.

In a similar vein, the company is also implementing ideation competitions, smaller working groups, and lean management. The latter aims, among other things, to avoid losing time with too many internal validations. These changes to the company’s organisation mean that prototype ideas can be uncovered in just a few weeks.

Multiple discussions with EPFL have contributed to this new paradigm for Credit Suisse. These came about through the creation of a co-working space in the Learning Center (called “CoLab Credit Suisse @ EPFL”), workshops with students, and even taking on interns’ and masters’ projects in the Innovation Park offices. We met up with four alumni to hear about their career paths, their current roles, and the way in which this work on innovation is conducted on a day-to-day basis.

Florence Schnydrig Moser (MA’97)
Head of Products & Investment Services
Member of the Executive Board at Credit Suisse (Switzerland) Ltd

Florence Schnydrig Moser is a member of Credit Suisse (Switzerland) Ltd’s Executive Board and responsible for products and services. This high-responsibility position is the result of nearly 20 years of working in the banking sector, including several management roles. Schnydrig Moser started her career in Switzerland, and then left for Australia in 2007 to develop Credit Suisse’s local structured products offering. She holds fond memories of this experience: “I was struck by the Australian positive attitude, sense of humour and approach to problem solving.” She set off with 10 or so employees, leaving behind an office of 70 people, proof of how Credit Suisse’s business had developed and of her mission’s success. In 2010, she took on the same role in Hong Kong before returning to Switzerland in 2012.

“My return to Switzerland was very smooth thanks to the company network and the excellent relations I maintained with the head office in Zurich during my time abroad.”

“Our goal is to constantly question our products and services and rethink anything that seems obvious.”
Indeed, after taking over as head of Market & Sales Management at Private & Wealth Management Switzerland in early 2015, Schnydrig Moser joined the executive board of the bank’s Swiss entity.

Innovation is central to her day-to-day work, for example with the Innovation Challenge. This is the company’s ideation programme which has made it possible for new services to be created. Since 2016, Credit Suisse clients have been able to make micro-donations to a charity of their choice by rounding up the total on their supermarket bill. This initiative won the Innovation Challenge the previous year. Whether a chatbot on Facebook Messenger with whom users can interact and obtain information, or the first Maestro card with text printed vertically to make it more easily readable when using a payment terminal, these new innovations aim to make clients’ lives easier. “Our goal is to constantly question our products and services and rethink anything that seems obvious”, explains Schnydrig Moser.

Florence Schnydrig Moser graduated from EPFL with a Maths degree in 1997, a time when women made up less than 15% of the overall student numbers. Today, she is one of two women (out of 12 members in total) to sit on the Executive Board at Credit Suisse (Switzerland) SA. The career challenges faced by the school’s current and future female graduates are of great personal interest to her. “In Switzerland, it’s not easy for women to have a career, so you need a lot of determination. I was lucky in that my partner and the people around me were very supportive. This was a deciding factor for me, and something I wish for all women. Women must find it in themselves to be brave enough to pursue their ambitions.”

Since its launch in February 2010, the Rolex Learning Center at EPFL has been home to a very special Credit Suisse branch. The “CoLab” is a circular space with simple design, intended to bring innovation to life at the heart of the campus. “Since summer 2017, we have been using this space to trial our technological innovations, such as our applications for opening accounts, directly with students”, explains Vassilis Agrafiotis. A further example is the development of a robo-adviser, which was trialled with the public in the Rolex Learning Center for almost a year. In the long-term, this robot will be used to answer client questions in branches, therefore reducing waiting times.

The purpose of the CoLab space was re-assessed in September 2017. It now also offers themed conferences open to the public, most often organised in partnership with start-ups or institutions such as CERN. There are various themes available, including Scala (programming language), best practices for using analytics tools, financial technology, and more. Agrafiotis coordinates these events, covering a broad array of topics. “The goal is to reach students, who make up the vast majority of the Rolex Learning Center’s population, and to offer something that is of interest to them.” The space is also intended to change people’s vision of banking institutions. “People rarely see it as a technological sector. By organising these events, we hope to show them that this is a completely false perception.” Agrafiotis is certainly someone who should know: in addition to developing the CoLab’s activities, he leads a team of seven engineers working on creating in-house expertise at Credit Suisse in the fields of data science, big data and machine learning. There is much at stake for the company, be it in terms of developing increasingly more efficient services or ensuring banking security.

Originally from Greece and Cyprus, Vassilis Agrafiotis joined Credit Suisse at its offices in EPFL’s Innovation Park straight after graduating from his Communication Systems course in 2013. And he’s not left the campus since: “I still live in Ecublens, come to work by bike and eat in the campus restaurants. I sometimes feel like my life hasn’t changed much since my student days!” he chuckles. He has excellent awareness of the campus and its population, which gives him a better understanding of student expectations and therefore enables him to contribute to the content offered by the CoLab.
Bringing the piggy bank into the digital age: such is the objective of Digipigi and its project manager, Christoph Müller. This connected object for young people has been on offer at Credit Suisse since September 2017. The first prototype was designed at EPFL. “We first imagined the offer as an application, but then, in a workshop at EPFL, the idea of offering something more tangible came up.” It was in 2015 that Credit Suisse met EPFL students to get the green light on the basic idea. The idea of a physical object, suggested by one of the working groups, won everyone over and led to the development of a prototype. This was presented in a company strategy meeting in 2016 and played a decisive role in obtaining management’s approval for the project. Digipigi allows children to monitor their savings objectives through a piggy bank that interacts with them: it has 25 different reactions depending on what the user does. The device also enables parents to transfer pocket money and keep track of their child’s account using an app.

While the product was designed to meet the expectations of both children and their parents, this user-oriented approach is nothing new for Müller. He grew up in close contact with the customers of his parents’ restaurant in Embrach (ZH), then began his banking career as a branch adviser upon finishing his secondary education, first at Swiss Volksbank from 1991 to 1996, then at DZ Bank from 1996 to 2000. With an interest in marketing and product development, he went back to school in 2000 at the Zurich University of Applied Sciences (ZHAW). This qualification enabled him to change career, leading him to UBS in 2004, and then Credit Suisse in 2010. Here he blossomed in roles directly linked to product and service development.

