As I write this, I have just returned from an amazing week in Kenya. Linköping University and Moi University have celebrated 30 years of collaboration, with not only a summary of what the collaboration has come to mean to us, but also a vision of what we can do together in the future. It is gratifying that our model of problem-based learning has been received with such success in Kenya and that we have been able to help to start a modern programme of medical education there, among many other successes. But probably what affected me most during the visit was the stories of some of the nearly 400 students and 250 teachers who have travelled on exchange visits between LiU and Moi.

“WE GAIN A LOT FROM EACH OTHER” and “I USE WHAT I LEARNED AT MOI EVERY DAY”, and “This exchange visit has enabled me to grow as a person, and I’ve had wonderful, enlightening cultural experiences I never thought I’d have” are two quotations from LiU students.

I’M CONVINCED THAT the ability to learn to see things from a different perspective and to experience other conditions than we are used to is extremely important. To be able, at least for a brief period, to see the world and all the challenges we are facing through another pair of eyes. This allows new ideas to arise that we might never have had otherwise – such as starting a company in Kenya with electrically powered safari vehicles!

A NEW PERSPECTIVE can also reveal that tuberculosis, which in Sweden has nearly been forgotten, remains a huge problem in the world with two million deaths per year, making it important to continue research aimed at improving vaccination methods. And it’s possible that the series “Quicksand”, produced in Sweden and launched internationally on Netflix, will give new perspectives on young people and how they deal with a society that has in many ways become more polarised and unforgiving. We can learn from each other in many ways: through exchange programmes, business ideas, films, and – indeed – by reading this magazine. I encourage everybody to do so!

HELEN DANNETUN, VICE-CHANCELLOR
rektor@liu.se

4 Hanna plays lead in Netflix series
Acting while studying psychology.

8 A trip across the surface of Mars
LiU in project for young sportspeople in Africa.

10 News
Sweden’s largest student-organized festival.

12 “We gain a lot from each other”
Kenya collaboration gives mutual benefits.

14 Converting safari jeeps to electricity
LiU students started a company in Nairobi.

18 United by music
Can lead to a new life in Sweden.

22 Research
Most cited in the world.

24 Helping elderly hear better
Multidisciplinary research gives results.

26 Working the world
An environmental scientist who loves field studies.

28 He prevents the spread of infection
LiU researcher examines animal transportation.

30 New ways to stop tuberculosis
Infectious disease claims millions of victims.

33 CEO with an eye for innovation
Meet Lena Miranda, CEO of Science Park Mjärdevi.
Friendship across borders

At the end of the 1970s, I worked for a year at a centre for issues of peace and justice in California. It was an important experience for me, in many ways. Among other things, I met people who did not fit into my preconceived ideas of how Americans are. Of course, I was expecting them to be friendly and open, but also rather superficial. What I found, however, was generosity, warmth and humour combined with a willingness to discuss in depth even life’s toughest questions. I learnt how important it is to put prejudice and labels to one side, in order to discover positive and unexpected sides of each other. In this way, long-term friendships across borders can be forged.

RESEARCH AND HIGHER EDUCATION involve continuous meetings with people from different parts of the world. People work together in the research lab, and meet in exchange visits and collaborations.

The 30-year collaboration between Linköping University and Moi University in Kenya is one of many examples of how strong personal ties can play a decisive role. LiU Magazine was present at the recent celebration of the jubilee. The collaboration has, for example, enabled more than 600 teachers and students to participate in exchange visits that have led to growth, both professionally and personally.

Kenya is also the destination for some LiU students who have set up a company to convert safari vehicles from diesel engines to electrical power. Make sure you read the article!

THE MAGAZINE PRESENTS some of the research at Linköping University. One project, for example, is aiming to get to grips with one of the world’s most widespread infectious diseases, tuberculosis, which claims 1.5 million victims every year. Other researchers are working to make everyday life easier for people with hearing loss, to reduce infection during animal transport, and to combat global environmental challenges.

We also describe the thriving musical activities at Linköping University. If you’re a choral singer as I am, you will easily understand what music can mean for a guest student or international researcher as an entry ticket into Swedish society. Read about Englishman Benjamin Everett and Italian Alice Framba, who play the violin and bassoon, respectively, in the Linköping University Symphony Orchestra. Both have ended up staying in Linköping longer than they planned – and music is one of the reasons for this!

We hope you enjoy the magazine!
LiU-student plays lead in Netflix series

Hanna Ardéhn is a fourth-year student of psychology at Linköping University. At the same time, she is in the news as lead actor in Sweden’s first Netflix production, “Quicksand”.
It’s almost too big to grasp. In fact, I’m trying not to think about it – it just makes me too nervous”, says Hanna Ardéhn when asked about the fact that *Quicksand* will be shown wherever Netflix is available, including the US and Latin America.

She has spent the day studying at Linköping University. But yesterday she was working in Stockholm on the launch of the series, giving interviews all day. In the evening, she walked the red carpet at the official première of the series.

“So many people! We were on the carpet and they took loads of photos of us. It’s about as far away from student life as you can get.”

Hanna Ardéhn’s life has involved a lot of travel between Linköping and Stockholm recently. The series was recorded during the autumn, and recent weeks have been dominated by the launch, and getting ready for the online première.

“It’s been fulltime studies and working full time on top of that. So, it was tough. But it worked because it was only for a limited period. Those who are responsible for my programme and courses at the university have been very helpful, making sure that everything works. I’m very grateful that they’ve been there, and have helped me so much.”

How do you find time for everything?

“I don’t know”, says Hanna, laughing. “Somehow you make it work. It’s like at the start of term when students are involved with parties and looking after new students – even so we manage to cope with everyday life somehow. Some things do get a bit neglected, such as visiting the family or spending time with friends. But, well, as I say – it works somehow.”
“His character in the series is extremely dark. So it’s comforting that he personally is exactly the opposite.”

Hanna about Felix Sandman who plays the male lead, known from the boyband FO&O.

“QUICKSAND” IS BASED ON A NOVEL by Malin Persson Giolito with the same title. It was awarded best Swedish crime novel for 2016 by the Swedish Crime Writers’ Academy, and the Glass Key Award for best Nordic crime novel in 2017.

The series opens with a high-school shooting in Djursholm, outside Stockholm. Maja, played by Hanna Ardéhn, is charged with the crime.

“The series follows her in a narrative about what has previously happened and what led to this terrible event. It’s a story that mainly concerns power, relationships and dysfunctional relationships. It discusses power in the form of who exercises power in a relationship between two people, and in the form of who has power in society”, says Hanna.

The series has received excellent reviews, and Hanna Ardéhn has been praised for her interpretation of the lead role, Maja. She herself found it challenging to become absorbed in Maja’s person.

