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# THE FUTURE STARTS HERE



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## SUCCESSSES

Custom-tailored medication, better batteries, the power of positive thinking: the things Jacobs University's researchers are studying.

Pages 4-7

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## EXPECTATIONS

Living diversity, using networks, having better training opportunities: the things Jacobs University's employees look forward to.

Pages 8-9

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## DEVELOPMENTS

Space scientist, Facebook star, award-winning IT entrepreneur: What Jacobs University's graduates have become.

Pages 10-13



**Open to the world, communicative, receptive to new ideas – that is how Bremen has always been, and how it always will be. This triad also characterizes Jacobs University. For this reason Bremen and Jacobs University are a perfect, winning combination.**

Martin Günthner  
Senator for Economic Affairs in Bremen



Dear reader,

“The future starts here” – Jacobs University lives by this motto. Excellent research and teaching meet talented and committed people from throughout the world here. The result is an inspiring and pioneering collaboration, with the clear and common objective of finding relevant answers to the key issues of our times that contribute to changing the world for the better. The future of our university also has a second motto: we are growing! Jacobs University is developing its recognized high academic level even further. Excellent research projects and top places in internationally recognized rankings such as Multirank and CHE are proof of this. Student numbers are growing. Jacobs University is rapidly becoming known throughout the world as “the place to be!”.

This equally inspires students, professors and staff, and provides room for Jacobs University and the people that characterize it to grow further close: as individual personalities and jointly as a successful education enterprise.

So: Welcome to the world of Jacobs University, a place where our scientists create solutions for important social problems (pages 4-7). A place where our alumnus and Facebook star Hashem Al-Ghaili discovered his passion for transferring scientific knowledge (page 12). A place where ideas for exciting start-ups incubate (page 15). In short: Welcome to a place that, time and again, draws people to finding their inspiration here – and to become an inspiration for others such as Nobel laureate Professor Randy Schekman (see right). Enjoy your very special journey into the future!

Prof. Dr.-Ing. Katja Windt  
PRESIDENT

Prof. Dr. Michael Hülsmann  
MANAGING DIRECTOR

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## THE CASE FOR ACADEMIC FREEDOM

It was a strong, dedicated, encouraging presentation: “Never before have there been so many opportunities for making discoveries as there are now”, said Professor Randy Schekman. Academia has never been so strong, and no temporary political influence can stop the advances in and transfer of knowledge. The biochemist, who together with two other scientists received the medical Nobel prize for his discoveries in cell transport processes, was awarded an honorary doctorate by Jacobs University at the graduation ceremony in 2017, at which he thanked the University in a much-applauded speech.

Schekman had already argued for free access to scientific knowledge the evening before the ceremony in a panel debate at Jacobs University. This is now at risk, as a small club of scientific journals controls and limits the publication of important findings. In order to change this, the American founded “eLife” a few years ago, a digital scientific journal, of which he is the editor-in-chief.



Prof. Randy Schekman

## EXCITING PREMIER – AUTODIGITAL IS SETTING THE STANDARD



Dieter Zetsche

Exciting new developments from the automobile industry and much praise for Bremen and Jacobs University. Bremen’s daily newspaper, the “Weser-Kurier” organized the first AutoDigital conference on the University’s campus – with Daimler CEO, Dieter Zetsche, and 300 top-class conference participants from business, politics and academia.

Cornel Amariei, who completed his studies in Electrical Engineering and Computer Sciences at Jacobs University in 2015, traveled to Bremen to give the keynote address. He is now Innovation Manager at Continental, and the renowned US business magazine Forbes has included him in a list of the 30 most influential people under the age of 30 in Europe.



**I believe in Jacobs University’s philosophy. Students get so much more than specialized knowledge here. As part of an international community, they learn how to link up the findings from various academic disciplines. Such breadth of knowledge is becoming ever more important in the working world.**

Claus Hipp  
Managing Director  
HiPP GmbH & Co. Vertrieb KG

# FINDING SOLUTIONS!

Research is not an end in itself. It assists in solving important problems facing humanity. Scientists at Jacobs University do just this – in a variety of areas.



Prof. Dr. Sonia Lippke

## CONQUERING YOUR WEAKER SELF

More sport, less stress – we all have good intentions. However: not even every third person actually succeeds in implementing them. Health psychologist, Prof. Dr. Sonia Lippke, researches how this pattern can be changed.

Sonia Lippke believes that good intentions are important, because they are the basis for change. But after the first step, there has to be a second – and that is where many of us quickly stumble. “Concrete planning of goals and developing strategies to deal with possible stumbling blocks are important,” says the 42-year-old scientist. For instance, if you plan to get your heart rate up through exercise three times a week for 30 minutes, but then decide to skip it because of backache, you should instead go for a walk or do light back exercises. “Everyone should look for the right strategy and then adjust it as needed”. The scientist calls it “self-regulation competency” or “conquering your weaker self”. Promotion of health

in everyday life and at work is an issue close to her heart. And her primary emphasis is prevention. “I don’t want to wait until it’s too late; I want to prevent diseases from occurring where possible!” One’s lifestyle is surprisingly important for health and well-being and yet it is incredibly difficult to change. Understanding why this is so, and practically helping people is her mission.