In 2013, he no longer had anything to prove on the strategy and sales front, but the digital revolution called for more training. “Technology is essential to offer the best possible user experience. This technical aspect was lacking in my education.” EPFL’s EMBA was the natural choice for him given his expertise in combining strategic and technological development. It was a real challenge for Müller; the majority of the other participants coming straight from the engineering world. Yet he came out with a much broader skill set complemented by numerous practical case studies.

The skills he acquired at EPFL help him to better understand all the dimensions of his tasks as the current head of Credit Suisse’s products and services offering and strategy. “Each new product, such as Digipigi, is a technological challenge and entrepreneurial experience in its own right.”
Ariane Bazin has been passionate about mathematics since her childhood. “I grew up in neighbouring France, in Ferney-Voltaire. For someone like me, interested in basic sciences and living in this region, EPFL was an obvious choice.” During her studies, she put this passion to good use in the EPFL Mathematical Humanitarian Project association, which she co-founded in 2012. This association aims to use recreational activities, like drawing, to arouse the interest of children and adolescents in mathematical concepts such as fractals and graph theory. With regard to her studies, although the bachelor programme met with her expectations, it was still mostly theoretical. “My long-term goal was to use my skills on concrete applications. The Master’s programme in Financial Engineering was ideal for this. It enabled me to develop my knowledge of economics and contemplate a career in business.”

She carried out her end-of-studies internship in 2015 as a quantitative analyst in the Derivative Partners department, which independently supplies financial information for many banks. This gave her the chance to discover a new environment in Zurich as well as further elaborate her career plan. “In quantitative analysis, you often work alone with figures. I was offered a position in the company but decided to move towards a role that would have more contact with other people.” When Credit Suisse recruited her in late 2015, she obtained this interpersonal aspect thanks to the programme designed especially for young graduates. From managing private assets to mortgages, this new role gave Bazin the opportunity to discover different departments in the bank over a period of 18 months, before taking up her own position.

Since April 2017, she has been in charge of a portfolio of 440 clients and greatly appreciates the rapport with her diverse contacts. “Each client whose assets I manage has their own needs, whether in relation to their day-to-day business, their investments, or financing a housing project. In order to meet their expectations, it is vital that I adopt a thorough approach that is geared towards problem-solving. These are essential skills that I learnt at EPFL.”

This role represents an empowering first experience for someone who, in the long-term, hopes to move up to a management position. “When I arrived at Credit Suisse I joined the ‘Future Leader’ programme and was able to prepare for future positions through mentoring with high-ranking managers in the company.” Only 24 graduates across the whole of Switzerland are chosen for this programme, based on their grades and ambitions. The role is thus a real mark of trust and long-term commitment on Credit Suisse’s part.

“Each client whose assets I manage has their own specific needs. In order to meet their expectations, it is vital that I adopt a thorough approach that is geared towards problem-solving. These are essential skills that I learnt at EPFL.”
Many talented people dream of going to Silicon Valley, either to launch their own start-up or work for an internet giant. The entrepreneurial spirit is very much encouraged there, but the competition is also fierce. Here are some alumni who made the big step.

Santa Clara County and the surrounding areas—just south of San Francisco—are widely seen as the world’s hub for cutting-edge technology. Better known as Silicon Valley, this region stretches over 70 km and is home to the headquarters of giants in the digital economy, such as Facebook, Apple, Google, Hewlett-Packard, Intel and Tesla. Stanford University, one of the top universities in the world, also features on this impressive list.

Together, they form a highly dynamic ecosystem. According to the Global Startup Ecosystem Report, Silicon Valley is the best place in the world to launch a start-up. The venture capital invested there fell slightly in 2016 compared with the previous year, but it is still close to $10 billion. By way of comparison, Swiss start-ups received CHF 900 million of venture capital last year. The concentration of talent, entrepreneurial experience and direct access to a huge market are Silicon Valley’s strong points.

The region’s success is not new: the Federal Telegraph Company, a pioneer in radio communications, was founded in 1909 in Palo Alto, which is now the heart of Silicon Valley. The IT giant Hewlett-Packard was created in this same area in 1939, and in 1958 the first integrated silicon circuit (chip) was invented in nearby Mountain View, which is now home to Google’s headquarters. The name Silicon Valley, coined in the seventies, was inspired by this very invention—silicon being the basic material used to make electronic chips.

Other driving forces in the IT sector followed suit, including Yahoo! and eBay. Today, the Californian ecosystem is galvanized by the promising future of artificial intelligence. Among the talents shaping tomorrow’s technologies in Silicon Valley, EPFL’s graduates are in prime positions, whether working as entrepreneurs, investors or specialists for the internet giants. How did they manage to get their foot in the door? Do they like living there?

INNOVATION ABOVE ALL

San Jose is the administrative centre of Santa Clara and has the highest number of patents per 100,000 residents. With 800 of them, it is miles ahead of San Francisco, San Diego and Austin. “I first came to Silicon Valley in 1997, after completing a PhD at EPFL’s Swiss Plasma Center,” says Christian Simm. “Terms little known in Switzerland at the time, such as ‘start-up’ and ‘venture capital’, were already part of the vocabulary here.” Back then, Christian was working in the offices of the Consulate-General for Switzerland in San Francisco as representative of the State Secretariat for Education, Research and Innovation. His role involved putting Swiss researchers and entrepreneurs in touch with local players.

Six years later, he founded swissnex to carry out his mission more effectively. By organising events, conferences and collaborations, the platform has helped strengthen the ties between Switzerland and Silicon Valley. “The entrepreneurial

CHRISTIAN SIMM, 59

1981
Master’s in Physics from EPFL

1987
PhD from the Swiss Plasma Center at EPFL

2003 – 2017
Founder and CEO of swissnex San Francisco

Since August 2017
CEO of swissnex Boston

Text: Robert Gloy

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flame is highly valued here," he says. “When you come up with an idea, people encourage you to give it a go and will put you in touch with people who can help.”

Aymeric Sallin adds that being daring pays off. This 44-year-old from Freiburg is CEO of the venture capital firm Nano Dimension, which funds entrepreneurs in the field of nanotechnology. “Twist Biosciences approached us a few years ago with the idea of creating a gene printer. We believed in their vision. Today, this company has become a pillar of synthetic biology and is expected to float on NASDAQ next year. A few weeks ago, Twist demonstrated that it is possible to store data in genes, by synthesising Montreux Jazz Festival concerts.”

