Fiction attracts tourists

LiU researchers study the growing interest in cultural tourism  •  page 14

Can save the vision of millions

New biosynthetic corneas implanted  •  page 4

Lack of phosphorus threat to food production

We are rapidly exhausting our reserves  •  page 24

She is taking up the reins at Ericsson

Marie Westrin is both telecom manager and stable-mum  •  page 16
Steady increase in international students

So far this year we have seen a steady increase in the number of international students showing an interest in studying at LiU. This autumn LiU offers more than 30 master’s degree programmes in English. These have attracted more than 5,000 applicants and there is strong competition for enrolment. For programmes such as Computer Science, Wireless Networks and Business Administration the competition is very strong. Linköping University currently has over 2,000 international students, of which about 1,200 are studying for a master’s degree and about 800 are exchange students taking part in one of our 90 bi-lateral exchange agreements. LiU continues to expand the exchange programmes in areas where we believe there is mutual benefit of collaboration. This year we have new agreements with amongst others Nanyang Technological University in Singapore and National Tsing Hua University in Taiwan.

ALMOST ONE IN FIVE of our new students is an international student. This is a development that has enriched the study environment as well as broadened and internationalised the education on offer. But it also places new demands on the university and during the past year we have increased our resources for the reception of and service offered to international students.

I am convinced that the students graduating from one of our international programmes will have the competitive edge which will make them desirable in an increasingly globalised workforce. For Swedish business they provide an, as yet under-utilised, opportunity to recruit highly educated and ambitious individuals with international backgrounds.

IT IS NOT POSSIBLE to create world class education without successful international research and on several occasions throughout the year I have had reason to be impressed with the impact of LiU’s research. I would like to take this opportunity to congratulate Professor Lennart Palmberg, who recently received the Robert E. Kosi Medal “for renowned efforts in the global fluid community, particularly the establishment of a world-class fluid power research centre at Linköping University.” Added to this is all the work Professor Palmberg has done throughout the years, not just through his research and teaching but also for his faculty and the university in general.

Mille Millner, Rector • mille.millner@liu.se

From China to LiU

AN INTERNATIONAL WORKPLACE

Welcome to the international edition of LiU Magazine. We have articles about exciting research, international master’s programmes and about alumni who work all over the world. This edition is especially aimed at LiU’s global network of friends: international alumni, research colleagues and partner universities.

THE WORLD is shrinking. We are increasingly connected to other parts of the globe; this is clearly evident in the current financial crisis. Globalisation has also led to a greater inclination to move to another country to work. This is strongly reflected in academia. Several hundred of the researchers at Linköping University come from outside of Sweden. In this edition of LiU Magazine we hear of LiU researchers about the role of small talk and about cultural tourism. We have met a LiU alumna responsible for the development of Ericsson’s radio network and another alumna who sells visualisation tools to planetariums and science centres in the USA. And we have met several of LiU’s international master’s students.

TIME AFTER TIME we are also reminded of our dependence on each other all over the world when it comes to issues of climate and the preservation of resources. In this edition LiU researchers highlight a growing problem – how the scarcity of phosphorous is threatening the global food production. This edition also offers interviews with researchers about the role of small talk and about cultural tourism. We have met a LiU alumna responsible for the development of Ericsson’s radio network and another alumna who sells visualisation tools to planetariums and science centres in the USA. And we have met several of LiU’s international master’s students.

RESEARCH is something for everyone, much like a Swedish ‘smorgasbord’. Just help yourself to whatever takes your fancy! Enjoy!

Lennart Falklöf, Editor-in-chief • lennart.falklof@liu.se

Address
External Relations Office
Linköping University
581 83 Linköping

Editor-in-chief
Lennart Falklöf
lennart.falklof@liu.se

Editorial staff
Mille Millner, Rector
mille.millner@liu.se

Translation
AAC Global & Therese Winder

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Ett internationellt magasin

Välkommen till det årliga internationella numret av LiU magasin, med texter på engelska. Här berättar vi om spännande forskning, internationella masterprogram och om alumnier som har värden som sin arbetsplats.
A scratched windshield hinders the ability to see. And this is also true of the eye’s own windshield – the cornea.

Sometimes scars and illnesses impair vision so much that corneas need to be replaced, but donated corneas are in short supply, and worldwide it is estimated that about ten million people are waiting in line.

The solution may be the biosynthetic corneas that was operated into the eyes of ten patients in Linköping for the first time in the world.

Professor May Griffith has developed a technique to create biosynthetic corneas. The first operations in the world were performed on ten patients last year in Linköping.

A technique to create biosynthetic corneas can save the vision of millions. The first operations in the world were performed on ten patients last year in Linköping.

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IT HAS NOW BEEN ten years since May Griffith, researcher at the University of Ottawa in Canada, published her results in Science Magazine about a new material that could possibly be used for growing corneas using a patient’s own cells. Through her guest researcher, Lisha Gan from Sweden, she came into contact with ophthalmology professor Per Fagerholm at Linköping University.

“We decided to design the material, so that it could be adapted to surgical procedures and would function in the eyes of animals. The implants were sent from Ottawa to Linköping where I implanted them into the eyes. We found a good base that is safe and can now focus on refinement for different conditions”, says Per Fagerholm.

A biosynthetic cornea resolves two problems: Creating a safe, predictable and chemically well-defined material, and minimising the risk of transmitting illnesses and preventing the body’s immune system from rejecting the material.

The latest version that is now located in the eyes of ten people primarily consists of recombinant collagen. A human gene that regulates the production of collagen—a natural substance in the body’s connective tissue—is placed into a yeast cell that is then programmed to begin producing the substance on a continuous basis.

THE RESULT of this is collagen in the shape of long protein threads in solution. May Griffith has developed a chemical method of binding these together to form a hydrated, tough gel.