“There were days when Felix Sandman, the other lead actor, and I went through really difficult scenes together; we went round crying all day long. There was a lot of such days that were emotionally draining. But at the same time, it was great to have been part of this process, simply because it was so challenging. I really felt that I grew as an actor during it.”

What was it like, working with Felix Sandman?

“His character in the series is extremely dark. So it’s comforting that he personally is exactly the opposite. I’ve felt secure acting with him, because I know that he is a genuine, kind and wonderful person.”
HANNA ARDÉHN DESCRIBES how she identifies with Maja, in that she also was an over-achiever in her teenage years.

“There was a lot of such days that were emotionally draining.”

Hanna about playing Maja.

Brief facts about Hanna Ardéhn

Name: Hanna Ardéhn
Age: 23
Lives: Linköping
Grew up: Åkersberga, Stockholm
Studies at LiU: 4th year of the Psychologist Programme (due to graduate in 2020)
Family: Mother, father and two sisters
Favourite exercise: Yoga
Most recently watched film: The Godfather Part II
Party or night in? Night in, or night in with friends
A secret about you that nobody knows: I have a morbid sense of humour.
At Visualization Center C on LiU’s Campus Norrköping, you can take a trip far out into the universe or deep down into the smallest constituents of matter. The centre is taking part in a huge project that aims to inspire more children and young people to take an interest in science and technology.

**A TRIP ACROSS THE SURFACE OF MARS**

**STORY MONICA WESTMAN SVENSELIUS**

**PHOTO VISUALIZATION CENTER C & THOR BALKHED**

At Visualization Center C on LiU’s Campus Norrköping, you can take a trip far out into the universe or deep down into the smallest constituents of matter. The centre is taking part in a huge project that aims to inspire more children and young people to take an interest in science and technology.

We are flying over the surface of Mars, coming ever closer to the folded sand dunes. On the horizon, we can see a profile of mountains, and the sun is slowly sinking behind the highest. The length of the shadows increases, until darkness finally falls across the landscape of Mars.

“You are the first people ever to see this sight, the images are unique and are created as we watch. They are not artificial images calculated in a computer, but show reality as it is has been captured by the NASA Mars Reconnaissance Orbiter”, Anders Ynnerman, professor of scientific visualisation and director of Visualization Center C, tells the audience.

They have been invited to the opening of the newly upgraded dome theatre in Norrköping. This is the first part of WISDOME, the Wallenberg Immersive Science Communication Dome, a project with a price tag of SEK 150 million intended to spread knowledge and interest in science and technology. It is financed by the Knut and Alice Wallenberg Foundation. Similar openings will follow in Stockholm, Göteborg, Malmö and Umeå, enabling the material produced in Norrköping to be seen by many more people.

THE IMAGES FROM the surface of Mars are created from data collected by space probes and stored on servers all over the world. The data seen at the opening are sent from the University of Utah directly to the six computers at Visualization Center C, which are compelled to run at top speed in order to render the beautiful images with the wealth of detail they contain.

“The resolution of the images is about 25 cm, which means that if there were people on Mars, we would be able to see them”, Anders Ynnerman explains.

We continue our journey towards the sun and see how clouds of hot plasma are thrown from its surface. On Earth, the magnetic field protects against most sun storms. But this protection is weaker at the poles, where particularly powerful sun storms can cause aircraft to lose radio contact with the ground and may cause problems with the electric power grid, although the experts at Svenska Kraftnät
assure us that in Sweden we are well prepared to deal with this.

Mars, in contrast, does not have a magnetic field to protect it, just a thin carbon dioxide atmosphere. If people are to live on Mars, they will need buildings with effective protection, and must keep a close eye on the Martian weather.

SPACE EXPLORATION IS JUST one example of the power of visualisation: one minute later we are on our way from the dome in Norrköping, via a coffee mug on the table, a salt crystal, and a microscopic organism deep into the tiniest building blocks of nature: quarks.

“Wow, look at that!” The centre wants to spark interest in engineering and science among children and adolescents.

LEFT Adventures in space. The images from Mars’ surface are created from data collected by space probes.

“Everything we can show here in the dome and the exhibitions is based on research. Visualization Center C is a display window for the research carried out at Linköping University, adapted for all ages”, says Anders Ynnerman.

If you run a Google search for “researcher” or “research”, you get pictures of women and men in white lab coats, standing and sitting among at least an equal number of test-tubes. Anders Ynnerman knows that this is not going to attract young people to develop an interest in science and technology. At Visualization Center C, research is therefore presented as a voyage of discovery out into the universe, down into the human body, across to the smart cities of the future, or into buildings that have not yet been constructed.

“Visualization enables us to present complex and puzzling concepts in an accessible manner that crosses barriers set up by language, culture and age,” says Anders Ynnerman.

Visualization Center C is unique. The WISDOME donation has made it possible to install six new projectors with the very latest in visualisation technology. “We are the most advanced installation in the world at the moment”, says Anders Ynnerman.
High in global ranking

Linköping University is number 30 in a global ranking of universities less than 50 years old.

The universities have been evaluated by the QS World University Rankings. The top three places are held by Asian universities, led by Nanyang Technological University of Singapore.

LiU entered the top 50 just six years ago. Of the young universities in Europe, LiU is now ranked tenth.

The QS ranking is based on indicators such as academic reputation, staff/student ratio and internationalisation.

The QS World University Rankings, which disregards the university’s age, is topped by American and British universities. Here Linköping University is number 302.

All in all, there are roughly 20,000 universities in the world today, of which about 16,000 are younger than 50 years.

LiU alumna author of two books

Upper secondary teacher and LiU alumna Katja Hvenmark-Nilsson has had her first novel published, a feelgood adventure entitled “Manhattan Transfer”. This is one of two she wrote while living in New York for a year. The other, “Välkommen in mitt klassrum”, is non-fiction, and has been distributed by the Swedish Teachers’ Union as a graduation gift to thousands of students of teaching. An interview with Katja Hvenmark-Nilsson has previously been published in LiU Magazine.

Leader for all students in Sweden

LiU student Matilda Strömberg has been elected chairperson of the Swedish National Union of Students (SFS).

Starting on 1 July, she will take a one-year sabbatical from her studies in Human Resources at Linköping University to work with such issues as mental ill-health in students, resource allocation within academia, the situation of students and their studies, the quality of education, and student influence.

While studying at LiU, she has been active in the student union.

“[I] have been active ever since I became a student at Linköping University. For me, it’s extremely important to be able to influence one’s life as a student, and to improve the situation for all students. So now I want to take this a step further, and get even more involved”, says Matilda Strömberg.
SOF – Sweden’s largest student-organised festival

Since 1973, a festival of student music known by its Swedish abbreviation SOF has spread happiness among students and Linköping residents, when captivating orchestral music, energy-filled ballet performances and sensational carnival floats bring colour to the city for three action-packed days.