Sonia Lippke prefers research with a practical application, cooperation with companies, health insurers, or social insurance programs. “These partners use our research for specific programs; together with them, we can really get things moving”. For instance, she deals with the question of how to ease the way back to employment and into society for persons with long-term illnesses. “Often, people who can’t work also don’t take part in social life anymore. It is a vicious cycle that we need to break through”.

## BETTER BATTERIES

Lithium batteries are a key technology in the context of the energy turnaround. In a joint three-year project, sponsored by the German Federal Ministry of Science and Energy, Prof. Dr. Gerd-Volker Röschenhaler’s working group is doing research on a new generation of high-energy lithium batteries. “Our goal is to develop batteries with distinctly higher energy density together with our cooperating partners,” he says.

The scientists at Jacobs University specialize in cathodes. Usually, the cathodes in batteries – meaning electrodes at which a reduction reaction takes place – consist of metal oxides. In contrast, the researchers at the private university are relying on fluorinated organic materials made of carbon, oxygen, or nitrogen. They have a number of advantages. They are characterized by great structural variety and energy and are less toxic in production and disposal, making them more sustainable than metal oxides – and more affordable. As a raw material, it may even be possible to use biomass.

The working group of Professor Röschenhaler is the leader in Germany in the production of fluorinated organic compounds and has been active in battery research for a long time. It holds multiple patents, including for the conductive salts and solvents contained in batteries. For instance, it has succeeded in developing a battery that switches itself off at a prescribed voltage – a breakthrough for safety. Along with BASF AG and Robert Bosch GmbH, the battery research center MEET of the University of Münster is also participating in the research project.

“A battery is a highly complex system, which is not easy to control,” says Röschenhaler. “When you turn a wheel, it has a variety of effects.” Although lithium batteries were invented in Germany in the 1970s, countries like Japan, South Korea, and China are now the leaders in their manufacture. In order to close the gap, the German Federal Government is supporting research and development in cell and battery technology. The project “High-energy lithium batteries for automotive and stationary applications” alone has received 20 million euros; 510,000 euros of this going to the researchers at Jacobs University.



Prof. Dr. Sebastian Springer

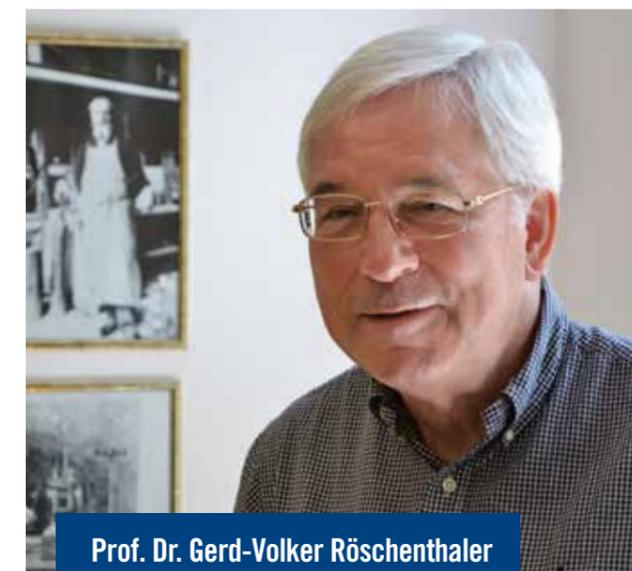
## CUSTOM-TAILORED MEDICATION

When our body gets sick, our natural immune system responds. Sometimes, however, a disease disables this system. So it would be good, if our immune system could be restarted in an individually targeted manner. A working group of biochemist and cell biologist, Prof. Dr. Sebastian Springer, has developed a method that standardizes the necessary preliminary analyses for personal medication and can thus accelerate their production to an unexpected degree. Two pharmaceutical companies are now using this method for the first time as a test.

Each individual cell of the body can signal the immune system if a disease affects it. It binds a peptide, a protein component characteristic for the respective disease, to a carrier molecule – a so-called MHC-Class-I protein. It takes the peptide and carries it out of the cell and onto its surface. This ensures that the T-cells of the body’s immune system detect that the cell is diseased – and destroy it so that the disease cannot spread further. In cancerous tumors or viral infections, however, this protective system is sometimes disabled. Some tumors, for instance, excrete certain hormones that distract the T-cells from their task. One idea to reverse this process is immunotherapy, which uses medication to achieve a targeted reinvigoration of the patient’s personal immune response.

In order to be able to manufacture search custom-tailored medication, scientists must first examine exactly how the defending immune cells of a particular patient react to the status information “cancer” or “virus”: To do so, it is necessary to reproduce the natural disease reporting process artificially in a test tube. Springer and his team have developed a method for this.

They can create MHC-Class-I proteins, which are normally only found in the body’s cells, in a test-tube and initially give it a placeholder molecule. Springer holds the only patent in the world for this. Researchers and pharmaceutical companies all over the world can then easily insert all and any reporting peptides and bring them together with T cells. A great leap forward for medicinal research, because it can be used to study the immune response of individual patients to any conceivable disease.



Prof. Dr. Gerd-Volker Röschenhaler



Prof. Dr. Arnulf Materny

## RESEARCH WITH LASERS

“Star Wars” made them mainstream: lasers – colorful rays of light full of energy. Scientifically speaking: electromagnetic waves that are mostly of a single color, extremely intensive and highly bundled. These are the tools used by Arnulf Materny, Professor in Chemical Physics. Using laser technology, Materny decodes material characteristics for the exact stages in chemical processes.