And it is in this structure that the basic idea lies. The diseased or damaged cornea is removed and implants are sewn in in their place. These bioactive implants stimulate the eyes’ own corneal cells and nerves to grow into them and form new tissue.

Of the ten pioneer patients, one had a scar after an accident, and the other nine suffered from an illness called keratoconus, which causes the cornea to thin out and become uneven. All of the patients were on the waiting list for corneas. When given the opportunity, they all volunteered to be the world’s first people with biosynthetic corneas. In January 2008, the material was sewn in place, and after five to six weeks the stitches were removed. The total rehabilitation time was about six months compared to one and a half years when donated corneas are used.

AN EXAMINATION of the ten patients’ status was carried out a year after the operation. The results have not been fully published yet. But in an article in Clinical and Translational Science, the research group writes that after six months, the new corneas were well integrated in all patients without side-effects or other complications. Visual acuity, surface quality and corneal sensitivity have steadily improved during the rehabilitation period.

“The results are sufficiently good to go further and develop the material and methods,” says Per Fagerholm. “Most of the patients have good vision in the eyes that have been operated on. One of them recently got their bus driver’s license back after being on sick leave for three years”, relates Per Fagerholm.

Professor May Griffith has developed a technique to create biosynthetic corneas.
She tricks the body into growing new organs

\text{When May Griffith takes a portion of her research group and moves to Linköping this autumn, it will be the start of an undertaking in regenerative medicine at Linköping University. The aim is to develop a laboratory for human spare parts.}

\text{Ophthalmologic (eye) surgery is a part of the undertaking, in which the new biosynthetic materials can be used to repair and regenerate damaged parts of the eye, e.g. cornea, retina or eyelids.}

\text{Two other areas of research at Linköping include orthopaedics and plastic surgery. What they all have in common is using the stem cells in a person’s own body to create new tissue – so called tissue engineering. For May Griffith, professor in regenerative medicine, this is a new start and she has big plans for the future.}

\text{“I am looking forward to collaborating with other Linköping researchers, starting with the nanotechnology group which is doing some very exciting work. I also have ongoing projects in cardiovascular, spinal cord, nerve and cartilage repair.”}

\text{HER INTEREST IN THE EYES has its origin in her artistic background.}

\text{“I draw, paint and sculpt. Both my sisters are professional artists. Vision is very important for those activities, so I would like to help brighten someone else’s life by trying to help them see”, May Griffith says.}

\text{“There is a shortage of corneas worldwide, especially in developing countries. I have travelled a lot and seen the conditions myself. When I spent time in India, I learned that even children as young as three years old need transplants because of chemical burns.”}

\text{A SENSE OF SOLIDARITY with the poor in the world is the reason that she wants to maintain control of how the synthetic corneas – if continued research shows that they are good enough – are commercialised.}

\text{“I don’t feel it is right that they need to have money to get their vision back. So, Professor Fagerholm and I have tried to work with not-for-profit organisations like the WHO supported LV Prasad Eye Institute in India. We are also working with a US-based company that in the future would be prepared to donate a proportion of artificial corneas for charitable purposes.”}

\text{INTERNATIONAL CAMPUS}

Meet four LiU researchers from different parts of the world. How did they end up at LiU, what are they focusing on and what do they enjoy the most?

\text{WHAT IS YOUR AREA OF RESEARCH?}

\text{My research is focused on design of efficient integrated circuits and systems. Our aim is to reduce the power consumption and improve the performance of future electronics, supporting a host of existing and new applications in areas such as mobile communication, high-speed computation, security and safety and renewable energy production.}

\text{We also develop electronics for improved health care, particularly for advanced medical implant devices such as pacemakers and neurostimulators. In such applications, the emphasis is on extreme low power consumption to allow a long battery lifetime over 10 years.}

\text{We are internationally recognised for our pioneering contributions in the field, and we have a close collaboration with many companies worldwide. A number of our results have been utilised in advanced commercial products such as microprocessors, internet routers, cameras, and data converters.}

\text{MY RESEARCH IS BASED on extreme low power consumption for extreme mobile devices.}

\text{WHAT IS YOUR FUTURE AIM?}

\text{My future aim is to improve the performance of future electronics, allowing longer battery lifetimes and supporting a host of existing and new applications in areas such as mobile communication, high-speed computation, security and safety and renewable energy production.}

\text{We also develop electronics for improved health care, particularly for advanced medical implant devices such as pacemakers and neurostimulators.}

\text{WHAT IS YOUR WORK MOST FUN?}

\text{There are many highlights. As a researcher and group leader, I thrive on the success of our research. I enjoy watching the development of excellent research and seeing how this leads to increased funding.}

\text{I also enjoy teaching, inspiring others to produce better results and seeing how hard work is paid off. I believe in a close link between research and education, the research results have to be used to build better education, in other words good research should lead to a good education offering.}

\text{The education we provide is current and relevant and this is clearly reflected in the high quality positions my students find after leaving LiU. I believe this is something the students recognise and appreciate too.}

\text{I was recently named Teacher of the Year by the students on the Applied Physics and Electrical Engineering Programme. This was most definitely a highlight for me.}

\text{WHAT DO YOU ENJOY OUTSIDE WORK?}

\text{I enjoy riding my motorbike but also the mechanics of it. Fixing things is a bit of a hobby. I also enjoy spending time outdoors, be it hiking or fishing.}

\text{WHEN DO YOU END UP AT LIU?}

\text{I arrived in Sweden in 1986 from Iran and based on my earlier background and working experience, I started working as an electrical engineer. After settling down in my new country, I began engineering studies in Linköping, which was followed by PhD studies. After I received my PhD degree I worked for a few years at Intel research lab in the USA, as a senior scientist. In 2003, LiU offered me a professorship to lead the same research group I did my PhD studies in. The former group leader – my PhD supervisor – was about to retire, and I was pleased to accept the position.}