SOF is one of the largest student festivals in northern Europe, with more than 10,000 students taking part. The festival is organised in Linköping every two years. Orchestras come from all over Sweden, nearly the whole of the Nordic region, and there are even usually some from central European countries. They gather at a festival site with a huge range of activities: outdoor games, flipper arcades, theatrical performances, and dance shows, and the party occupies three pulsating days (and nights).

And the festival sets its mark on the whole of Linköping, in particular on the Saturday, when the SOF carnival progresses through the city. More than 50,000 people gather to see the student orchestras, interspersed with LiU student floats, which are usually built on an open lorry.

"One of the reasons that people choose to study at LiU is that there is so much going on – it’s a great place to study and there are so many other fun activities here as well. We have Sweden’s largest student-organised festival – that’s something to be proud of and nurture”, says David Stigsmark, chief organizer of SOF 2019, which was held on 9-11 May.

Top marks for teacher education

Linköping University receives top marks in a recently published survey of teacher education in Sweden carried out by the Swedish Higher Education Authority (UKÄ). All of the teacher education programmes examined at LiU were given the assessment “High Quality”.

“This is, of course, very gratifying and recognition that our work to continuously improve the teacher education here has given results”, says Jörgen Nissen, responsible for teacher education at Linköping University.

The published survey has examined the preschool teacher programme, the primary school teacher programme for Grades 1-3, was given a preliminary examination and also assessed to be of high quality. The primary school teacher programme for Grades 4-6, and the primary school teacher programme for after-school clubs. Another primary school teacher programme, for Grades 1-3, was given a preliminary examination and also assessed to be of high quality. The UKÄ survey covered 67 teacher education courses and programmes at 20 institutions of higher education. LiU was one of only four of these at which all courses and programmes were judged to be of high quality.
For 30 years, Linköping University and Moi University in Kenya have worked together, in a collaboration that the universities believe benefits them both. Contact between the two universities is now set to increase.

Kenya collaboration gives mutual benefits

STORY EVA BERGSTEDT PHOTO ANNA NILSEN

Waiting room at a hospital in Kenya.

Four medical students from LiU did a work placement at Moi University Hospital in spring 2019.

The vice-chancellors sign a new agreement.
L

tköping University and Moi University in Kenya recently celebrated 30 years of collaboration.
“A collaboration that lasts as long as this is unusual. One reason for the success is that we have been fortunate with personal relationships and trust with a high level of integrity – we have both benefited greatly from each other”, says Simeon Mining, coordinator for the collaboration at Moi University and honorary doctor at Linköping University (LiU).

The collaboration initially concerned a new medical programme. The ministry of health in Kenya wanted to establish medical education at Moi University in Eldoret, western Kenya. It wanted the teaching methods to be modern and innovative. The eyes of the ministry were for this reason drawn to Linköping University, which had attracted international attention for its teaching model using problem-based learning. An agreement was signed in 1989 and Linköping University subsequently contributed to setting up the medical programme.

WITH THE MEDICAL PROGRAMME in place, a programme of exchange visits between Moi and LiU grew. Through the years, more than 600 students and teachers have spent time in the partner country, Sweden or Kenya, in order to expand their professional horizons. The collaboration has been expanded to include several exchange visits within health and medical care.

On the occasion of the jubilee, four LiU students were present in Eldoret. They are taking the medical programme at LiU, and are on a 12-week placement at Moi university. The conditions for medical care in Kenya are very different from what they are used to: the students’ perspective is broadened. They gain knowledge about other types of disease, learn to take on major responsibility for seriously ill or injured patients, and are confronted with a reality in which patients in many cases die because they cannot afford to pay for healthcare themselves. The huge difference in social conditions gives new insight.

“Many are much sicker when they arrive than would be the case in Sweden, because they wait longer before seeking medical attention. I’m gaining loads of new knowledge here that I haven’t seen used in Sweden, such as many small medical manoeuvres and methods of physical examination. I’m hoping to be able to use them when I return home”, says Kajsa Broman.

As the years have passed, exchange visits for teachers and students have been established for other professions in health-care education, including nursing science and physiotherapy.

Pia Ödman teaches physiotherapy at LiU and travelled on an exchange visit to Kenya in 2018.

“I taught a course in neurological rehabilitation and collaborated with those responsible for the course at Moi about content and teaching. The weeks I spent in Kenya gave me a new way of looking at what we do in Sweden”, says Pia Ödman.

SEVERAL KENYAN STUDENTS participated in the jubilee celebrations, several of whom had been on study visits to LiU last year. They also confirmed the enormous impetus to learning that occurs when a person leaves the educational comfort zone.

“I really valued the friendly and personal way in which the teachers treated us students. This enabled me as a student to have the courage to pose questions and reflect out loud, and in this way I’m sure that I learnt more”, says Joy Wendo, who is studying nursing science.

Ashwinder Bhamra is studying medicine.

He is convinced that he will benefit from the weeks he spent in Linköping for the rest of his life.

“When you meet people from other cultures, you are forced to reflect over yourself.” His experience is that all such personal meetings make a better doctor.

COORDINATOR SIMEON MINING points to other advantages of the exchange programme, from the perspective of Kenyan society.

“Our students and teachers receive a boost to their self-confidence by studying and working for some months in another country. Often, these people will eventually come to occupy central positions here in Kenya.”

The two vice-chancellors signed new collaboration agreements during the jubilee celebrations. More students from the Faculty of Medicine and Health Sciences, including those on the biomedicine programme, will have the opportunity to study and travel on placements to Moi University. Exchange of doctoral students will increase, and plans are in place to increase also exchanges within occupational therapy and teacher education.

“International collaboration opens and broadens the perspectives and knowledge of the universities. No one has all the answers alone, and collaboration quite simply leads to better education and research. We are now continuing to build on our collaboration with Moi University, and expand it in a manner that will benefit both partners”, says Helen Dannetun, vice-chancellor of Linköping University.
CONVERTING SAFARI JEEPS TO ELECTRICITY

A group of eco-conscious LiU students has moved to Kenya and started a company devoted to electric safari vehicles. In less than a year it has grown to 28 employees, most of whom are Kenyan engineers.

STORY EVA BERGSTEDT  PHOTO ANNA NILSEN
Every country has to change its ways, if we are to meet the challenges of climate change. That is the background to the LiU students starting a company in Kenya, to convert fossil-fuel-powered safari vehicles to electric drive.

“Our aim is to deliver environmental benefits for a better future – but also more equitable development at the global level. Creating jobs here in Kenya is gratifying – and important”, says Johanna Alander, production manager and the only one in the LiU group who had time to finish the engineering programme Energy, Environment and Management, before they moved to Nairobi in the summer of 2018.