It is his audacity that made the Genevan businessman Alexandre Gonthier the serial entrepreneur we know today. After finishing his Master’s in Communication Systems at EPFL in the mid-nineties, he went on to do an internship with a spin-off of Stanford University, where he met Martin Cooper, the inventor of the mobile phone. Impressed by Silicon Valley’s open-mindedness, he decided to settle and found his first company there, a consultancy firm dedicated to the internet. Its breakthrough came in 1997 with the invention of the iPIN, an online payment service. “The internet was in its early stages. With our start-up, we tested something completely new,” he says. His company raised over $40 million of venture capital and is now part of the digital giant Intel.

After spending some time in London, where he worked for two venture-capital funds and co-founded two other companies also in the field of payment, Alexandre Gonthier returned to Silicon Valley in 2012. He is now CEO of PayWithMyBank. How has the entrepreneurial landscape changed? “As the technological obstacles for starting a company have been reduced, there’s more competition. But there’s also much more money at hand. With zero-interest loans from central banks, venture capital is increasingly attractive for private and institutional investors. Also, there is now more support for young entrepreneurs: in the nineties, there were no incubators to help them.”

THE NETWORK EFFECT

Silicon Valley is a place where talent from all over the world crosses paths. Some 40% of the area’s residents were born outside the US, whereas the national average is only 13.5%. Every evening, they rub shoulders at cultural events or conferences. Even on more trivial occasions, such as sporting events or barbecues, you need to be open because you could meet people of interest at any time, says Aymeric Sallin: “I once found myself sitting next to Steve Jobs at a dinner. It’s extremely important to come across as open-minded at all times, particularly when you’re first starting off. This is where I met my closest friends: we had all experienced a need to leave our home countries for this haven of freedom and technology. But there are always two sides: we can certainly express ourselves and be confident, but the competition is tough. What’s nice is that people take you seriously when you come up with good ideas”. Aymeric Sallin first came into contact with Silicon Valley in 2006, when he opened a branch of his Zurich-based venture capital-firm there. People he has met outside of work have often shaped his company’s success.

Alexandre Gonthier had the same experience: “I met the person with whom I co-founded iPIN at a cocktail party. He contributed his skills in payment systems, and I had the internet-related know-how. We complemented one another well.” According to this Genevan, Silicon Valley has two distinctive characteristics: the innovation-driven US market, and the critical mass that the local ecosystem has reached-nearly everyone works in the tech industry. When you come from afar and have no social or professional network, you are keen to meet people.

Ludek Cigler, a Czech IT engineer, used this ecosystem to find a new job. After completing his PhD in software engineering, he worked for Facebook for three years. He applied
Alumnist Zoom for a job there after attending a presentation made by a representative of the social network at EPFL in 2012. When he was working at the Facebook headquarters near Palo Alto, he was offered a job by Pinterest, a social network focused on photo sharing. He said that this is quite common in Silicon Valley.

According to Christian Simm, networks can help turn bankruptcies or project failures into positive experiences. Successful aspects of the initial project can be recycled. “It is often the second or even third attempt that has the best outcome.” Here’s an example: the collapse of Fairchild Semiconductors in 1957 gave rise to a whole wave of “descendants”, including Intel. In the same vein, Apple was founded by previous Hewlett-Packard engineers. Then, former Apple employees went on to launch the online sales platform eBay.

A CLIMBING WALL AT DISNEYLAND
Over the years, digital giants like Facebook, Google and Apple have successfully reflected the corporate image of being fun places to work, with healthy food handed out for free, sport classes and relaxation areas. Ludek Cigler can testify to this: at Facebook, he worked on the system that determines which ads appear on users’ newsfeeds. “These workplaces remind me of Disneyland: there are restaurants, video games and even a large climbing wall,” he says. “There are people everywhere.” He was also impressed by how approachable his managers were. “We used to bump into Mark Zuckerberg quite often. His office is in the same place as everyone else’s. Also, the meeting room where he spends a lot of time has glass walls. He only pulls the curtains when a meeting must remain secret.”

Yohann Coppel, an engineer at Google, confirmed: “I sometimes stay late when we are launching a project. But I can’t say that our managers put too much pressure on us. I haven’t had to work on a weekend for the past five years.” This 33-year-old French national worked on optimizing search results, the company’s core activity. He was then taken on full time in 2008 after completing a five-month internship at Google having graduated with a master’s degree in IT.

Aside from the professional setting, the pleasant Californian climate encourages people to dedicate a lot of time to outdoor activities. Triathlons are one of the most popular sports in Silicon Valley, according to Yohann Coppel, who loves participating in them. Others meet up for EPFL alumni gatherings. This is the case for Wei Li, a young 29-year-old working in San Jose in digital marketing for MapR Technologies, a company specialised in processing large quantities of data. She graduated from EPFL with a master’s degree in Management of Technology & Entrepreneurship in 2012 and is in touch with several alumni in Silicon Valley. In her opinion, the only downside is public transport, which is not very developed in the area. Some large companies, such as Google and Facebook, have even set up their own shuttles for employees. Because of this shortage in public transport, over 70% of employees take their car to work, while only 6% use public transport and just 2% get around by bike.

Rent has been another controversial topic for the last couple of years. Between 2011 and 2016, the median price of rent has increased by 25% to reach $2,700, which is $1,000 more than the national average. Dorothea Beringer worked for Hewlett-Packard from 1997 to 2002. At the time, she lived in Palo Alto. After spending some time in Europe, she returned to Silicon Valley in 2004. Since then, rent prices have shot up. “If you are single, you can have a decent quality of life with your salary. But when you want to start a family, it becomes more difficult.” According to Christian Simm, however, technology drivers are addressing these issues: “I think it is very likely that Uber, Airbnb and other such companies will find solutions to these problems which reduce residents’ quality of life.”
FIVE TIPS FOR FINDING A JOB
IN SILICON VALLEY

BY LUDEK CIGLER,
SOFTWARE ENGINEER AT PINTEREST

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A SELECTION OF COMPANIES WORKING IN THE SAN FRANCISCO BAY AREA

01 YouTube
02 Apple
03 Facebook
04 Instagram
05 Google
06 Yahoo!
07 Microsoft
08 eBay
09 Amazon
10 Twitter
11 Hewlett-Packard
12 Tesla
13 Pinterest

"We research innovations for the future."