\text{ATILA ALVANDPOUR, PROFESSOR OF ELECTRICAL ENGINEERING}

“Being named Teacher of the Year was definitely a highlight”
**ROSAURA CASAS, SENIOR INVESTIGATOR OF PAEDIATRIC RESEARCH**

“The interaction with the students is the best part of my job”

**WHAT DO YOU WORK WITH?**
I work as senior investigator in a laboratory team of about 20 people conducting paediatric research into allergies and diabetes. The main focus of my own research is diabetes, particularly the immunology of children. I am currently part of a project with Professor Johnny Ludvigsson where we are conducting a Phase 3 trial of a vaccine for the treatment of Type 1 diabetes. The Phase 2 trial where this new vaccine was tested on children was very successful and the results published in the prestigious *New England Journal of Medicine*. If the Phase 3 results confirm those from the previous phase, this vaccine will soon be on general release.

**HOW DID YOU END UP AT LIU?**
I ended up at Linköping because I was a PhD student to have a leading position in my lab team.

**WHEN IS YOUR WORK MOST FUN?**
The interaction with the students is definitely the part of my job I enjoy most. To see the everyday challenges they face and to be able to motivate and inspire them.

**WHAT DO YOU ENJOY OUTSIDE WORK?**
I am a sensory physiologist with a special interest in the chemical senses smell and taste. I make comparisons between different species of animals including humans. My research mainly focuses on two questions. One is the seemingly simple question of what makes one type of molecule smell like banana and another like vanilla. I look at the link between the structure of the molecule and the odour quality it provokes in us. The second question I focus on is what determines the olfactory ability of a species (that is the abilities relevant to the sense of smell). Sensitivity seems to be connected to the ecology of a species. A behaviourally relevant odour such as a fruit odour is usually more prominent to fruit eaters such as humans or monkeys whereas carnivores such as dogs are pre-programmed to be more sensitive to body odours of prey.

I also study the sense of taste, mainly in primates, where I look, for example, at measuring sensitivity to bitter and sweet tastes.

**HOW DID YOU END UP AT LIU?**
It is a coincidence I ended up studying the chemical senses. I did my PhD on the sense of smell in bats but then moved to other areas of Zoology. However I had so many questions that when I got the chance to go back to look at the sense of smell I embraced the chance. LIU has offered me the stability 15 years ago my family and I relocated to Linköping where I have gone from being a PhD student to have a leading position in my lab team.

**WHAT IS YOUR RESEARCH ABOUT?**
My research has a particular focus on critical studies on men and masculinities. In this work, I have looked at men within the context of gender relations and a wide variety of gender issues such as ageing and embodiment, virtuality, gender in business organisations, men’s violence towards women and children, and transnationalisation. I have just finished co-editing a book called *Sex, Violence and the Body*, and have another coming out on gender issues in large business corporations.

**WHAT ARE THE HIGHLIGHTS OF YOUR WORK?**
I would say I enjoy almost all my work, though the growth of more and more online systems with different characteristics, passwords etc is a nuisance sometimes! But if I should mention one thing it would be the international nature of what I do. Just a few weeks ago I visited Dublin in Ireland to examine a PhD candidate working on men and caring, a very positive experience, and prior to that I took part in an EU conference on violence in Slovenia. In April we hosted an international conference on men and masculinities as part of GExcel with participants from all over the world. And we are currently starting a new comparative study with colleagues in South Africa. Through the international aspect of my work it is interesting to see how similar the issues faced are and yet at the same time there are differences in cultural contexts.

**WHAT DO YOU ENJOY OUTSIDE WORK?**
I enjoy music, culture, reading, crosswords, friends, and of course sauna. I also walk quite a lot as we through choice don’t own a car.

When possible we visit art galleries in Helsinki and I just happened recently to see an exhibition of paintings visualising men’s emotions through art. Last year I came across the work of the Finnish video artist and photographer, Eija-Liisa Ahtila; I think her work is especially interesting.

**JEFF HEARN, PROFESSOR OF GENDER STUDIES**

“I enjoy the international nature of what I do”

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**HOW DID YOU END UP AT LIU?**
I worked as a biologist specialising in allergen vaccines in Havana, Cuba, and through a project on allergen standardisations came into contact with Swedish researchers from Linköping. I conducted a project financed by the Swedish International Development Cooperation Agency (SIDA) and this was common ground. I initially obtained a scholarship from the Swedish Institute and Stockholm University and was later funded by the prestigious *New England Journal of Medicine*. If the Phase 3 results confirm those from the previous phase, this vaccine will soon be on general release.

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**I seem to have the ability to think like an animal**

**TELL ME ABOUT YOUR RESEARCH.**
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I collaborate with colleagues in Mexico studying the chemical senses in non-human primates, measuring their sensitivity to odour, and part of this is to see how weak a smell can become before the animal is unable to perceive it.

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Bill Gates supports LiU project

Maria Lerm and her tuberculous research, is the recipient of 100,000 US dollars from the Bill and Melinda Gates Foundation. The grant is to be used to test her novel and bold idea about how tubercle bacteria hide from antibiotics.

Tuberculosis has not been viewed as a problem in Sweden for many decades, however around the globe an estimated 2 million annually die from the disease. The biggest threat is the one third of the world’s population who carry a latent form of the disease, in other words they are infected but the disease never breaks out. Latent infections in individuals suffering other illnesses is the main underlying reason for many strands of the tubercle bacteria developing resistance to antibiotics.

“The belief used to be that latency is something that develops over a long time. Our belief is that latency develops in a matter of days through the bacteria hiding inside the white blood cells whose function is to eat the bacteria” says Maria Lerm.