The plan was primarily to focus on converting safari vehicles from diesel to electricity – and that’s what they’ve done. They’ve secured a workshop in a dusty industrial district in Nairobi, where diesel and petrol engines are removed, and replaced by pre-built boxes containing the entire electrical drive train. The premises are being renovated to better suit Opibus – the business’ name, which is Latin for “resources”. But the young owners can already see that they will soon have to expand. Demand for their services is huge.

“The safari parks generally have a lot of money, and they invest consciously in sustainability. Plus, they earn money on the electric vehicles. The vehicles reduce operating costs, they’re charged by solar panels, and the tourists love them because they’re so quiet. They deliver a far more intense experience of nature”, says Sales Manager Mikael Gånge.

Safari camps from all over East Africa are on the waiting list to have their vehicles converted. And parks from Botswana, South Africa and other countries have made enquiries.

But Opibus’ plans include more than safari vehicles. They also want to address the chaotic Nairobi traffic.

“We want to start up a pilot project where we produce 30 new motorcycles...
with electric engines. And this autumn we hope to get started with the conversion of some of the 150,000 matatus, the local buses in Nairobi”, says Filip Gardler, one of the company’s two managing directors. They have applied for permits to build up an infrastructure for charging stations, and they deliver solar panel solutions to customers. The plan is to kick-start the development of electric vehicles in East Africa and other parts of the continent. Opibus recently received an order to install 300 solar panel systems at schools in rural Kenya, meeting the schools’ electricity needs. “It’s amazing, we’re directly affecting the ability of students to get an education”, says Filip Gardler. The group of young entrepreneurs doesn’t plan to stay in Kenya forever. Perhaps a few years. The objective is to build up a robust company that can subsequently be managed by the Kenyans themselves.

“We’re not trying to do the ‘Save the World’ thing. The idea that many parts of Africa need saving is already firmly established, and we don’t want to cement that further. We’re building a solid business, and this region has a large growth market that rarely receives attention”, says Filip Lövström, also managing director.

SKILLED STAFF ARE ALREADY in place. From day one the founders have collaborated with the Technological University of Kenya, carefully recruiting individuals with the same drive and interest in sustainability as themselves, and with both theoretical and practical knowledge. Two of these are mechanical engineers Esther Wairimu and Daniel Muugi, who recently started at Opibus.

“The idea of converting traditional car engines to electrical motors is brilliant. I get to use all my professional expertise, and can take full responsibility for my work”, says Esther Wairimu. They are both happy to work at a company where they are given plenty of freedom, and responsibility. “It makes you grow, and everyone benefits from that”, adds Daniel Muugi.

Electrical engineer Francis Njoroge also has experience from the tourism industry, and was one of the first employees. “I use every aspect from my professional training at the same time, I’m not used to that”, he says.

Teamwork is important. Together they are breaking new ground.

IN THE TAXI RETURNING from the industrial district, the driver says that yes, he has actually heard about that Swedish company that is into electric motors and solar energy. He smiles in the rear-view mirror, nodding. “They’re getting into the right thing, it’s cool, it’s the future.”

The four LiU students Mikael Gånge, Filip Gardler, Johanna Alander and Filip Lövström moved to Nairobi in summer 2018 and started Opibus, which converts safari vehicles from diesel to electric drive.
UNITED BY MUSIC

Christina Hörnell, director musices at Linköping University.
It's Saturday morning and the Linköping University Symphony Orchestra, LAO, has an all-day rehearsal in the Musicum facility on Campus Valla. The music stands support Tchaikovsky's 5th symphony, and everyone is fully focused in preparation for an upcoming concert. The symphony orchestra is one of the music-based activities associated with Music at LiU. The major part of these activities is constituted by high-quality choral performances, while the opportunity for a short academic course for orchestral musicians is another.

Music-based activities at LiU give students and staff, not least visiting students and staff, the opportunity to sing in several choirs, from small choirs arranged by the students themselves to massed-voice choirs run by the university director musices. Swedish friends, a sense of community, and - in the best of cases - true love. Music can even lead to a new life in Sweden.

The symphony orchestra is one of the music-based activities associated with Music at LiU. The major part of these activities is constituted by high-quality choral performances, while the opportunity for a short academic course for orchestral musicians is another.

Music-based activities at LiU give students and staff, not least visiting students and staff, the opportunity to sing in several choirs, from small choirs arranged by the students themselves to massed-voice choirs run by the university director musices.

The Linköping University Male Voice Choir has around 60 members and performs a wide range of music, from items in the classical male voice choir repertoire to newly written pieces. The choir tours at regular intervals and has won several prizes in international competitions.

The male voice choir has a sister, the Linköping University Women's Choir – Linnea, with around 40 members and a broad repertoire. Chorus Lin is a mixed choir, but has high ambitions for its musical achievements, just as the other, larger choirs.

The Linköping University Chamber Choir has around 40 members and is the only one of its kind. It puts on concerts and performs at the university's ceremonial occasions. The Linköping University Chamber Choir is on a par with the most prominent choirs in Sweden, and its
members come from a wide range of backgrounds. Many of them have professional musical training, while others are students or staff at Linköping University. “We are part of the current age, and we want this to be reflected in the university music activities. If you wanted to describe Music at LiU in a single phrase, it would be ‘tradition and innovation in harmony’. The choirs often perform music by contemporary composers; they shine a light onto female composers; and move with confidence across a wide range of genres”, says Christina Hörnell, director musices at Linköping University.

THE MUSIC-BASED ACTIVITIES at the university are a fantastic resource for visiting students and researchers. The social life that thrives around the music gives friends for life, and provides an opportunity to get a glimpse of Swedish society. It is also a chance to learn the language.

The choirs work together at many concerts, and the experiences are the type that last for a lifetime. “It is a magnificent feeling to sit in an orchestra with more than 120 song artists behind you”, says Benjamin Everett from Birmingham. He is one of the second violins in LAO, and is happy to devote his Saturday to rehearsals. Benjamin Everett finds that it is more fun to play in the LAO than it was in the academic orchestra that he played in at the University of Liverpool.

“When we give more concerts. Our conductor Merete Ellegaard has the courage required to try new things, and helps us stretch the limits of what we can achieve. Sometimes we receive support from professional orchestral musicians, and this is a great advantage”, he says.

When Benjamin Everett graduated with a master’s degree in aeronautical engineering from Linköping University, he was immediately offered a job at SAAB, but he is not considering leaving the orchestra, and is planning to stay in Sweden. And the fact that he found true love among the music stands has, of course, influenced that decision.