Born in Upper Franconia, he is involved in two highly relevant research fields: Raman laser spectroscopy, which tends to be used in applied research, and Femto laser spectroscopy, used in basic research. When light encounters molecules, it is almost completely reflected back unchanged. A small part of the energy of light, however, is transferred to molecules and makes them vibrate. This changes the light that is reflected back, and its frequency becomes a little higher or lower.

Such an effect, named after Indian Nobel laureate C. V. Raman, is characteristic for the respective molecule; it is full of information. Raman spectroscopy is used in many areas: from textile testing to food safety, from cancer research to environmental protection. With Raman spectroscopy, practically any molecule can be investigated without having to elaborately prepare the object of investigation and without destroying it.

However, Arnulf Materny’s actual scientific roots are in Femto spectroscopy. Chemical reactions and biological processes can happen very, very quickly. A femtosecond is one millionth of one billionth of a second. Hard to imagine? Light takes 100 femtoseconds to travel the width of a human hair, and one second to reach the moon. In Materny’s laboratory ultrashort flashes of light provide snapshots of chemical reactions. Repeated measurements occurring in quick succession make it possible to obtain an analysis virtually in slow motion.

Materny and his working group are pioneers in this field; they are involved in basic research. Semiconductors are optimized and electronic components such as organic solar cells tested using Femto laser spectroscopy. However, it can also contribute to gaining a better understanding of the interactions between metallic surfaces and adherent molecules.

## THE POSITIVE EFFECT

Psychologists, physicians, and athletes have long known the power that resides in confidence in one’s own abilities. But although buzzwords like “positive thinking” are known worldwide, this knowledge is still used astoundingly little in one area: in the working world. Therefore, a team of authors at Jacobs University is now presenting these findings in a new book for management personnel. The volume entitled “The Positive Effect” is an appeal for drastic rethink in management.

Everyone knows about the placebo effect: The belief in efficacy alone engenders a change for the better. “Numerous scientific studies demonstrate how much success and failure are influenced by one’s inner attitude,” says Sven Voelpel, Professor of Business Administration at Jacobs University. Last fall, his book “You Decide How Old You Are” became a Spiegel bestseller. His new book, “The Positive Effect – Revolutionizing Management by Changing Attitudes”, which he wrote together with organizational psychologist and business management expert Fabiola Gerpott, who obtained her doctorate at Jacobs University, is also about changes in attitude.

Together, they have written a management guide that is based on scientific studies and focuses on the individual and his abilities for motivation and self-confidence. For instance, a study at Jacobs University showed that older people presented distinctly fewer creative ideas in groups after they had first been given reports of the disadvantages of growing older. When the focus was placed on the advantages of getting older, such as networked thinking and knowledge gained from experience, the ideas simply poured forth from the group.



Prof. Dr. Sven Voelpel



Prof. Dr. Dierk Schleicher

## PROJECT NAME: HOLOGRAM

It stands for “Holomorphic Dynamics connecting Geometry, Root Finding, Algebra and the Mandelbrot Set”. “That sounds complicated – but it shows that the project spans highly diverse mathematical sub-areas”, says mathematics professor, Dierk Schleicher.

He received EU research funds of more than 2.3 million euros for the project last year – one of the largest subsidies ever given to a mathematician by the European Research Council (ERC). Schleicher brought top mathematicians from throughout the world to Bremen. They have been working on the 5-year research project since October. As is customary for Jacobs University, students are also included in the research project.

“Among other things, the project is about equations that describe various geometrical figures”, says Schleicher about the project. “It has been known for centuries that there are no exact solutions for these equations. The aim is therefore to always try to get better approximations for these solutions”. A problem that Isaac Newton and Carl Friedrich Gauß, some of the most important scientists of all times, had identified. “Thanks to modern IT, we now have other options that Gauß and Newton didn’t have. Nevertheless, mathematics then and now needs good ideas and creative approaches in order to gain new insights”, says Schleicher.

## JACOBS UNIVERSITY STUDY PROGRAMS 2017

Preparatory Study Programs		
	<ul style="list-style-type: none"> <li>• Foundation Year</li> <li>• Medical Preparation – German Students</li> </ul>	
Mobility	Undergraduate Programs	Graduate Programs
	<ul style="list-style-type: none"> <li>• Computer Science (BSc)</li> <li>• Electrical and Computer Engineering (BSc)</li> <li>• Industrial Engineering and Management (BSc)</li> <li>• Intelligent Mobile Systems (BSc)</li> <li>• Mathematics (BSc)</li> </ul>	<ul style="list-style-type: none"> <li>• Data Engineering (MSc)</li> <li>• Mathematics (MSc)</li> <li>• Supply Chain Engineering and Management (MSc)</li> </ul>
Health	Undergraduate Programs	Graduate Programs
	<ul style="list-style-type: none"> <li>• Biochemistry and Cell Biology (BSc)</li> <li>• Chemistry (BSc)</li> <li>• Earth and Environmental Sciences (BSc)</li> <li>• Medicinal Chemistry and Chemical Biology (BSc)</li> <li>• Medical Natural Sciences (BSc/Preparatory Program)</li> <li>• Physics (BSc)</li> </ul>	<ul style="list-style-type: none"> <li>• Basin and Petroleum System Dynamics (Executive MSc)</li> <li>• Computational Life Science (MSc)</li> </ul>
Diversity	Undergraduate Programs	Graduate Programs
	<ul style="list-style-type: none"> <li>• Global Economics and Management (BA)</li> <li>• Integrated Social Sciences (BA)</li> <li>• International Business Administration (BA)</li> <li>• International Relations: Politics and History (BA)</li> <li>• Psychology (BA)</li> </ul>	<ul style="list-style-type: none"> <li>• International Relations (MA) In cooperation with the University of Bremen</li> <li>• Psychology (MSc)</li> </ul>