Martin Müller, R&D Engineer

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CLAUDIA DE RHAM AND THE LAWS OF THE UNIVERSE
Claudia de Rham (PH’01) is an international reference in the field of cosmology and a lecturer at Imperial College London. She has just received the EPFL Alumni Award at the 2017 graduation ceremony. Here’s a look at a multifaceted graduate who may have her head in the stars but has her feet planted firmly on the ground.

Claudia de Rham is a seasoned traveller. She spent her childhood in Peru and Madagascar because of her parents’ work in international development aid. This experience broadened her horizons very early on and led her to develop a taste for discovery, in all shapes and sizes.

Although she was born in Lausanne, Switzerland was a completely new discovery when she began studying Physics at EPFL. “I had spent my teenage years in Madagascar so it was a considerable culture shock. It was 1996 so there was no Internet to research and become familiar with this unknown country before arriving. It took me a while to adapt.” Yet, Rham soon came to feel at home on the Ecublens campus. “The quality of teaching was very high but it was actually the personal assistance given to students that made all the difference.”

Rham, already fascinated by the cosmos, decided she would specialise in either planetology or astronomy. In 2000, she did an internship at NASA, in Pasadena, California. It was a great learning experience but it also made her realise that her real passion went deeper; she wanted to understand why the universe works the way we think it does. She graduated from EPFL in 2001 and then went on to do a PhD at Cambridge University with one thought in mind: to get to the bottom of the mysteries surrounding gravitational force at large scales.

After completing two post doctorates in Canada between 2003 and 2009, she became a teaching fellow of the Swiss National Science Foundation in the theoretical physics department at the University of Geneva from 2010 to 2011. During this time her career took a new turn.

In the 1990s the scientific community noticed that the universe was expanding quicker but was unable to provide a satisfactory explanation as to why. Rham’s work led her to question one of the assumptions in Einstein’s work, which postulates that gravitons have no mass. “If gravitons had a mass, it could explain why gravity at large scales works differently to how we thought, particularly on cosmological scales. And this is why we noticed an acceleration rather than a slowdown in the universe’s expansion!” she exclaims.

Her research enabled her to make a name for herself on the international scene and has since inspired many researchers working on the creation of the universe and gravity.

DREAMS OF SPACE TRAVEL
From the infinitely big to the infinitely small, Rham’s fascination with extremes goes beyond her profession and is also apparent in the sports she practises. She is an ardent SCUBA diver and pilot; she takes to the skies in her plane whenever she can.

Sea, sky and stars: Rham is truly fascinated by the forces of nature and the world around us. This passion reached its climax in 2008 when she attempted to realise one of her childhood dreams: to become an astronaut. She applied to the European Space Agency’s programme and completed each of the selection phases: personality tests, stress management, intellectual and cognitive aptitude tests, and more. Among the 8,000 candidates that applied, Rham made it to the final 40. Sadly though, her dream came to an end during one of the final selection stages. Medical tests detected tuberculosis bacteria, contracted during her childhood in Madagascar, in her system. The discovery had no serious effect on her health or daily life but nonetheless quashed her dream of going into space.

Now a lecturer at Imperial College London, Rham continues her research on gravity with the help of colleagues, post-docs, and graduate students. Her original approach means that she is often solicited by journalists, from Radio Télévision Suisse to the American media. It was also the impetus behind EPFL granting her the Alumni Award at the school’s graduation ceremony in October 2017.

Being in the limelight is not only beneficial to her own research but, according to Rham, a unique opportunity for those who conduct fundamental research, and are often unknown among the general public, to gain recognition. “The potential for applying research is very often remote and there is no immediate chance of making a profit. What’s more, 90% of research doesn’t come to a successful conclusion. So you should never give up but instead stay endlessly determined to overcome obstacles. It’s worth it!”

Profiles of women
Start-ups and teachers are developing new teaching methods to improve the academic experience, and digital technology is playing an important part. At EPFL, it is helping increase the rate of success.

Jean-Christophe Piot and Paloma Lopez

**THE FUTURE OF EDUCATION IS DIGITAL**

Requests to clarify something that was said in class, practical information or bibliographic sources. For six months, Jill Watson—one of nine assistants working with Professor Adhok Goel, a specialist in artificial intelligence—replied to hundreds of questions from students at the Georgia Institute of Technology, in Atlanta (USA). These are ordinary tasks for someone in this role. But Jill Watson is not a human being. She is a powerful programme in a database with more than 40,000 questions, created by Professor Goel’s team.

Is this a sign that robots will soon be replacing teachers? Pierre Dillenbourg, professor and leading light in innovative teaching techniques at École Polytechnique Fédérale de Lausanne (EPFL), believes that’s still a far-away fantasy. “Technology alone can’t change everything, even if there is always someone who thinks they’ve found the miracle solution to all the education world’s problems. In teaching, there is no miracle-only progress.”

This former Belgian lecturer, who spent time at the Lancaster University (UK), is one of the first to have dipped his toes in the waters of MOOCs (Massive Open Online Courses) at a school that is now the European leader in this field. Since 2012, EPFL has run 81 MOOCs and approximately thirty more are currently being created. Some of these courses have experienced real success, such as the scale programming course by professor Martin Odersky, which is taken by 600,000 students. In total, EPFL’s MOOCs have been taken by 1.9 million students across 186 different countries, with more than 270,000 of these students coming from the US.

**ADDED VALUE**

However, MOOCs are not revolutionary in themselves, specifies Pierre Dillenbourg. “The content remains largely the same. It’s the format that changes. We’ve noticed that students who follow online courses have better success rates than other students who don’t have the freedom to follow the course at their own pace, take a break or re-listen to part of the classes.” MOOCs also benefit teachers by ensuring a certain visibility, seeing as they have a large number of students following their classes. “The reputation of a lecturer is based primarily on his or her research and the articles that he or she has published,” explains Dillenbourg. “Teaching via a MOOC affords the lecturer a certain renown. This is a good thing, as it adds value to teaching as part of an academic career.”