Jan-Ove Palmberg receives hydraulics award

Jan-Ove Palmberg, Professor at the Department of Management and Engineering, is awarded the Robert E. Koski Medal by the American Society of Mechanical Engineers, ASME. The award was established in 2007, and in addition to the medal consists of a prize sum of 10,000 USD. In bestowing the award, ASME makes special mention of the establishment of a world class research centre at Linköping University.

Jan-Ove Palmberg will receive the award at the ASME Dynamic Systems and Control Conference, which takes place in Hollywood in October.

Robert E. Koski (1935-2008) was the founder of the U.S company Sun Hydraulics.

Karin Fälth-Magnusson new Pro-Rector

Professor Karin Fälth-Magnusson, got the green light to be the new Pro-Rector at Linköping University. She succeeds Inger Rosdahl who retires on 1 Jan 2010. Karin Fälth-Magnusson is a paediatrician and has previously worked at the University Hospital in Linköping as a Specialist Consultant in paediatric and adolescent medicine. She also has extensive management experience, in posts such as Head of Centre for Children and Women at Landstinget in Östergötland. Karin Fälth-Magnusson has focused her research on allergies, hyper-sensitivity and inflammatory bowel disease.

Björn Kruse new president

LiU professor Björn Kruse has been elected President of TAGA, Technical Association of the Graphic Arts. He is the first non-American in this position.

Björn Kruse is professor of digital image and media technology at LiU Norrköping. He played a key role in establishing the Media Technology and Engineering programme in the late 90’s. TAGA is the only global professional technical association for the graphic arts industry.

Athlete Jonas Jacobsson named honorary doctor

Shooter Jonas Jacobsson has received an honorary doctorate in medicine at Linköping University. He and four prominent international researchers were awarded honorary doctorates at a ceremony in May.

 Jonas Jacobsson is one of Sweden’s most successful athletes ever; he has won 16 Paralympic gold medals, 17 World Championship gold medals and 17 European Championship gold medals. The Swedish paper Svenska Dagbladet last year awarded him their own highly prestigious ‘Bragdguldet’ award in honour of his 2008 Beijing performance which saw him win three gold medals.

 Dr David Dance has also been awarded an honorary doctorate in medicine. He has participated in and consulted on international research projects since retiring from his post as Director of the Physics department at the Royal Marsden NHS Trust in London. He has worked with researchers in medical radio physics at the Faculty of Health Sciences since the late 1980’s on projects such as optimising x-ray technologies to improve image quality whilst reducing levels of radiation exposure to patients.

 The Faculty of Arts and Sciences has awarded honorary doctorates to two American researchers. Deborah Johnson is a Professor of Applied Ethics at the University of Virginia and one of the world leaders in Information and Communication Ethics, previously known as Computer Ethics. Her book Computer Ethics is seen as the main reference work within this area. At the very first Computer Ethics conference in Sweden, arranged by the Centre for Applied Ethics at Linköping University in 1997, Deborah Johnson was one of the main speakers and collaborations have continued ever since, including a three week spell as guest lecturer last spring.

 Charles Goodwin, Professor of Applied Linguistics at University of California at Los Angeles, has also been awarded an honorary doctorate by the Faculty of Arts and Sciences. Professor Goodwin is a world leader in research concerning general conversation. Through video analysis he has evaluated interaction in general conversation and shown the importance of gestures. He is now being honoured for his multifaceted research, cross scientific approach and his close collaboration with several of the faculty’s research areas.

Blown away by the SOF musicians

One thousand wind instruments on the streets and in the squares. No wonder they were both heard and seen! As always during the Student Orchestra Festival the atmosphere was festive, this time for the 21st time. 17 orchestras took part, from Umeå in the north to Stuttgart in the south and from our Scandinavian neighbours. The spring sun shone brightly over the parade, with floats showcasing a wedding prepared crown princess, snipe flu and sinking Saab cars, to name but a few.

It was packed, loud, hot and fun – with plenty of tasty morsels from all corners of the world!”

ABOUT SUCCESSFUL DAY AT WWW.LIU.SE/EN

The Institute of Technology has awarded an honorary doctorate to Ivan Petrov, the Bulgarian born Adjunct Professor of Materials Science and Director of the Center for Microanalysis of Materials at University of Illinois in Urbana, USA. He has worked closely with researchers at Linköping University for the past 25 years in the areas of thin film physics and microstructural analysis. He has been a visiting researcher on several occasions as well as having contributed to research applications and personally received a large number of Linköping University researchers. Over 30 publications have been produced as a result of these collaborations.

The following people received honorary doctorates:

- Jonas Jacobsson
- Deborah Johnson
- Charles Goodwin
- David Dance
- Ivan Petrov

HONORARY DOCTORS
Nonsense, gossip, chatting over coffee, telling tall stories, chatter and ballshitting. There are many names for our small talk!

But it is far from meaningless nonsensical chatting we are engaged in, Viveka Adelsvärd, linguist, professor emeritus and author tells us. She has dedicated her latest book (‘In Praise of Small Talk’) to this subject. The book has in part been inspired by the fact that small talk in academic contexts is often seen as unimportant rubbish, nothing that serious talk in academic contexts is often seen as unimportant rubbish, nothing that serious researchers should waste their time on.

“Small talk provides us with lots of information, and helps us to ‘read the atmosphere’. With small talk we probe the user, the environment, and cultural interaction, but they are so in-ward, she explains.

There are a lot of functions in our social and cultural interaction, but they are so ingrained that we are not even aware of them. These types of issues fascinate interpersonal communication researcher Viveka Adelsvärd.

“It involves what we do on a daily basis, but never think about. Just think about how we greet people. It immediately reveals our way of life, says Viveka Adelsvärd.