See our website [www.jacobs-university.de](http://www.jacobs-university.de) for our PhD offerings

# HOW THE STAFF AT JACOBS UNIVERSITY SHAPE THE FUTURE

## REALIZING CREATIVE PROJECTS

Be it the Jacobs Startup Competition, concerts or talent shows: Jacobs University's students always organize their own events with zest and creativity. They are assisted by the Campus Life Team, of which Elizabeth González Merchán is a member. "After a successful event, one often sees happy faces", she says and shares the happiness of those moments. "Through such events, our students gain in self-confidence and organizational talent. These are experiences that can also help them in their professional life", says Colombian-born Elizabeth, who studied intercultural personal development and communication management in Jena. "I look forward to many such wonderful projects".



Elizabeth González Merchán

## RESPONDING TO CHANGE

Lifelong learning – this is essential also, and in particular, for managers. Especially in the age of industry 4.0. "Companies are realizing that they must continually develop their employees in order to appropriately respond to changes in the working world. It is here in particular that our tailored programs play a role", says Hagen Böttcher of the Business Development department. His experiences as a business consultant and head of international projects stand him in great stead here. Among other things, he now deals with the further education programs at Jacobs University and enjoys the exciting diversity of topics, from intercultural management through to innovation management and big data as well strategic personal development.



Hagen Böttcher

## STRENGTHENING A CULTURE OF GIVING

Marlena Schultz-Brunn is the new fundraiser at Jacobs University. After many years in Hamburg and working in fundraising for the international youth organization "Youth For Understanding", she has now moved back to her home city of Bremen. She assists individuals, foundations and companies in investing their resources to the greatest effect. "Together with friends and funders of Jacobs University, I enjoy finding sound solutions for their financial involvement", says Schultz-Brunn. Equality in education is one of the important themes, since the University thrives on diversity: Half of its students come from developing and emerging countries. "Fair opportunities for education can only become less dependent on social origin if everyone shares the vision of a culture of giving".



Marlena Schultz-Brunn

## MODELING DIVERSITY

Frauke Jacobs, Educational Manager of the child care center "Kids at Jacobs" experiences just how enriching diversity can be right from the start. Approximately 40 children, aged between six months and six years, from throughout the world attend her daycare center. The groups are cared for in a bilingual environment, in English and German. "Diversity is normal here", says Frauke Jacobs who also loves working with the children because they are so happy and genuine. The daycare center is a part of the community on campus. Her wish is that the diversity lived so naturally on campus also be practiced as a rule outside of the University: "Children are great imitators. What we model for them, they imitate. We should always be aware of this opportunity and responsibility!"



Frauke Jacobs



Pellegrino Favuzzi

## MAKING CONNECTIONS

For Pellegrino Favuzzi, networks are the characteristics of our time. As Alumni Relations Officer, the philosopher and ideas historian from Italy with a PhD deals with the interesting connections of successful Jacobs graduates from throughout the world. "Networks are like grids that create works", he says with a little smile. "As social infrastructures, they open up new horizons and thereby develop their own, fascinating dynamic". For this reason, Jacobs University provides extensive support for discussions with and between graduates, invites them to the Career Fair and welcomes them at its annual Homecoming event. The current students also benefit from this: "Our alumni are good role models for them as they are able to build bridges to a global society and an increasingly complex working world".

## PROMOTING INTERCULTURALISM

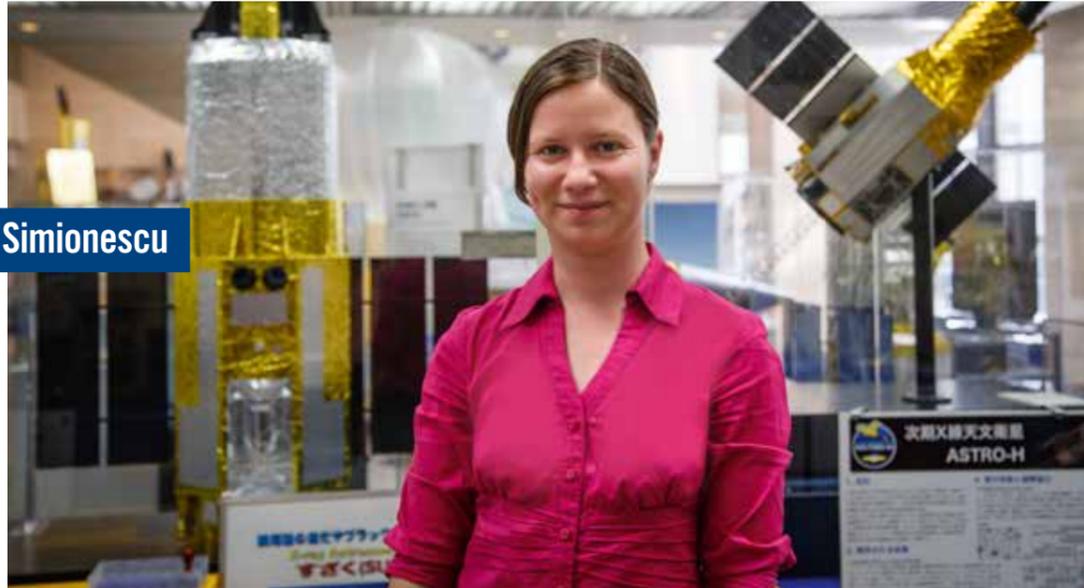
Liaoliao Zhang, responsible for the Business Development China department, completed her Master's degree in "International Logistics: Management and Engineering" at Jacobs University in 2016. Since then, she has been an ambassador for her alma mater in China. From Shanghai, she makes contact with companies, universities and institutions. "China is becoming more involved at the international level. In order to be successful in this area, intercultural skills are becoming increasingly important – both for students as well as for company employees. Jacobs University provides these skills in addition to professional expertise. It is an interesting partner for companies and educates managers who are in demand internationally. I am proud of being part of this forward-looking model".