ALICE FRAMBA CAME TO Linköping University as an Erasmus student from the University of Trento, Italy, bringing her bassoon and a passion for music with her. She originally planned to spend one term here, studying
international relationships with a specialisation in European relationships. But it didn’t turn out like that. LAO made itself felt.

“I became part of the community immediately, and found Swedish friends with the same burning interest in music that I have. If it wasn’t for the orchestra, I would probably have spent most of my time with other students from the course”, says Alice Framba, who has not only graduated in international relationships at the University of Trento but also studied at the conservatory there.

“But what’s important for me is not really what we play, but the fact that we play together.” She also made sure that her studies during the Erasmus visit included a music aspect. She examined the relationship between the Italian 19th century opera “Christina, Queen of Sweden” and Swedish nationalism, seen from a European perspective.

Alice Framba enjoyed living and studying at LiU so much that she decided to work towards a master’s degree here. And partly for the same reason that Benjamin Everett stayed. It seems that music truly is the food of love!
With a passion for electronic plants

Eleni Stavrinidou is the LiU scientist who beat off stiff competition to be awarded a research grant of EUR 3.3 million for three years from the EU Horizon 2020 Programme for Future and Emerging Technologies. The approval rate for such grants is just 2%.

At the beginning of March this year, she received the prestigious L’Oréal-Unesco Prize for Women in Science, awarded in 45 countries, for her visionary research. The prize, which comprises SEK 150,000 and a one-year mentor programme, is awarded by the L’Oréal Foundation, the Young Academy of Sweden, and the Swedish National Commission for UNESCO.

Researchers from five European universities will participate in the EU project, which has two tracks, the first of which is to integrate organic electronics into living plants. This may, in the long term, lead to their use in the extraction and storage of energy, and to new materials. The second track is the development of bioelectronics for the monitoring and control of plant physiology. This research aims to increase knowledge about fundamental processes that can be used in the long term to optimise and monitor growth.

“My research is inspired by the natural world, which has optimised processes by evolution throughout millions of years. I love my work and I’m happy that I can contribute to expanding knowledge in my field”, says Eleni Stavrinidou.

They study harmful proteins in the brain

Fluorescent tracer molecules developed by scientists at LiU will be used to develop new diagnostic methods in dementia. The research project, led by Peter Nilsson and researchers at Indiana University, has received a grant from the National Institutes of Health (NIH).

The NIH in the US is the largest governmental funder of biomedical research in the world. “It feels as if we have been given a place in the top league. The competition for funding from the NIH is extremely fierce”, says Peter Nilsson, professor of organic chemistry at LiU.

Peter Nilsson and his research team focusses on developing tracer molecules that recognise proteins and that can be used in research into neurodegenerative diseases such as Alzheimer’s disease. Together with researchers from Indiana University, the LiU research group will now start to look in detail at several brain diseases in which a protein known as tau plays a major role. Tau is a naturally occurring protein, but sometimes it starts to form aggregates inside nerve cells, which subsequently die.

The aggregates may be present in the brain without giving any noticeable symptoms for 10-15 years. When symptoms start to appear, the damage has already been done. “It would be hugely significant for patients if we can discover the tau aggregates and make an accurate diagnosis at an early stage”, says Peter Nilsson.
Most cited in the world

Four researchers from LiU claim places on the 2018 list of the most highly cited – and thus most influential – researchers in the world.

Each year, a list of the world’s top 1% of researchers, measured by number of citations, is published. Four of these work at Linköping University:

Professor Gerhard Andersson works at the Department of Behavioural Sciences and Learning in the Division of Psychology.

Professors Fengling Zhang and Olle Inganäs both work at the Department of Physics, Chemistry and Biology in the Division for Biomolecular and Organic Electronics.

Professor Erik G. Larsson works at the Department of Electrical Engineering in the Division for Communication Systems.

The ranking is based on articles within the natural sciences and social sciences catalogued in the Web of Science Core Collection. The list for 2018 consists of 6,000 researchers from all over the world, working in 21 fields of research.

New honorary doctors

Four researchers who play on the international stage have been awarded honorary doctorates by Linköping University, together with three people from the Swedish academic and business worlds.

Alan Prout, professor emeritus in childhood sociology in the UK, has been awarded an honorary Doctorate of Philosophy. He is an international pioneer in the field and has a long history of collaboration with researchers at the Department of Thematic Studies – Child Studies.

Physicist Nashwa Eassa has been awarded an honorary Doctorate of Technology for her work to support the possibilities of women to participate in education and research in her home country, Sudan, and in other developing countries. She studied at LiU, graduating from the international master’s programme in Materials Physics and Nanotechnology in 2007.

Nick Hopwood, who conducts research into teaching in Australia, has long had a close collaboration with the research group in medical teaching methods at Linköping University. He has been awarded an honorary Doctorate of Medicine. Peter Larsson, professor of physiology and biophysics at the University of Miami, has also been awarded an honorary Doctorate of Medicine. He has not only collaborated with several LiU researchers, but also supervised medical students from LiU who have worked in his group.

Other new honorary doctors are company director Peter Wallenberg Jr for his work as chair of several major research foundations, Linda Keeling, professor of animal protection at the Swedish University of Agricultural Sciences (SLU), who together with LiU researchers operates a national centre of excellence within animal welfare, and Karsten Åström, professor emeritus in the sociology of law, who has been involved with the establishment of an environment for education and research in welfare law at Linköping University.
Hearing researchers at Linköping University are addressing the hearing problems of the elderly. The aim is to improve the quality of life of the millions of elderly who suffer from hearing loss.

STORY THERESE EKSTRAND AMAYA PHOTO DAVID BROHEDE

Helping elderly hear better

Hearing researchers at Linköping University are addressing the hearing problems of the elderly. The aim is to improve the quality of life of the millions of elderly who suffer from hearing loss.

Mary Rudner studies what happens in the brain when our hearing deteriorates.

Anders Fridberger will test if drugs can help against hearing loss.
“Pardon? What was that?” Most of us feel awkward when we don’t hear properly. And this feeling increases with age, as our hearing deteriorates and communication gets more difficult.

In a new research project, researchers will explore a number of questions relating to hearing loss. In particular, what its causes are. Other aims are to develop more efficient hearing aids and to improve diagnostics.

Professor Anders Fridberger, from the world-leading research group Linnaeus Centre HEAD, will investigate whether drugs can be suitable for the treatment of hearing loss.

“Studies of animals have shown that drugs can protect the inner ear’s receptors from injury – and in some cases, even help them regrow. But before they can be used in humans, the drugs must have fewer side effects”, says Anders Fridberger.

His office is at the Faculty of Medicine and Health Sciences, next to the University Hospital, which many of the patients with hearing loss attend.