EPFL has taken a very pragmatic approach to EdTech. “The question is not whether education is going to go digital or not. It will, whether we like it or not. The question is rather about determining who is going to invent this change: large companies-like Swisscom or Google—or teachers, researchers and students?” says Pierre Dillenbourg. The professor also points out that digitalisation affects all areas of society. “Our students are constantly turning to Google and Wikipedia to check out what we teach them.”

Will this turn classes in large lecture halls into a thing of the past? “Certainly not! But this is not the only way of teaching. New technologies offer significant added value. They can also provide interesting opportunities to trial new methods and increase cognitive activity by facilitating an interactive
Vice-President Pierre Vandergheynst develops computational thinking at EPFL.

**“DEVELOPING A DIGITAL CULTURE IS ESSENTIAL”**

What is computational thinking and why did you decide to make this a priority?

P.V. Computational thinking involves developing systems, problem-solving and understanding human behaviour by using key IT concepts. An approach like this is essential, as civil society and professional life are deeply impacted by digitalisation. When we think about automation, artificial intelligence or data creation or management, the students that we are training need to be armed with the right skills for entering a world where digital is changing everything. Let’s take medicine, for example. Digital is making highly personalised diagnoses and treatment a real possibility. It is extremely useful but raises questions about data privacy and access. Faced with these sorts of challenges, it is essential that students have a minimum level of expertise and a certain digital know-how.

Will the dawn of the digital age have as significant an impact as the invention of the printing press?

In both cases, the fundamental question was access to information, or more precisely, understanding and using information. A large percentage of the global population have access to the internet. This is an amazing opportunity but one that needs some critical thinking that is adapted to the world we live in. This is essential in terms of attributing value to what we read on social networks. Knowing where information comes from and how it is published is essential in an age where reliable and not-so-reliable information can influence the outcome of an election...

How is EPFL responding to this new challenge?

As educators, we have to teach our students to think, formulate and solve problems whilst taking these challenges into account. Teaching, therefore, does not just have to be changed by digital, but changed for digital. New methods of teaching are not enough. We also need to come up with new classes. The inclusion of computational thinking has to occur early in students’ studies. From their first year, our students will now take a class specifically on this subject, which we believe is as important as an introduction to physics or maths. As a polytechnic institute, our role goes beyond simply teaching this type of reasoning to our students alone. Universities need to be able to share these methods far and wide. We are going to have to think about a model, maybe a partnership with the wider academic world, so that the whole of society can embrace this way of thinking.

Do you think that students are digitally mature?

Students appear to be more digital savvy than previous generations, and they are much more used to thinking about the consequences of their actions. They want to understand how their education will help them with solving the problems facing society. They are also more attuned to ethical and moral issues relating to new technology.

Computational thinking has to be studied early on. At least, that’s what Vice-President for Education Pierre Vandergheynst strongly suggests. According to Vandergheynst, a professor of Electrical Engineering, teaching shouldn’t only be changed by digital technology, but changed for digital technology. Explanations.
EPFL’s Extension School, of which Marcel Salathé is academic director, offers a professional-development programme in all aspects of digital. These online courses do not require previous qualifications.

Providing advanced digital expertise. This is the objective of EPFL’s Extension School, which accepted its first students on 15 November. Three programmes, costing 450 Swiss Francs each, are on offer: “Applied Data Science: Machine Learning”, “Full Stack Web Development” and “Applied Data Science: Communication & Visualization”. Sign-ups for the first course were opened in November 2017. Sign-ups for other programmes – taught entirely in English – will be rolled out gradually over the course of 2018.

The first students are currently taking the courses, with other students already signed up. The school is supported financially by SwissUp, a foundation run by Logitech Co-founder Daniel Borel, who is passionate about education. The programme, costing 450 Swiss Francs each, are on offer: “Applied Data Science: Communication & Visualization”. Sign-ups for the first course were opened in November 2017. Sign-ups for other programmes – taught entirely in English – will be rolled out gradually over the course of 2018.

The Extension School only provides teaching on digital skills. Are you planning comprehensive courses for the future?

No, the aim is not to compete with EPFL. We need to think of these classes as a treasure trove of knowledge that will supplement basic education. The quality of the teaching will be the same. The students manage their own time, and each programme lasts approximately 450 hours. It is a highly demanding course, not a weekend class.

Who is your target audience?

Anyone who is part of the professional world and feels as though they need to improve their digital skills, whatever line of work they are in. You don’t need a qualification to take the course, it’s open to everyone. Those who have the required level can start the three programmes that we offer straight away. We also offer preparatory courses, such as “50 things you need to know about data”, “50 things you need to know about the Internet” and “Thinking and creating with code”.

Not all programmes are currently accessible. Why?

We want to ensure that each participant receives personalised, quality tutoring. Classes will be added gradually. Participants take the courses in virtual cohorts. When one of the participants feels that they need guidance from a real live teacher, the team at the Extension School will reply to his or her questions via the online forums and video chat. As we expect to have thousands of students following these courses, we’ll gradually develop these support methods.

Are digital skills currently taught sufficiently?

They are hardly ever part of a studies course. Yet all sectors are now impacted by digital. There is not one line of work that doesn’t require some sort of digital expertise. Understanding how the internet works or what we can do with the information is essential. Everyone is affected, whatever stage they are at in their careers. But the majority of people don’t have the option of taking a full-time course. That’s why professional-development courses are useful.

The current EdTech trend has spread to other areas of society. Specialists use machine learning or robots to help improve the effectiveness of a class, facilitate experimentation or promote attention amongst the students. Thymio is one of many examples. EPFL and École Cantonale d’Art de Lausanne (ECAL) have developed this machine so that children can discover robotics and the basics of programming. Nao is another of these solutions. The little humanoid robot, developed by the Japanese firm SoftBank Robotics, is used to help children who have difficulty with writing. As part of the CoWriter programme, researchers at the Computer-Human Interaction in Learning and Instruction (CHILI) laboratory have proven that Nao can be used as part of the “learning-by-teaching method”. The children teach the little robot how to write and, by correcting him, they improve their own ability while boosting their self-worth. Virtual reality is also used. Dillenbourg uses virtual reality to explain to apprentices how loads are distributed across joints in a house. The real bonus of this method is that it is intuitive and doesn’t require the expertise of an engineer.