Liaoliao Zhang

# THE POWER OF ALUMNI

Scientists or entrepreneurs, in companies or organizations: Jacobs University's graduates are successful in many areas. A global network keeps them together. Four examples.



Aurora Simionescu

## A STAR IN THE HEAVENS OF ASTROPHYSICS

What's going on up there is hard to understand, even for her. The universe is too big, too abstract, too complex; it bursts the bounds of our imagination, which is marked by our experience on our little earth. "Everyone knows how long a centimeter is. But what distance do a thousand light years measure?", asks astrophysicist Aurora Simionescu. "The exciting thing about astrophysics is that I don't understand it. I try to expand the limits of my knowledge a little more every day. That is the challenge."

As the first non-Japanese, the 33-year-old was recently appointed Associate Professor by the Japanese Aerospace Exploration Agency. She obtained her doctorate with honors at the Ludwig Maximilian University in Munich and did research at Stanford University in the USA, as an Einstein Postdoctoral Fellow. The British newspaper the Financial Times included her in its list of the 100 most important "challenger personalities" from Central and Eastern Europe, who are shaping the future. The Romanian, it is safe to say, is still a young, but already very brightly shining star in the sky of astrophysicists.

That has a lot to do with two things. For one, with a book by an American scientist on astronomy and the structure of the universe, which she

read as a teenager and which aroused her interest in researching heavenly phenomena. For another, with the degree she completed in 2005 at the then International University Bremen, which is now Jacobs University in Bremen-North. "Without the enthusiasm, encouragement, and support of my professors, I would probably have followed a different path," says Aurora Simionescu today.

"One of the best experiences of my life," she says of her course of study in Bremen. And not just because of her professors, but also because of her fellow students. "Having lived on an international campus together with students from all over Europe, America, Africa, and Asia was an invaluable experience". No wonder, then, that she flew from Japan to Bremen for the tenth year homecoming of her class, in order to meet old friends. On her travels around the globe, too, she often shares a beer in the evening with alumni who are scattered all over the world. "This cohesiveness, this network is a lifelong gift."

She also views the universe as a kind of gift of unbelievable beauty. And her gaze is aimed not at individual stars but at galaxies. Each individual one consists of an uncounted number of stars; in our galaxy, the Milky Way, there are probably about 100 billion. The universe is full of galaxies.

Some, like the Milky Way, more or less keep to themselves; others combine to form a cosmic network. She is researching this network, trying to comprehend it, and to find changes. Because the universe is growing. How exactly this happens, no one knows.

Explaining complex processes is one of her many strengths. You can convince yourself of that in her blog at <http://earthinpink.com/>. Under the heading "Astronomy for Everyone," she provides a vivid introduction to the world of astrophysics and her work, mostly free of purely theoretical scientific jargon. You can see many fascinating photos, from space, but also pictures she took herself here on earth – because photography is one

of her hobbies. "I wanted to combine the beauties of the cosmos with that of our little planet on one page."

Aurora Simionescu is currently expanding her own research group, with her own doctoral candidates and post-docs. She is also participating in a large project – the construction of a new Japanese space telescope as a replacement for the "Hitomi" satellite, which was lost in space a little less than a year ago. So there's a lot to do, but, if at all possible, she will board a flight in Tokyo this coming summer that will take her to Bremen: to the next Alumni Meeting at Jacobs University.

## AWARD-WINNING COMPANY FOUNDER

When he was 17 years old, he came to Jacobs University from Calcutta, completed his Bachelor's degree at 19 years and, at 21 years, his Master in Computer Sciences. Two years ago, Ankur Modi founded "Status Today" in London. In spring, Forbes recognized him as one of the 30 most influential personalities in Europe below the age of 30 in the Technology category.