Talking helps us to maintain relationships with the people and things that are close to us – including our potted plants and pets. “I have heard people in all seriousness say to their dog, “How many times do I need to tell you this?” And who hasn’t heard someone tell off their wilful computer?"

On an individual level small talk also fulfils another function. We formulate our thoughts and ideas while we are talking. “Suddenly you can hear yourself saying something really interesting and unexpected”, says Viveka Adelsvärd.

This is exactly how modern focus groups work, she points out. People talk and in the process develop an opinion on a particular subject.

But not everyone is allowed to just chat. And not just in the way they want either. We all have very definite opinions that have shifted over time and with trends. Viveka Adelsvärd gives an example:

“When I grew up, children weren’t allowed to talk if they didn’t have something specific to say.”

In modern times, the chatty child is encouraged. Children are even trained to speak in front of others. In general, we live in a culture of conversation. Before, everyone knew ‘their place’ – and stayed put. Today we are supposed to be prepared to quickly become part of new groups.

“Now we have to position ourselves and show who we are.”

The possibility of being able to contact friends means that we are less likely to make new acquaintances, for example while travelling. A negative aspect according to some researchers.

Viveka Adelsvärd does not take a stand on that point, but has an enlightening story to tell. About a woman who loved working in her garden, but after a year of being sick she needed someone to help her with her gardening.

“She really looked forward to being able to talk to a skilful person about her garden. The man that came talked continuously while working – but only into his mobile phone.”

Small talk differs from culture to culture, social groups and contexts, and it also varies between age groups and genders”, says interpersonal communication researcher Viveka Adelsvärd.
Fiction attracts tourists

Interest in our cultural heritage is growing. Increasing numbers of people want to know more about their culture and history, and also wish to have new experiences. LIU researchers are now studying how our changed habits affect community development.

text EVA BERGSTEDT

Astrid Lindgren, the author of children’s books, is read and loved the world over. Today, a tourist industry based upon Sweden’s world famous storyteller and her place of birth, Vimmerby, is growing.

The theme park, Astrid Lindgren’s World, draws hundreds of thousands of visitors each year – a third of them from outside of Sweden. The theme of the pure, simple life in The Six Bullerby Children and meeting all of the characters in Astrid’s books such as Pippi Longstocking, Karlsson-on-the-Roof and The Brothers Lionheart not only attracts Swedes. Development has led to all of Vimmerby expanding, and now becoming a part of the Astrid Lindgren brand.

There are many examples of the experience industry and the tourist trade seen in Vimmerby. More and more people have the time, energy and money to discover the world around them. The more unique the experience offered, the more tourists are attracted.

Researchers at Linköping University are studying aspects of local community development, the tourist industry and cultural heritage, in which Vimmerby and Astrid Lindgren’s World are at the centre of the questions posed. Many of the questions and answers are broad in nature and highlight the general development of tourism and culture that are common in many parts of the world.

Peter Aronsson is a professor in the practical use of history and cultural heritage, and has studied how our cultural heritage influences the development of tourism. The term cultural heritage was coined rather recently in 1990. “Changes were rapidly occurring in the world then. The Soviet Union fell and the Berlin Wall was torn down. Globalisation was on the march. The future was becoming less predictable. As a result, people began to focus on the process of change in a historical perspective. To safeguard the past – everything that has shaped us and our identity – became important. Not just in Sweden, but in other parts of Europe as well,” says Peter Aronsson.

ECONOMIC AND POLITICAL CHANGES in our surroundings are one of the reasons behind the development of this new form of tourism. Not just historical events are put on show, but fictitious people from literature and films are brought to light. For example, films tourism, in which people go to places where films were made is growing rapidly. The Lord of the Rings films bring multitudes of visitors to New Zealand each year. Interest is also growing for the Stockholm area where Stieg Larsson’s thriller “The Girl with the Dragon Tattoo” was filmed.

In conjunction with increased interest, new locations have been added to the tourist map. The purposeful marketing in certain areas is noticeable, especially in sparsely populated areas where people are often on the lookout for new hope and ways to earn a living.

“The gap can become wider and wider in a variety of issues from different perspectives. The research project was initiated by the Centre for Municipality Studies.

Tome comes to Stockholm to see where the thriller “The Girl with the Dragon Tattoo” was filmed.

Note: In the autumn of 2009, the book “Lokal samhallatsutveckling, applepie-industri och kulturhistoria” (“Local Community Development, the Experience Industry and Cultural Heritage”), will be released. It is an anthology based upon Vimmerby and Astrid Lindgren. Eight LIU researchers write about a variety of issues from different perspectives. The research project was initiated by the Centre for Municipality Studies.

RESEARCHERS AT LINKÖPING UNIVERSITY are interested in the process of change in a historical perspective. To safeguard the past – everything that has shaped us and our identity – became important. Not just in Sweden, but in other parts of Europe as well,” says Peter Aronsson. The future was becoming less predictable. As a result, people began to focus on the process of change in a historical perspective. To safeguard the past – everything that has shaped us and our identity – became important. Not just in Sweden, but in other parts of Europe as well,” says Peter Aronsson.
The sharp bark of a dog promptly answers the knock on the door, but it takes a little while before Marie Westrin opens. “Work”, she says apologetically.

As Ericsson’s head of Development Unit Radio she is never really free. But she is at home today anyway, and has a few minutes to chat during the morning cleaning in the stable. The mobile in her pocket rings now and again, and Marie alternates between her duties as stable-mum and manager. They are not as far apart as one might think.

“If you work with horses you have to learn to communicate, interpret emotions and notice body language. And to be clear. Things that are useful to know as a manager”, she says.

There are four horses in the stable. In two hours Marie will connect the horse trailer – her youngest daughter has show-jumping practice. Her oldest daughter has left the horses at home for the time being.