But can drugs help against hearing loss? Anders Fridberger thinks so. His research team will conduct the first clinical trial of a method where a drug is injected through the eardrum. They hope the drug will protect the ear against damage caused by loud sounds, or slow the development of hearing loss.

THE LINK BETWEEN HEARING LOSS and dementia will also be an important field of study for the researchers at HEAD in the years to come. If we can understand the relationship between hearing loss and dementia, we will be one step closer to understanding how to prevent the development of dementia.

“When your hearing deteriorates, your quality of life is affected and the risk of social isolation, depression and dementia increases. With severe hearing loss, the likelihood of developing dementia increases five-fold”, says Anders Fridberger.

Professor Mary Rudner will investigate age-related changes in cognition, and see how they relate to a decline in hearing. In a recent study, she and her colleagues present results indicating that the brain shrinks when hearing deteriorates.

“People with poorer hearing have less tissue in the parts of the brain that deal with sound and memory”, says Mary Rudner.

What is new in Mary Rudner’s research is that she identifies similar effects in people who do not have an actual hearing impairment, but whose hearing is getting worse.

“This means that hearing status has more far-reaching consequences for our well-being than we previously believed”, she says.

MARY RUDNER AND ANDERS FRIDBERGER have two completely different points of departure for their research. She is a cognitive scientist who explores memory, language and cognition; he is a physician who studies the inner ear’s receptors.

“This project brings together physiologists, engineers, doctors and cognitive neuroscientists, working towards a common goal. That’s a strength”, says Anders Fridberger.

Research at LiU makes life easier for elderly with hearing loss.
Henrik Kylin is an environmental scientist who commutes between the Arctic and Antarctica, with stopovers in agricultural and fishing communities all round the world. He has been taken as an imam in Zanzibar, consorted with polar bears on Wrangel Island, and counted flip-flops in the Indian Ocean.
As a third generation professor, Henrik Kylin has academia in his blood. Both his father and grandfather were professors. What is characteristic for Henrik Kylin is his interest in field studies – he has travelled all over the world in the interests of research.

He receives us for an interview about his travels, barefoot in his office. Several times he uses a large inflated globe to point out the places he has visited. He describes the island with the highest density of polar bears on Earth, Wrangel Island, and explains why the Inuit population has such high levels of environmental toxins in their blood, higher than people who live close to where the toxins are released.

Between 1996 and 2010, Henrik Kylin spent a total of three years on various icebreakers.

“You either hate it or you love it”, he says. “So how did you find it?”

“I thought it was incredible. It means isolation, and you don’t need to watch TV adventure shows to get a dose of drama.”

In addition to the polar expeditions, much of his research has targeted less developed countries in which most people work with agriculture or fishing. Henrik’s research has considered the impact of toxins on the environment. He has, for example, worked with an international team of researchers on an atoll in the Indian Ocean, and found approximately 11,000 flip-flops contaminated with environmental toxins.

A STRAIN OF HUMOUR runs through his descriptions of meetings with farmers and fishermen in Bangladesh, Mozambique and Zanzibar. His beard, for example, has its own history.

“I let it grow in the Arctic because I was too lazy to shave. And then it turned out that it’s useful to have a beard when communicating in traditional societies in many developing countries.”

He noticed that having a beard was associated with reliability and importance, and opened communication pathways with elders who had considerable influence. Having a beard, however, can sometimes be misinterpreted, as Henrik and another bearded colleague found out when giving a research education course in Zanzibar.

“We were talking to the elders through an interpreter. They posed questions and my colleague answered in a rather academic manner. He realised that the answer was incomprehensible, so started to explain: ‘I mean . . .’, and that was all he had time to say before everyone bowed reverently. He lost the thread, and repeated ‘I mean . . .’, and everyone again bowed. It turned out that the listeners thought that we were imams because we had beards, and when he said ‘I mean . . .’ it sounded like praying, ‘amen’ in Arabic. Eventually, of course, we could all enjoy the joke together when the communication problem was sorted out,” laughs Henrik Kylin.

Humour has been important for him. While travelling around the world he has witnessed injustice – how adults and children who are without education and financial means are harmed by environmental toxins in food, soil and water.

“It find it difficult to accept”, he says.

HENRIK KYLIN CONSIDERS IT to be his duty to contribute to solutions to the environmental challenges that people face where they live. One of the campaigns he works with actively is to reduce the brain drain – the process in which educated people from developing countries travel to previous colonial powers, when they have the opportunity. He believes that scientists must not take it for granted that western research has the answers to local environmental challenges everywhere in the world.

“It is important that scholars who understand the local context, those who have social structures and are familiar with how the local environment functions, remain.”

An example he brings up concerns the fivefold increase in the incidence of hormone disturbances leading to extra nipples and underdeveloped genitals in boys, in a region that has been sprayed to combat malaria-bearing mosquitoes.

“In order to communicate effectively here, you must have an understanding of the deep-seated religious feelings and other deep social structures that may get in the way.”

Facts

Name: Johan Henrik Kylin
Family: Married with two grown-up children
Favourite pastime: Spending time with nature
On climate change anxiety: It’s remarkable that it has taken so long for the world to wake up, and it’s a tragedy that people can only focus on one environmental challenge at a time.

Inspired by: Skilled scientists who can communicate in a way that everyone understands. It is important to dare to be “unscientific”!
An outbreak of an infectious animal disease such as foot-and-mouth disease can have disastrous consequences for the complete social economy of a country. LiU researcher Tom Lindström has the task of improving preparedness for such an outbreak in the US.

In 2001, Great Britain was hit by the most extensive outbreak of foot-and-mouth disease in the modern history of the western world. This disease is caused by an airborne virus that infects cloven-hoofed animals. When it hits, huge geographical regions must be isolated, no transport through, to or from these regions is permitted, and export ceases until the country is declared free of the disease.

The outbreak in 2001 had major socio-economic consequences for Great Britain. A calculation carried out for the British government estimated that the total economic cost for the country had been around GBP 2 billion in the year of the outbreak.

Since then, the EU has introduced directives stating that all transport of animals is to be documented, and the documents archived. Such a system, however, is not in place in the US. And it is here that LiU researcher Tom Lindström comes into the picture.

“It started as long ago as 2009. Together with my supervisor at the time, I established collaboration with researchers in the US and Great Britain in this field.”

This subsequently led to further joint research projects, and eventually to the current project for which Tom Lindström leads the Linköping-based work, financed by American government agencies (the US Department of Agriculture, the National Institute of Food and Agriculture, and the Department of Homeland Security).

“The main part of the work at Linköping University is looking at how animals are transported in the US,” says Tom Lindström. “Such transport provides a way for the infection to spread. And the US, which has the largest livestock population in the world, has enormous animal movements.
Some animals are transported across long distances from one side of the country to the other. And with respect to the spread of infection, this can be disastrous."