BLENDED LEARNING AND FLIPPED CLASSROOMS
Some establishments are pushing the use of digital tools to the extreme. This is the case at AltSchool, a company launched in 2013 and in which Mark Zuckerberg—the CEO of Facebook—and many other key investors have invested a total of almost $175 million. The company comprises approximately ten new-style private schools across the US. These institutes provide teaching tailored to each student, albeit in line with common guidelines set by the federal government. Teachers use tablets and other digital tools, both as educational resources and as tools measuring children’s behaviour in real time, via in-house software. Called Learner Profile or Stream App, the software is reprogrammed daily according to feedback from teachers.

But five years after its launch, AltSchool’s debts are stacking up. The company spends nearly $40 million every year, according to Bloomberg. As a result, the company will soon close an establishment. There is no shortage of criticism for the teaching method that AltSchool uses. Some people think that this method equates to teaching children like guinea pigs, without basis in scientific studies proving the advantages of the method. They also reproach AltSchool for putting the development of skills that are valued in today’s workplace ahead of teaching basic, core knowledge. The World Economic Forum believes that the employee of tomorrow will be creative, have critical thinking skills, emotional intelligence and empathy, and will be capable of working in a group. The techniques vary for instilling students with new skills and include e-learning, MOOCs, serious games—programs with a learning outcome that use certain elements borrowed from video games, such as decision-making, points to be collected and rewards—and SEL (Social Emotional Learning). This method aims at developing the skills needed to work in an ethical and respectful way: acknowledging and managing emotions, taking responsible decisions, creating positive relationships, resolving conflicts, acting honestly, etc. Large corporations are investing approach. Just listening to classes only provides access to information at a low level of intensity. But having to summarise the information requires a more intense level of activity. And looking for potential errors in the content provided is even better! But the best technique is still asking students to solve a problem by using the knowledge that they have just acquired.”

...
heavily in these tools, which they deem to be essential to their productivity. Engie (formerly GDF Suez), the third-largest player on the international energy market, is also backing alternative teaching methods and has launched peer-to-peer mentoring. In 2016, the company formed 1,000 pairs with the aim of promoting skills and expertise development amongst employees. These pairs were matched up by an algorithm developed specifically to identify the duos whose personalities, expertise and talents could provide the potentially most enriching conversations.

Establishments that back blended learning are looking for a balance between classic teaching methods and e-learning. This new approach, widely used at EPFL, also extends to the school classroom. At the Champittet secondary school in the canton of Vaud, this approach has been in place since 2013, and teachers use it as part of the flipped classroom. Instead of presenting new subjects in the classroom, the students discover them at home using an online program. The following day, the students have to put the newly acquired knowledge into practice via group work and practicals. According to the school, the pupils are attentive and alert, and are highly motivated and participate actively, having acquired the new knowledge at home, at their own pace.

REDUCE FAILURE RATES THANKS TO DATA

The efficiency of this wealth of initiatives and projects still needs to be measured. “An attractive technology will not necessarily improve learning. There still needs to be a certain skeptic enthusiasm when it comes to innovations,” says Pierre Dillenbourg. “Each time we trial a new method, we analyse the knowledge of the pupils upstream and downstream and then compare it with the control group, who are being taught using traditional methods. If the results of the group using a new technology are significantly better, this means that the new method has added value. This process is well established in educational science.” At EPFL, the verdict is that the 2,000 first-year students following MOOCs for the duration of the course obtain better results than other students.

In the long-term these new technologies, coupled with data science, could become an essential strategic steering tool, explains Dillenbourg. “We are currently able to identify in advance the students who will drop out of a MOOC. We have noticed, for example, that the participation rate in forums is a good indicator of engagement. Students who read and post the most are the most motivated. By applying these methods to data that we have about the students on campus, we could identify potential problems at an earlier stage, guide the students better and take action during the process to reduce the failure rate.”

Several test cycles are necessary to establish the interest of a new teaching approach. According to Dillenbourg, introducing a new approach too quickly and without any monitoring must be avoided at all costs. In 2010, Tony Blair’s government, for example, decided to equip every classroom with an interactive whiteboard—without training teachers in how to use them. It was a fiasco.

THE ATTRACTION OF SWITZERLAND

Against a backdrop of significant interest in EdTech, Switzerland has real plus points for becoming a world-class hub for education. This is primarily thanks to the number of top-level schools in the country. “In the vicinity of Lake Geneva alone, in addition to EPFL, there is the International Institute for Management Development (IMD), the Ecole Hôtelière de Lausanne, two university hospitals and renowned laboratories,” says Dillenbourg. “There is a unique culture of educational excellence in the region and the capacity for significantly higher funding than anywhere else in Europe.” This is an environment that promotes research and innovation in teaching.
tools. EPFL is well positioned in this area. In April, the school welcomed the Swiss EdTech Collider to its 300 sq. m Innovation Park dedicated to education technology.

Launched by Pierre Dillenbourg and three other lecturers at EPFL (Francesco Mondada, Marcel Salathé and Denis Gillet), the association hosts more than 60 start-ups, including Coorpacademy, a start-up founded by Jean-Marc Tassetto, the former CEO of Google France. In four years, the company has developed made-to-measure online training programmes, aimed specifically at companies. The topics available on the platform are presented in the form of short videos. Tailored to the level of the participants, the training is based largely on emulation and community through a series of challenges that individuals can set for their colleagues.

FINANCING IS NEEDED

With turnover doubling each year and dozens of large companies in its portfolio, Coorpacademy appears to be the example to follow. The Swiss EdTech Collider has provided its co-working space to Kickstart Accelerator, an initiative by digitalswitzerland in partnership with EPFL and led by venturelab, a private company that manages several programmes for launching and supporting start-ups, including EdTech Accelerator. This year, the ten new companies selected from 57 candidates will follow a programme that is intended to help them with their development.