She is studying at LiU – just as mum and dad did in the good old days.

“It is fantastic to be able to share an interest with your children”, says Marie.

And she has always appreciated all of the travelling time to lessons and competitions, a time for close conversations, chat and listening to audio books together.

"Taking up the reins at Ericsson"

Marie Westrin is head of Ericsson’s Development Unit Radio and spends most of her spare time with the family’s horses.

text Gunilla Pravitz
photo Vibeke Mathiesen

Mobile working! Marie Westrin is never really free.
When cleaning the stable I often get good ideas”, says Marie Westrin, who is responsible for the development of Ericsson’s radio network.

place to take a break. “When cleaning the stable I often get good ideas”, explains Marie. They are needed. Ericsson’s develop­ment of the GSM, G2 and LTE systems as well as operations and maintenance for the entire world has been Marie’s responsibility since 2007. Including long-term planning for future technical development and the operational structure that will be needed.

“I don’t do this alone of course”, she says, “I have very capable colleagues. Many of them have studied at LiU and this makes it even more enjoyable.”

It is her group, for example, that is behind the software for our mobile surfing. She uses the mobile for most things, such as sending e-mails, taking care of banking matters and more.

Any hot tips?

“Developments will move in the direc­tion of machine to machine – it will be pos­sible to use the mobile phone to control technical functions. For example, an Aus­tralian farmer will be able to check the water level in a tank to see if it needs to be filled.”

“Typical of Marie (who is allergic) is buying a dog even as a student, beginning hunter training, getting a hunting license, being on the board for a breeders association and becoming an instructor. She has had six flat-coated retrievers so far. At one point she had three at once.”

“Many of Marie’s ideas are not only based on her knowledge of the technical aspects, but also on her ability to become passionate and thinking that everything is so much fun. She found time to get involved in lots of activities outside school, for example in Team Obitex, a student association, that arranged study visits for engineering students at LiU.”

For the last 20 years, Marie has been working at Ericsson. As luck would have it, he too likes animals. “He graduated a year after me, after taking a break so that he could play volleyball.”

“No idea. This point in my career can be compared to standing on an ice-floe, seeing other ice-floes and not knowing exactly which one to jump to.”

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Qin An and Xiaowen Weng are master’s students at Linköping University. They are also a couple. They have known each other since primary school back in Fuzhou in the Fujian province in southeast China.

Qin An studied computer science at Hunan University, one of the top-ranking schools in China, before he left for Sweden in the autumn of 2007 to enroll in the master’s programme, please see www.liu.se/en/education/master/programmes/SMCS.

Qin’s father, a university professor and Ph.D, had spoken Swedish very well yet. While most young Swedes speak English, communicating with older people can be difficult. Qin took a Swedish language beginner’s course last year and Xiaowen will soon be signing up for the same course.

They are pleased with life in the student accommodation in Rådby, where most LiU students live. They have their own room and share a kitchen with seven other students.

Outside classes, there is of course some spare time. Qin and Xiaowen often visit the public swimming pool in downtown Linköping. Qin plays badminton in the Campus Hall once in a while. Xiaowen and her girlfriends enjoy taking the campus bus to Norrköping – Linköping’s twin city. Being a student from China in Linköping means socialising a lot with fellow countrymen.

“Qin knows just about everyone, laughs Qin. Even those who are doing their PhD and people who stayed on in Linköping to work after graduation.”

Qin hopes to finish his master’s dissertation in late 2009. Xiaowen hers in 2010. “I would like to stay on for a few years to work after graduation, in Sweden or elsewhere in Europe”, says Qin.

Xiaowen will of course try to find a job too. Jobseeking can be tough for a humanities graduate, she is well aware of that. But she is prepared to learn Swedish really well. For a graduate, proficient in the Swedish and the Chinese languages, future prospects might not be so dire after all.

For the immediate future, however, their plans are to enjoy the Swedish summer.

FROM CHINA TO LIU

One studies computer systems and the other language and culture. Meet two Chinese master’s students at LiU.

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Qin An studied computer science at Hunan University, one of the top-ranking schools in China, before he left for Sweden in the autumn of 2007 to enroll in the two-year Computer Systems master’s programme.

One year later it was Xiaowen’s turn to travel. With a first degree in English from Luooyang Foreign Language University and an interest in national cultures she applied to the two-year master’s programme in Language and Culture. When she learned that she had been admitted the decision was easy. She quit her two jobs as secretary and English teacher and came to Linköping in the autumn of 2008.

HAVING TRAVELLED extensively in Europe Qin’s father advised him about studying in the UK. “Ericsson’s Linköping-based branch would of course be a good alternative, he says, but any kind of project related to electrical engineering would be interesting.”

For Xiaowen dissertation work is a year away. Right now she is studying Nordic mythology, which really fascinates her. She and her course mates will soon be making an excursion in the county of Östergötland, and runes stones will be on the agenda.

Her experience of teacher-student communication has been a bit of a culture shock, in the positive sense.

"The teachers here ask us about our own views and thoughts. In China teachers are more likely to tell us the answers directly.”

QIN AND XIAOWEN really like it in Linköping. One inconvenience, though, is that neither of them speaks Swedish very well yet. While most young Swedes speak English, communicating with older people can be difficult. Qin took a Swedish language beginner’s course last year and Xiaowen will soon be signing up for the same course.

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Master's programme in Computer Systems

The two-year master’s programme focuses on the development of complex state-of-the-art computer systems. It provides a comprehensive understanding of the various interacting layers of complex computer systems, from hardware and systems software to networks and applications.

In the second year students choose from one of three specialisations: Embedded systems, System software, and Networking and distributed systems.