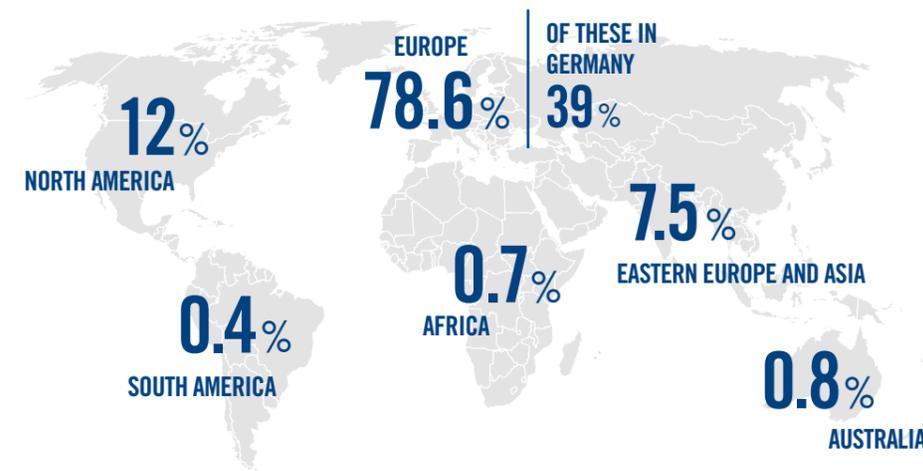
Status Today is an IT company that mainly focuses on security issues, including with the assistance of artificial intelligence. "In the first instance, we assist companies in understanding how they actually work and how they can improve", says Modi. After working for Microsoft in Denmark and Ireland, he made the move and ventured into self-employment. "To me it was clear that, in many areas, so much more could be done and technologies developed than it was possible for me to do in my job. I wanted to create something that really made a difference".

He now employs more than a dozen people. Modi and his company are in demand – also thanks to the recognition by Forbes. "Without Jacobs University, all this would not have taken place. It gave me the opportunity of studying Computer Sciences", says Modi. "I learnt a



Ankur Modi

tremendous amount there. Living with so many nations, so many different cultural backgrounds on one campus was unbelievably beneficial. Thinking in stereotypes is simply not an option there and this allows one to focus on what is really important".



## WHERE OUR ALUMNI LIVE



Hashem Al-Ghaili

## THE CLICK BILLIONAIRE

German Chancellor Angela Merkel is followed by 2.4 million people; Hashem Al-Ghaili by more than 8.4 million. On Facebook, the graduate of Jacobs University, who was born in Yemen and now lives in Bremen, Germany, is a star. In his videos, he explains the world of science in a vivid and entertaining manner and tells about the latest scientific breakthroughs and technological achievements. His page, which has garnered over three billion views from around the world, is known to his fans as the “Science Nature Page”.

The video about the “Hippo Roller”, a kind of rolling water tank, is among the most popular on Hashem’s Facebook page. The tank helps people, especially in rural Africa, to get better access to water; they no longer have to transport it in containers on their heads. The video has been viewed around 40 million times, half a million people have shared it; 7000 commented. Just recently, the manufacturer, a charitable enterprise from South Africa thanked Al-Ghaili who, they said, has helped many people. “The impact of this video has been far-reaching and as a result many more communities are experiencing the benefits of the Hippo Roller”. That made the 26-year-old very happy: “That is what I want. I want

to have an influence and contribute to making life better,” says Hashem Al-Ghaili.

That he would succeed in doing so one day could not have been predicted. Hashem Al-Ghaili grew up in a rural region in Yemen. After he graduated from high school, his father wanted him to be a farmer, but he was interested in natural science, devoured scientific magazines, read encyclopedias, and was a good student. He received a scholarship from the Ministry of Higher Education in Yemen and was accepted to study biotechnology at the University of Peshawar in Pakistan. His father let him go.

In Pakistan, Hashem Al-Ghaili excelled in his studies, and later became an active Facebook user and made new friends. One of them advised him to continue his studies in Germany after getting his Bachelor’s degree. Hashem knew little about the country and the education system in Germany. He applied to the German Academic Exchange Service (DAAD) and obtained a scholarship to continue his graduate studies at Jacobs University in Bremen. Today he says: “That was one of the best decisions of my life.” His fellow students helped him overcome the culture shock. The students

at Jacobs University come from over 100 countries; many of them have similar experiences, and they provide support to one another. “It really was cool,” says Hashem. “Unlike in my homeland, at Jacobs University I suddenly had access to the latest technologies. I also received all the support that I needed from my professors, particularly from the coordinator of the MoLife program back then, Prof. Sebastian Springer”. In 2015, he completed his Master’s degree in Molecular Biotechnology and gave a speech at the graduation ceremony as a student representative.

He briefly considered getting a doctorate or working in the lab, but then decided differently. Promoting science, spreading knowledge, that is what interests him; he sees himself as a communicator. Hashem took a job and became the Director of Content at Futurism, an American knowledge portal dedicated to science communication. In his free time

he worked on his own Facebook page, an average of three hours a day, unpaid.

“I love what I do,” he says. And a lot of people seem to love what he does, too – all around the world. His fans mainly come from the USA, Mexico, Brazil, and India, as well as from Europe. “In my videos, I present science as simply and entertainingly as possible. I want everyone to understand, no matter their nationality or age”. As a rule, the film sequences are between a minute and a minute and a half, often with background music. The topics range from new findings in medical research to breakthroughs in the natural sciences and astronomy through to innovations in material sciences. The film material comes from publicly accessible sources, named at the end of the video. He gets a lot of inspiration from scientific publications. “They contain treasures that need to be mined.”