The US does not have the same system of documentation and archiving that the EU has. "Some documents must be submitted when animals are transported between states," says Tom Lindström, "but these are not collected in digital form. This meant that we had to begin by collecting 20,000 documents on paper and feeding the information into a system, so that we could describe the contact patterns. The system we are trying to describe is complex. Animal husbandry is much more industrialised in the US than it is in, for example, Sweden."

**TOM LINDSTRÖM IS DOCENT** in theoretical biology and has studied the disease-related aspects of animal transport for many years. Another thread of his research is "ensemble modelling", which is based on the collective use of several models. This project is a large international collaboration with researchers from the US, Great Britain, Australia, New Zealand, Argentina, Japan and Switzerland, all countries that have developed their own models for foot-and-mouth disease and/or have had outbreaks in the modern age.

"What we see is that the models together give more reliable predictions than individually", says Tom Lindström. "My strength is that I know a little about many different things and can see connections between the bits that I do know. This project contains two parts, a model for animal transport and a model for the spread of infection, where animal transport is an important part of the process."

The methods to describe animal transport can be used for other diseases and used to plan surveillance to discover infection. The project includes also a study of bovine tuberculosis, a cattle disease that is present in wildlife reservoirs in the US.

The work will be completed by September, when it will be submitted to the US Department of Agriculture, which is planning to use the model in the future. The methods developed can be used to compare different control measures, such as different strategies for vaccination and slaughter. Preparedness in the US for a possible outbreak can in this way be improved.

"I have also received research funding from the National Institute of Food and Agriculture to investigate diseases and transport of pigs", says Tom Lindström. "This is extremely important at the moment, given the threat of, for example, African swine fever. Currently, four of the six research projects in my group receive funding from the US."

"I thoroughly enjoy extensive international research collaboration, which gives valuable contacts all over the world. The work provides obvious benefits to society and we are working close to policy makers", concludes Tom Lindström.
Tuberculosis is one of the most widely spread infectious diseases in the world. Approximately ten million people contract the disease each year globally, and approximately 1.5 million die of the disease. LiU professor Maria Lerm is looking for new ways to stop tuberculosis.

"The tuberculosis bacterium is an extremely interesting microorganism. I've developed a love-hate relationship with it."

Maria Lerm, newly installed professor at Linköping University, wants to find out whether it is possible to strengthen the body's own protection against tuberculosis, which is the deadliest bacterial disease in the world.

"When antibiotics were discovered in the 1940s, everyone believed that research into tuberculosis was no longer necessary: the problem had been solved", says Maria Lerm.

In the subsequent decades, tuberculosis, TB, didn't receive much attention from the medical profession. The techniques used to reach a diagnosis, treat and prevent the disease were the same as those used in the 1950s. However, as the 20th century drew to a close, the pendulum started to swing back. HIV/AIDS was spreading, and a fatal tuberculosis infection was often seen in people whose immune systems had been weakened by HIV. Furthermore, strains of tuberculosis bacteria developed that were resistant to the standard antibiotics. An outbreak of multiresistant tuberculosis in New York in the early 1990s helped to open the eyes of the western world to the disease.

"Treatment resistance is a serious problem. Every third tuberculosis patient in Estonia, for example, has multiresistant..."
tuberculosis. In this case, treatment lasting two years is needed, and the antibiotics used have much more serious undesired effects than the standard antibiotics. A course of treatment can cost nearly SEK 1 million.”

MARIA LERM HAS SEEN that funds are becoming more readily available for research into tuberculosis. One huge challenge is to find better ways to prevent the spread of the disease. There is still only one vaccine available. The BCG vaccine came into use in the 1920s, and is essentially ineffective in preventing the spread of infection between adults.

“Some studies have been carried out that tried to improve the vaccine, but to no avail. I suspect that the mechanism of protection of the tuberculosis vaccine differs from that of classic vaccines, and may be completely different. Our research is directed towards a better understanding of the method of protection.”

Vaccination is based on the fact that once you have contracted a disease, such as measles, your immune system has learnt how to combat the infection so efficiently that you will not suffer from the disease again if you re-encounter it. Vaccination initiates the same protection system by giving the body an opportunity to “train” itself, using a small amount of the infectious agent. But Maria Lerm believes that we must think in new pathways when it comes to the immune system’s defence against tuberculosis.

“The problem is that if you have already had TB, you don’t become immune. You can contract the disease again, so not even this basic point agrees with how classic vaccines function.”

ANOTHER FACT THAT MARIA LERM brings up is that only one of every ten people infected with tuberculosis will actually become ill.

“Why is this? We are extremely interested in the nine others who are infected and remain healthy. And it’s also the case that the disease is often limited to a single lung, even if the person has been coughing for years. The bacteria are present throughout the respiratory system, but have not been able to infect one of the lungs, which remains healthy. We have seen an epigenetic reprogramming of the immune system in our research, and we believe that the protection given by the existing vaccine is based on these epigenetic changes.”

“Epigenetic” changes describe the way in which genes are switched on or off in cells of the immune system. In contrast to mutations, which change a part of a gene permanently, epigenetic modifications of our DNA can be added and removed as required. In one ongoing project, Maria Lerm’s research group is studying not only tuberculosis patients but also people with whom they have been in contact, such as family, colleagues and close friends. The participants in the study cough up some mucus, and the researchers can isolate immune cells from the lungs from this, and investigate whether cells from different people have different abilities to kill tuberculosis bacteria.

“I hope that our work will lead to researchers, including those working in other research fields, realising that the immune system can react in several ways, not just in the classic vaccine-related mechanism. We believe that these epigenetic changes can take place in many diseases. It’s hugely exciting to be involved as a new pathway within a research field opens. In the long term, of course, it’s my dream to use the knowledge gained to prevent infection”, says Maria Lerm.

The most important challenges in the fight against tuberculosis

• Multiresistance to antibiotics has given rise to a pressing need for new treatments.
• The incidence of TB is linked to standard of living, and thus an important element of beating the disease is combating poverty.
• A major challenge is to discover a means to prevent the spread of TB infection.

Source: Maria Lerm, professor at Linköping University
An alumna in government

Just over ten years ago, Åsa Lindhagen took a master's degree in engineering at Linköping University. For the past few months, she has been minister for gender equality in the Swedish government.

Her portfolio includes particular responsibility for anti-discrimination and anti-segregation. She plans to focus on, among other things, equal salary for equal work, combatting violence in close relationships, and honour-related violence.

“As minister, I have a responsibility to do what I can to make a difference”, she says in an interview with LiU Magazine.

She has many great memories from her time studying at Linköping University.

“It was a great time, and I have a strong connection with my alma mater. What comes to mind most readily are all of the opportunities that the university gave us. Studying was hard work, but we had the chance to get involved with other things, if we wanted to. I was chair of the LinTek student union for a year, and was a member of the vice-chancellor’s management group.”