For more information about the programme, please see www.liu.se/en/education/master/programmes/SMCS.

Master's programme in Language and Culture

This two-year master’s programme prepares students for work, further studies or research in any of the following subjects: English, French, German, Spanish, Swedish, Comparative Literature and General Linguistics.

With a focus on major epochs and languages, the programme promotes broad, interdisciplinary competence in linguistic, literary and anthropological theories and methods, and is devoted to the study of language processes and literary texts in their cultural context.

For more information about the programme, please see www.liu.se/en/education/master/programmes/FLMC.
From connective tissue to bone

The results of the group’s research are now published in three simultaneous scientific articles. The studies are the first in the world where the results have been able to show connective tissue cells from human skin transformed into other so-called phenotypes and creating other types of tissue. “The dream is to be able to manipulate connective tissue cells in the human body to develop into specific cell types, for example to create bone cells for broken bones”, says Gunnar Kratz.

If they had done as others in their age group, Carlos would have studied in the USA and Meerim in Russia. “The USA already has a lot of influence in Latin America, so I wanted to try something new”, says Carlos. A good reference from a close friend and detailed information on the programme lead to him choosing Linköping. Other students from Meerim’s home country mostly choose to study in Russia, but she found the strategic orientation she wanted in Business Management – Strategy and Management in International Organisations at Linköping University.

STUDENTS FROM FOUR CONTINENTS and 14 countries work in teams from the first day. “Both the group work and a part of the different nationalities really contribute to making the studies interesting”, says Carlos who is in his second semester. Carlos comes from Ecuador and is part of a group in which the other three students come from Germany, Iran and Slovakia.

“As decision makers in a global environment it is important to be open and accept that people are different”, adds Meerim who thinks that priorities and choices of strategies are influenced by particular situations in each country. “While, for some organisations, environmental issues are a priority, for others the legal stability or fund raising issues could be more important.”

“We are always being exposed to different viewpoints, both within our groups and in the course literature. This makes it possible for us to develop a critical and independent way of thinking”, Meerim chimes in.

When Carlos Romero and Meerim Batalgazieva decided to get their master’s degrees they wanted to have a different type of experience, and chose to study business management at Linköping University.

Stress increases risk of childhood obesity

Childhood obesity is two to three times more prevalent in families with high levels of stress compared to families with a more relaxed environment. Psychological stress can be an important factor to study as obesity is on the increase. These outcomes were the result of a research project by Felix-Sebastian Koch, PhD student at the Department for Paediatrics, Linköping University.

In his thesis ‘Stress and Obesity in Childhood’ he also links high levels of parental stress with lower levels of self-esteem in children. Children from families with high levels of stress showed higher levels of the stress hormone cortisol.

The reasons for stress in families with small children can be many, such as worrying about the children, lack of a social network or traumatic events. In families where several of these reasons co-existed the levels of stress were raised which resulted in a two- to threefold increase in childhood obesity. “If you are not happy with yourself at the age of eight then something is wrong. Perhaps more and more children feel they fail to reach the ideals that are projected in society”, says Felix-Sebastian Koch. The four studies published in the thesis are based on data from 17,000 children in south-eastern Sweden.

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UP TO NOW: not many Swedish students have applied to the two-year master’s programme, but Jörgen expects that to change at the beginning of the next school year. It has been three years since Sweden implemented the Bologna Model with three years of bachelor studies and two years of an optional master’s programme. So the programme will also be interesting to Swedish students.

The programme makes use of the department’s network in Europe. There are plans to enable students to study for a semester at a partner university abroad. There are also teacher exchanges. This term, Jörgen is teaching at Cukurova University in Turkey. And a teacher will be coming from Turkey to Linköping to teach marketing.

The two-year programme has 40 places and is now in its second year. Before this, there was a one-year master’s programme in Business Administration. “Two-hundred and forty students have made our programme their first choice. This makes it the most sought after master’s programme at Linköping University”, says Jörgen.

The whole world in a class room

When Carlos Romero and Meerim Batalgazieva decided to get their master’s degrees they wanted to have a different type of experience, and chose to study business management at Linköping University.

She is from Bishkek in Kyrgyzstan, and is in the process of concluding her master’s thesis that deals with the knowledge dynamics in organisations.

“The students who have participated in the programme should be able to put themselves in different situations and be good decision makers. The courses develop strategic and analytical abilities”, explains Jörgen. Jörgen, the Programme Director and Senior Lecturer at the Department of Management and Engineering, for Jörgen, the diversity of the students is stimulating.

“The whole world is in the classroom. It’s fascinating. But it also means that everyone comes from different educational environments, and has different expectations. The students work extremely hard, and this raises the general ambitions levels for the whole master’s programme.”

Meerim agrees. “The courses are arranged so that we always have work to do. Seminars, lectures, team work, papers and examinations follow each other.”

Carlos and Meerim aim to eventually return home, but would like to continue their careers by working for international companies in Sweden or some other foreign country. “I have begun to see how global I have become”, says Meerim.

“Volvo’s failure in China explained

Internal difficulties at Volvo’s management level explain the failure in China, according to a thesis at LiU.

Volvo’s efforts to produce trucks in China began in the early 90s and was heart by difficulties as described by Åsa Källing in her doctoral thesis ‘The Chinese Volvo: Sino-Foreign Joint Ventures and Perceived Performance’. Åsa Källing shows that disagreement within the group management led to Volvo’s failure to produce a truck that was light and cheap enough for the Chinese market. Production at the factory in Jinan stopped in the summer of 2004, after a year and only a couple of hundred trucks. This was followed by the Chinese Government reducing the maximum truck weight and axle loads so that a fully loaded Volvo from Jinan became illegal on Chinese roads.