"Four companies are from Switzerland, with the others from Europe, India and the US. These companies cover the entire education spectrum, from primary school to professional development," says Danièle Castle, head of the programme. Mathrix is one of these companies. This start-up, founded by EPFL alumni, makes videos that help prepare pupils for maths and physics exams that form part of the French GNVQ and baccalaureate exams. Another company that made the cut is UbiSim. Based in Shanghai and at the Collider, the company offers nursing training using virtual reality. "For three months, these start-ups will increase their networking with investors, business angels or legal advisors and look at issues specifically linked to EdTech, such as data privacy and child protection," explains Danièle Castle.

But can all these companies find the financing that they need to succeed? "If the business model is right and meets a need, the funds will follow," says Castle. The director of the EdTech Accelerator is convinced that Switzerland provides an environment that is particularly conducive for developing an ecosystem that will become the touchstone in the extremely competitive global education market. Switzerland has all the elements needed to become a flagship market, if it mobilises the necessary financing, according Pierre Vanderheyst, vice-president for education at EPFL. "The engagement of institutions and public bodies is not just about betting on the future. It is a prerequisite so that the digital revolution is not just seen as a burden on the economy but a source of growth." This line of thought is echoed by Unesco. The UN-affiliated organisation estimates that in the long term, every dollar invested in education equates to ten to fifteen dollars in terms of economic growth.
LEARNING AND RESEARCHING IN A NEW WAY

Innovation in teaching is not just about new technologies. EPFL’s Discovery Learning Labs are focusing on interdisciplinarity. Breaking down barriers, promoting interactivity and encouraging interdisciplinary discussion at EPFL, innovation in teaching also involves learning environments, via the Discovery Learning Labs. Inaugurated in 2016, the former Engineering building—which is the newest and largest (8,000 sq. m) of the seven buildings—is a high-tech marvel, full of state-of-the-art instruments and spaces for carrying out experiments, such as a dome for drones and a pool for swimming robots. Intended for on-site students and researchers, the building is also accessible to anyone who takes classes at EPFL from abroad; numerous instruments have been adapted for remote use.

The whole set-up is an educational tool that has a double purpose, explains Pascal Vuilliomenet, head of strategic projects at EPFL. “These spaces were designed to support practical work and enable interdisciplinary activities to take place. The aim is first and foremost to help students put their theoretical knowledge into practice, by promoting autonomy. At a more advanced level, it is all about matching their expertise with the expertise of students from other disciplines.” Eight specific projects, coordinated by the vice-president for education, are already in place within this FabLab dedicated to immersive experience, best practices and interdisciplinarity.

Two new buildings should be delivered over the next few years and will offer students and researchers spaces dedicated exclusively to prototyping, which is currently spread across various buildings. In the long term, these innovative spaces could be freed up for other uses, such as summer courses, or made available to companies to use for their professional-development courses. An additional possibility is that these buildings will offer new opportunities to students to develop their businesses, notably as part of Innogrants or x-Grants—programmes designed to offer financial support to entrepreneurial projects.

“The long-term aim is to open up the Discovery Learning Labs to a wider audience, not just the EPFL community,” explains Vuilliomenet. “Firstly, we have to meet our students’ needs, but we also need to promote openness vis-à-vis people outside the school.” This is the case for the CHIC project, for example. Organised by EPFL’s College of Humanities, the China Hardware Innovation Camp (CHIC) brings together students from EPFL, ECAL and the University of Lausanne (UNIL). Working in groups of five or six, the students are developing a connected device from start to finish. Focusing on conceptual and interdisciplinary reflection, teamwork, project management and interaction with students from other disciplines, the CHIC involves a trip to China, where the devices are tested in a local prototyping factory.
Since graduating over 25 years ago, EPFL’s former Civil Engineering students have gone in many different directions. Some stayed true to their original training and specialised in different areas of engineering, while others changed careers. We met up with five of them to hear about their career paths and memories of their studies.

Text:
Stéphanie de Roguin
PIERRE-AIMÉ FAVRE
51
SAINT-BARTHÉLEMY (VD), SWITZERLAND
“I have just come back to Switzerland after 13 years working in Malaysia. I spent my first year there conducting forestry and by-product research. Then, in 2006, I worked for the construction products company Sika. The eldest of my three children is now old enough to go to Gymnasium (a Swiss secondary school which prepares students for higher education) and I’d like him to study here. As for myself, I’m currently looking for work. After graduating from EPFL in 1991, I did a Master’s degree at Colorado State University in the US. I then went back to EPFL to work as an assistant for four years before leaving to work in the US for five years at the Wood Science & Technology Institute, in Oregon.”

ERIC BRÄNDLI
51
JUSY (GE), SWITZERLAND
“I am assistant manager of infrastructure at Geneva airport. I have worked there since 2003 but became familiar with the company much earlier, as I worked on updating its master plan with the engineering firm SGI back in 1996. At this firm, I led many other transport-related projects, including a full study of the Acacias tram line in Geneva, as well as the runway extension and construction of aircraft taxi lanes at Basel-Mulhouse airport. Civil engineering currently only accounts for 20% of my work. I also do a lot of negotiation and deal with political and legal issues. This multidisciplinary aspect is very enriching.”

Text:
Stéphanie de Roguin

DOMINIQUE ZÜRCHER
51
ROMONT (FR), SWITZERLAND

“I have been working for the city of Lausanne since 2001. I started out at the Sanitation Department and then moved to the Water Department. I am currently responsible for the evacuation strategy, as well as water management. Just after completing my studies at EPFL, I worked in Berlin on the railway infrastructure for a while, and after that I completed an MBA in Ottawa which led me down the project management path.

Managing water and the environment for everyone’s well-being is something that has always interested me. It was therefore natural that I start working for the local authorities. I liked the multidisciplinary aspect of my studies at EPFL. They provided me with both technical and theoretical skills which still help me today, especially in terms of strategy and innovation.”

PIERRE-ANTOINE ZUFFEREY
51
GINGINS (VD), SWITZERLAND

“After graduating, I only worked as an engineer for two years. I didn’t feel fulfilled in that field, so I took a six-month break before becoming an ICRC delegate in Africa and then in the Russian Caucasus region. I came back to Switzerland in 1996 for family reasons.