## INTERNATIONAL PROBLEM SOLVER

“For me it’s always about people. How can a service or a product improve life?” That is the question that moves Lida-Maria Lottko. Today the independent management consultant works worldwide on projects for digital innovation.

“I like people, I like to go out and solve problems,” says Lida-Maria Lottko. And when you listen to the German with Iranian roots, you believe her right away: in a discussion, she juggles three topics simultaneously and, without losing her train of thought, her thoughts simply pour forth.

The method used by the independent consultant is called Design Thinking. In this approach, innovations are created by consistently aligning products and services to the needs of the customer. Problems are solved in a holistic, user-oriented manner. The goal is to change the culture toward more creativity and cooperation. To achieve this goal, small interdisciplinary teams work together.

Lida-Maria Lottko herself specializes in digital innovation. How does digitalization help shape the future of living and working? What may sound like visions of the future are already being conceived by companies in innovation laboratories. In this context, artificial intelligence helps link data, for example to give car insurance rates to drivers based on their behavior. Other examples of applications include dynamic traffic light switching to control traffic, or business software that handles tasks like bookkeeping virtually independently. And in the Internet of Things, everything communicates with everything, because thermostats, electric meters, refrigerators, and much more are all interconnected.

Lida-Maria Lottko is a nomad – professionally and geographically. She grew up in Essen. Since the beginning of the year, she has been living in Berlin, after stops all over the world. Whether the USA, Brazil, China, or Great Britain: following her studies in the international environment of Jacobs University, she is excellently prepared to live and work in other cultures. At 26 years of age, her frequent flier miles could stretch around the world many times. She has never worked on any one project for more than a year. Her customers include international companies and business consulting firms as well as nongovernmental organizations and startups.



Lida-Maria Lottko

Her mission is to bring people together. And she has a great treasure from her days studying at Jacobs University: her friends from around the world. Wherever her current project may take her, one of her fellow alumni is usually not far away. “My former fellow students are like family to me. We lived together in a small space for so long. That makes for an extremely tight connection,” says Lottko, who studied biochemistry and cellular biology in Bremen. Instead of lab work, she decided on a career in business and acquired the necessary business know-how in a Master’s program at the Hult International Business School in San Francisco.

Despite this change of direction, she still raves about her days as a student in Bremen: “I think the world needs more places like Jacobs University. Particularly today, where walls have become a campaign promise. People from more than 100 nations live and work here. These people show that it is possible to achieve something together, despite age, gender, place of origin, or religion”. Everyone profits hugely from the interchange among cultures, of that Lida-Maria Lottko is convinced. “We can learn so much from one another.”

# BRIDGE BUILDER

Science and industry can benefit from each other – in a variety of ways.



Take Stalex as an example. The Bremen company is a global leader on the market for silver-coated laminates – it manufactures smart textiles: sweaters that measure blood pressure, bandages that control wound healing and protective suits for industry. Silver-coated threads also play a key role in the production. Up to now, there have been few options for analyzing the threads and determining quality fluctuations in the material. The company does not have its own research department.

The company gets the scientific knowledge it requires for quality assurance and the development of its products from, among other areas, its cooperation with Jacobs University in the field of Raman laser spectroscopy managed by Professor Arnulf Materny (see page 6) with which the precious threads can be closely examined. The company coats six tonnes of material in silver every year. If the rejects can be reduced by only five percent, this would be an important competitive advantage, according to the company.

The transfer of knowledge is only one example of the many cooperation options between companies and Jacobs University. These include joint

research projects, and the further training of employees as well as recruiting talent. As a non-profit company, Jacobs University can be highly flexible and respond quickly to requests by partners from the business sector.

In the field of Executive Education, the University offers tailored programs and workshops on current topics in which employees at various levels are prepared for current and future challenges. This can be the provision of intercultural skills, a topic such as “Big Data – Science for Executives, Data Management and Data Driven Decision Management” or “Intelligent Manufacturing Technologies”.

No less important for companies is the possibility to gain top talents with an international outlook and an interdisciplinary education. The “Corporate Stipend Program” stands for this variant, with which companies can provide financial support to talented students in selected disciplines for a three-year Bachelor’s program or a two-year Master’s program. The students remain in close contact with the company by means of internships during the course of study or a thesis relating to the company.



**Kent Bridgewater**

The young entrepreneur (on the right) wants to make the cleaning of conveyor belts more efficient and environmentally friendly.

At Jacobs University’s **CAREER FAIR** employers make presentations to potential employees – including start-ups founded by graduates of the Bremen university.



## START-UP!

**Employee or freelancer? There is another option: Jacobs University assists on the path to entrepreneurship.**

“I’ve always been interested in start-ups”, says Kent Bridgewater with a subtle smile. The German-American has just recently founded his own company. Not one that deals with apps or Internet applications, but a start-up in the area of mechanical engineering, which wants to make the cleaning of conveyor systems while in operation possible. “No one else can do this”, says Bridgewater.

On the way to entrepreneurship, the Jacobs Startup Competition played an important role. The competition, organized by students for students, makes the process of how start-ups come to life tangible. In 2014, Bridgewater presented his business idea there; representatives of banks approached him and helped him prepare a business plan. A year later, BRIGE, the name of the company, won second place at BRIDGE, an idea competition at the Bremen universities. And another contact from his college days also proved very valuable: Bridgewater’s former host family from Bremen during his Master’s program in Business Psychology joined BRIGE as co-partners.