The advice she gives to students today is to take full advantage of their time as student, make sure that they have as much fun as possible, and not to give up in the face of adversity. And, she encourages them to stop for a minute sometimes and consider what they can contribute to society.

Alumni world

BILAL HASSAN ASHRAF is a research associate in population genetics and epidemiology at University of Bristol in England. At Linköping University (LiU), he studied for a master’s in statistics, data analysis and knowledge discovery, and graduated in 2009.

CHAKKAPHAN ATHAPOMMONGKON is strategy and operations senior consultant at Deloitte Consulting in Bangkok, Thailand. At LiU, he studied for a master’s in manufacturing management, and graduated in 2005.

SRIKRISHNA CHANAKYA BODEPURI is Postdoctoral Fellow at Zhejiang University in China. At LiU he studied for a master’s in molecular electronics and system design, and graduated in 2009.

MILJÖPARTIET

BILAL HASSAN ASHRAF

is a research associate in population genetics and epidemiology at University of Bristol in England. At Linköping University (LiU), he studied for a master’s in statistics, data analysis and knowledge discovery, and graduated in 2009.

CHAKKAPHAN ATHAPOMMONGKON

is strategy and operations senior consultant at Deloitte Consulting in Bangkok, Thailand. At LiU, he studied for a master’s in manufacturing management, and graduated in 2005.

SRIKRISHNA CHANAKYA BODEPURI

is Postdoctoral Fellow at Zhejiang University in China. At LiU he studied for a master’s in molecular electronics and system design, and graduated in 2009.

DANIEL HALLSUND

is freelance anesthetist in Berlin. At LiU, he studied medicine, and graduated in 2001.

BRIGITTE NSHIMYIMANA

is monitoring and evaluations officer at the Ministry of Gender Equality and Child Welfare in Namibia. At LiU, she studied for a master’s in child studies, and graduated in 2008.

ANDREAS RUMMERT

is executive vice president lighting at Hella in Mexico. At LiU, he studied for a master’s in manufacturing management, and graduated in 2006.

PANAGIOTIS SARANTOPOULOS

is assistant professor of marketing at University of Manchester, UK. At LiU, he studied for a master’s in manufacturing management, and graduated in 2008.

JOANNA REIGERSBERG-SIEW

is senior business development lead at Signify in Singapore. At LiU, she studied for a master’s in communication and interactivity, and graduated in 2008.
Lena Miranda is proud to lead Science Park Mjärdevi, where large international companies live side by side with small start-ups.

She wants to foster new types of collaborations, in order to address global challenges. Meet Lena Miranda, CEO of Science Park Mjärdevi in Linköping.
During Lena Miranda’s five years as CEO, Science Park Mjärdevi has grown and it will continue to grow. At Mjärdevi, international companies rub shoulders with start-ups, micro-businesses and consultants.

“It’s a unique environment. Whenever I present Mjärdevi and the region, I always feel a sense of pride”, she says.

Linköping University has been a constant throughout Lena Miranda’s career. She started in cultural studies; her aim was to be a journalist. Parallel with her studies she was involved in the student union, including as editor of its magazine, Sulan.

“When I became editor I had done a fair bit of writing and photography, but I’d never worked as an editor or headed an editorial office. I was shown to a little room with a Macintosh computer on a desk. I had to ask the editor of another student paper, in the next room, where the On-button was.”

NEW CHALLENGES DON’T faze Lena Miranda. While working on her bachelor thesis she was recruited to Norrköping Municipality’s development company. She then spent a few years in the electronics industry before getting a phone call from the CEO of Skill, a recruitment agency that was a spin-off from LiU. The CEO was moving to a new job, and encouraged Miranda to apply for the vacant position.

“At the time my son was one month old, and I said no. But then I discussed it with my mother who said ‘Go for it, I’ll help you’.”

Lena Miranda began the CEO job working half time when her son was six months old. When Skill was to be sold a few years later, she decided to purchase the company. Initially it was difficult, because the market suddenly crashed. Then after some successful years, in 2013 she sold Skill to Industrikompetens, another recruitment agency.

The idea was to stay on at the company, but a new opportunity appeared: “Sten Gunnar Johansson, who had been CEO of Mjärdevi for 30 years, decided to retire. I had been eyeing his job a bit, so I applied. The funny thing is that after all those years in the recruitment business I had never applied for a job. I wrote an application and handed it to my husband. His comment was: ‘You’ve written about all the things you want to do, interested in learning from other people’s experiences. Lena Miranda has recently travelled to California and China, where she combined work and leisure.
but haven’t presented yourself and why you should have the job.”

So she rewrote her application and got the job, despite tough competition. One of the first things she did as CEO was to visit a hundred Mjärdevi companies and ask them about their requirements and wishes. This formed the foundation of the strategy that is now taking the science park to new heights.

“Here I get to pull everything together, and tie in both national and of course international perspectives. Global challenges require new types of collaborations. Academia, industry and government agencies must work hand in hand.”

LENA MIRANDA IS ALSO chairperson of SISP, Swedish Incubators & Science Parks. SISP works with advocacy and the exchange of experience. One important issue is the supply of talent.

“We need legislation that facilitates recruitment, especially of foreign talent, and solutions for researchers and students from other countries who want to stay in Sweden.”

She travels a lot for her job, and has taken two “workcations” – one in the United States and one in China – where she combines work and leisure.

“I was keen to learn more about Silicon Valley as a site for innovation, so I asked my company chairperson if I could work there for a few days.”

She ended up having about 25 meetings during four weeks in the summer of 2017. The following year she travelled to China to learn more about their innovation systems and what Swedish companies need to keep in mind.

SO, HOW DOES SWEDEN compare, on an international level?

“We’re an engineering country that has generated several global success stories. Wherever I’ve travelled I’ve felt that Sweden is a leader in terms of technology development. But we can be better at sales.”

And maybe we should start at home, because not many people in the county of Östergötland know how many innovations Science Park Mjärdevi has spawned. When Lena Miranda meets school groups, she has a trump card:

“You can watch Netflix thanks to technology created in Linköping in the late 1990s!”

Science Park Mjärdevi

- Founded in 1984, it is now Sweden’s second oldest science park.
- The park is home to more than 400 companies with 7,000 employees. Many of the companies arose from research at Linköping University.
- LiU is an extremely important recruitment base for the businesses at Mjärdevi. Every year there is a recruitment fair and a degree project fair, organised together with LinTek, the student union. There are also plans for a poster fair where doctoral students can present their research.

LENA MIRANDA

ALUMNI

The main building at Science Park Mjärdevi.
Show your colours with LiU merchandise