I did a full-time MBA in business management at HEC Lausanne for a year. After several years as a financial controller at Alusuisse, and different analyst and financial manager positions, I am now the CFO of the SSE Group. This company specialises in fine chemicals and civil explosives, and has a presence in a dozen or so European countries.”

In 1998, I came back to Switzerland for the Expo.02 project. I worked as a Contracting Authority Assistant at Tech Data, which merged with the IEC ten years later. In 2008, I became co-director. I held this position until 2016 when I took on full managerial responsibility. My time at EPFL was the best part of my education. Working now with engineers who studied at other schools has made me realise just how high the standard of training was at EPFL, both in terms of quality and what was expected of students.”

DANIEL DORSAZ
51
PAILLY (VD), SWITZERLAND

“After graduating, instead of going back to my home region, the Valais, I moved to Biel to learn to be a civil engineer. I then worked in Berlin on the railway infrastructure for a while, and after that I completed an MBA in Ottawa which led me down the project management path.

Managing water and the environment for everyone’s well-being is something that has always interested me. It was therefore natural that I start working for the local authorities. I liked the multidisciplinary aspect of my studies at EPFL. They provided me with both technical and theoretical skills which still help me today, especially in terms of strategy and innovation.”

Alumnist Class of
EPFL EMBA: a new innovation-minded approach

The Management of Technology programme got a make-over this autumn. It’s new name is the EPFL EMBA, but it’s not just the name that’s changing. The approach experienced an overhaul, too, and is now focused on innovation and modern teaching methods that blend practical experience and online classes. The programme now caters to employees and entrepreneurs alike.

How does one go from an idea to a wildly successful commercial project? The EPFL EMBA seeks to provide the answer. Although the programme offers solid foundations in the major subjects studied in all MBAs (finance, accounting, law, economics, etc.), the EPFL EMBA stands out with its highly innovation-based approach. Formerly known as the MoT (Management of Technology) programme, the degree that was dubbed the EPFL EMBA in the summer of 2017 has been innovation-focused ever since.

“Innovation can be technology-oriented, but it can also mean developing new organisation processes and structures. We help our students implement innovation better on a daily basis to provide added value.” Another advantage of this approach is an increased ability to adapt to changes in the market, the arrival of new competitors and the advent of new business models.

Training with hands-on experience

The EPFL EMBA was designed to expose students to real issues, increasing their knowledge as well as their soft skills. They have to complete a company project from A to Z based on an innovative technology or service, and carry out every aspect of its development and marketing.

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“By conducting a survey of our graduates, we learned that their expectations revolved around three factors,” explains Tilo Peters, the programme’s Executive Director. “Being able to keep working throughout the programme, getting an EPFL diploma and developing their innovation skills.” This shift is particularly visible in classes such as Design Thinking and Future Trends & Disruptive Technologies, as well as the focus on problem-solving. “Innovation is more than a simple idea – it’s a concrete project designed for commercial purposes. The programme helps you learn the tools you need to analyse the market, assess potential demand and transform your idea into an innovation.”

This aspect of the programme obviously relies on the emergence of new technology – and particularly that which is cultivated at EPFL – but that’s not all that goes into it.

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The EPFL EMBA was designed to expose students to real issues, increasing their knowledge as well as their soft skills. They have to complete a company project from A to Z based on an innovative technology or service, and carry out every aspect of its development and marketing.
“The programme aims to provide the ingredients for financial success. You establish a business plan, plan the project and create marketing tools – everything from conceptualisation to closing a sale.”

It’s easier to use concrete examples with a class size limited to 36 students, the cap enforced since EPFL fully took the reins of the MBA. By contrast, the MoT, which was co-organised with HEC Lausanne, accepted over 80 students at a time. The programme is now accepting employees as well as entrepreneurs and the number of female students has risen, making it a more diverse environment.

Each class is jointly taught by presenters from both academia and the business world. They share their experiences with students and provide a straightforward view of the challenges, opportunities and possible stumbling blocks they can expect. The EPFL EMBA also features blended learning, using e-learning modules to familiarise students with the main concepts of future classes or to help them review previous lectures. All candidates with at least five years of professional experience are eligible to apply for the 16-month programme (must be available on Fridays and Saturdays). ||

→ For more information and enrolment, visit emba.epfl.ch.

Three questions for Danuta Cichocka (EMBA’16), founder of Resistell

Tell us about your background. I started my career as a researcher in microbiology. For several years, I had been keen to add a commercial dimension to my career. I was thinking of joining a start-up before setting up my own company. To reorientate my career in this way, I first needed to acquire strategy and project development skills.

How did EPFL’s EMBA help you? The EPFL EMBA was invaluable. Its approach — adding a commercial dimension to innovation — was perfectly in line with my career aspirations. I was able to acquire the skills and knowledge that I was lacking in the areas of strategy, marketing and intellectual property. The course also taught me how to give better presentations and to put my ideas to better use. Moreover, the EMBA provides excellent networking opportunities. I was able to meet other people working in life sciences who helped shape my entrepreneurial project.

At the end of the course, I set up my own company, Resistell. Over 700,000 people die each year from antibiotic resistance. Our technology aims to reduce the waiting time that follows a resistance test to these substances from several days to several hours, which will reduce mortality rates and medical fees. Without the insight I gained through the EPFL EMBA, I would probably never have seen the business opportunity behind this innovation.

What stage has Resistell reached today? We have produced initial prototypes and developed a design concept for our final product. We have also invested a lot of time in marketing, particularly for our logo and website. I would certainly have focused less on these aspects had it not been for the experience I gained from the EPFL EMBA. In June 2017, Resistell was chosen above six other start-up nominees as the winner for the Swissbiolabs Award in the “pitch” competition. I would definitely not be where I am today without EPFL’s EMBA.

→ Also read about Christoph Müller (EMBA’14) on page 20.
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**Distribution**

Alumnist is sent in December to 22,000 EPFL graduates, and in June to 6,000 EPFL Alumni donors. The magazine is published in French and English.

**Population**

Alumnist is sent to EPFL graduates, an audience qualified in science and technology working in various industries and in research.

- **Place of residence:** 75% living in Switzerland, 25% abroad
- **Sex:** 82% men, 18% women
- **Age:** 22% are 29 and under; 30% are 30-39; 21% are 40-49; 12% are 50-59; 15% are 60 and over

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