Every year, applications for the Jacobs Startup Competition are received from all over the world – this year there were 120: “There were so many fantastic ideas that completely inspired me”, says Käthe Neuss, one of 30 students on the organizational committee. But it is also about the process of also experiencing how something more comes from an idea – a prototype, a business plan. Such experiences are a real learning curve. They also increase self-confidence and the motivation to study. Many students are fascinated with the idea of founding a start-up or assisting in one: “Creating something by oneself that one is passionate about, that is something very special”, believes Käthe Neuss.

Visitors to the annual Career Fair, the networking forum between students, graduates and potential employers, can also convince themselves of this zeal. Global corporations and regional companies alike are present at this fair. Jacobs University has set up a Start-up Corner here, where young entrepreneurs can present their business ideas. It’s a place for meeting founders who also pass on their experiences in workshops – a fascinating experience.

### Want to find out more?

Find the most important contacts at a glance here

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JACOBS UNIVERSITY



# RANKINGS



## U-MULTIRANK APRIL 2017

INDUSTRIAL ENGINEERING AND MANAGEMENT, GLOBAL ECONOMICS AND MANAGEMENT, INTERNATIONAL BUSINESS ADMINISTRATION, ELECTRICAL ENGINEERING, AND COMPUTER SCIENCE

## CHE MAY 2017

INDUSTRIAL ENGINEERING AND MANAGEMENT, GLOBAL ECONOMICS AND MANAGEMENT, AND INTERNATIONAL BUSINESS ADMINISTRATION

## U-MULTIRANK APRIL 2016

BIOLOGY, CHEMISTRY, AND MATHEMATICS

## CHE MAY 2016

BIOLOGY, CHEMISTRY, ELECTRICAL ENGINEERING, COMPUTER SCIENCES, AND PSYCHOLOGY

## 2016 GRADUATION RATE

BACHELOR'S:

# 96.1%

MASTER'S:

# 96.8%

MORE THAN

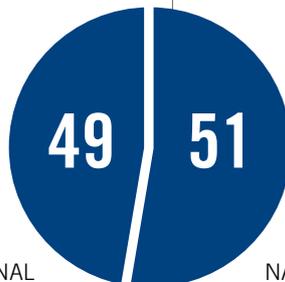
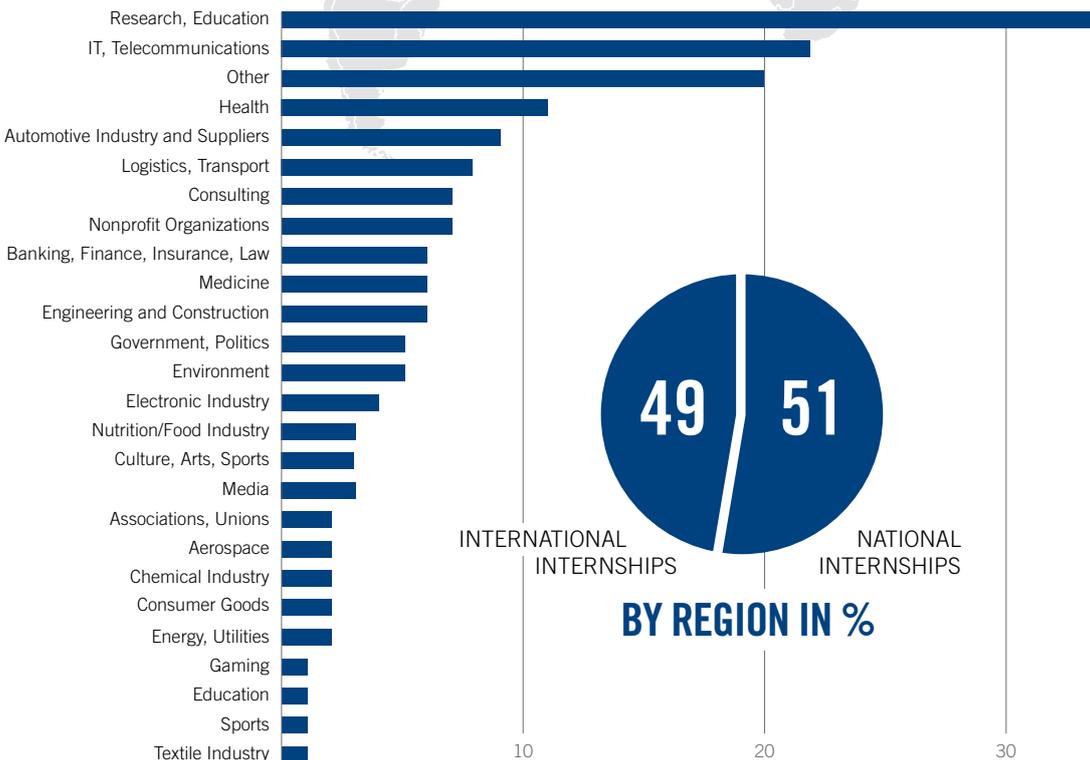
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## RESEARCH COOPERATIONS

WITH SCIENTIFIC AND CORPORATE PARTNERS, INCLUDING



# INTERNSHIPS BY SECTOR IN 2016



### BY REGION IN %

# 51 AT PARTNER UNIVERSITIES

STUDENTS CAN GAIN EXPERIENCES.