Volvo’s Chinese partner, China National Heavy Duty Truck, CNHTC, however, gained much from the co-operation. Using technology and tools from Volvo, CNHTC developed the Volvo copy, the Ho Wo, which is similar to the Chinese word for Volvo. Ho Wo became a bestseller in China and surpassed Volvo’s own sales in months. Ho Wo also managed to gain market share from Volvo in Iran.
Lack of phosphorus threat to global food production

The ability to provide enough food to feed people is dependent on the availability of phosphorus. We are rapidly exhausting our reserves, show LiU researchers.

Shorthages of phosphorus are a threat to feeding the world’s population. It is time to tackle this growing problem, warn LiU researchers.

“Phosphorus is as vital for food production as water. Yet, we are rapidly exhausting our phosphate rock reserves. At current rates, they will be depleted in the next 50 to 100 years. And just within a few decades, the shortage will cause severe problems – unless something is done,” Dana Cordell says.

“The demand for phosphorus has increased sharply, and this has led to rapidly increasing prices. In the period leading up to March 2008, the price of the raw material – phosphate rock – increased more than 700% within 14 months. Prices have since declined, but they are still three times higher than two years ago. The remaining reserves are geographically concentrated in just a few areas in the world.

“Almost two-thirds of the remaining high-grade phosphate rock reserves are found in China, Morocco and Western Sahara”, says Dana.

At the same time she tells us that almost all exports from China have ceased last year, when China imposed an export duty of 135% on its phosphate rock to safeguard domestic fertiliser resources. Furthermore, many Scandinavian companies have chosen to boycott Morocco who occupies Western Sahara and controls its phosphate rock reserves. This occupation has been condemned by the UN.

Other countries with relatively large reserves of phosphate rock are South Africa, the USA and Jordan. You have to consider that more than two-thirds of the remaining reserves are South Africa, the USA and Jordan. You have to consider that more than two-thirds of the remaining reserves are

A change in how we manage phosphorus resources is also necessary if we are going to succeed in eliminating hunger in the world. More food needs to be produced, while at the same time dealing with the increasing demand for phosphorus that is quickly consuming limited resources. It has been calculated that ‘peak phosphorus’, that is when global production of phosphorus rock will reach a maximum, will occur in 2030. And that is not very far off considering there are currently no alternatives on the market that could replace the demand for phosphate rock at any significant scale. Not much is being said about these issues on the international stage. Phosphorus scarcity needs to be added to the political agenda”, says Dana.

Now Dana Cordell and Tina Schmid Neset are working on these issues on the international stage. Phosphorus scarcity needs to be added to the political agenda, says Dana. Now Dana Cordell and Tina Schmid Neset are working on these issues on the international stage.

Tina Schmid Neset and Dana Cordell.

FOOTNOTE: Read more about the Global Phosphorus Research Initiative at www.phosphorusfutures.net.
Changing times for children in Tanzania

What happens to children when society changes? LIU doctoral candidate Sofia Frankenberg carries out field studies in Tanzania.

text & photo BULLE DAVIDSSON

We go to a street where she has done some of her interviews. Sofia stops in front of a house and is greeted heartily by the women who are sitting there. A whole troop of children is running towards us. There is an intense conversation in Swahili.

“I decided to learn the language”, she says. “It makes things work more smoothly. It is easier to make contact and at the same time I am showing respect. I can also ask in-depth questions and expand my materials time I am showing respect. I can also ask

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The Children’s Convention for example, which prohibits corporal punishment, is it­self an example of an external influence. For many adults in Tanzania not hitting child­ren when necessary is incomprehensible. It is the same as telling them that you do not care about them.

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Lively atmosphere at Alumni Day

Over 200 alumni returned to Linköping University on 18 April for the annual Alumni Day. It was a day full of memories, happy reunions, exciting lectures and festivities.

Both LiU researchers and alumni were among the lecturers. There were opportunities to travel inside the human body with the visualisation professor Anders Persson, to hear about Linköping IKEA alumnus Mikael Ohlsson is Ikea’s new top chief

Mikael Ohlsson
As new CEO he will be responsible for an operation with 270 stores around the world and a turnover of over 18 billion Euros.

ERIK DAMBORG is Restaurant Manager at Bay Restaurant Group in London, UK. He has a BSc degree in Medical Biology which he gained in 2005. GUILLAUME FUMAT is a PhD Student at Aales Europe in Toulouse, France. He was an exchange student at LiU during 2007 when he studied Computer Science. ERIKA GILLENYR works as project manager at Opera Software in Oslo, Norway. She has an MSc degree in Industrial Engineering and Management. Graduation year: 2002. DANNY MELLOTHROM is a Procurement Engineer at United Visual Artists Ltd in London, UK. He gained an MSc degree in Architecture Lighting and received his MSc degree in 2005 after attending the international Master’s programme Business Administration – Strategy and Culture at LiU.

The day concluded with dinner and light entertainment. And for some it did not end there. There was dancing and mingling into the small hours at the student bar Herrgårn.

Want to know more about LiU Alumni?
Camilla Smedberg
External Relations, Linköping University, 581 83 Linköping, Sweden

camilla.smedberg@liu.se

The day also saw the launch of LiU Fund of

MSc degree in Medical Biology which she gained in 2005.

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After attending the international master’s programme in International and European Relations he received his MSc degree in 2007.

TRASSODRAUL PHOMAN works as Customer Feedback Specialist at Exxom Mobil in Prague, the Czech Republic. He attended the international Master’s programme Business Administration – Strategy and Culture, and received his MSc degree in 2008. PETER REKELDUS is CEO at Energy Recom- mender Inc. in San Francisco, USA. He holds an MSc degree in Computer Engineering from 1986.

ANDERS STRÖM is Research Assistant at the University of Houston, USA. After attending the Chemistry programme he received his MSc degree in 1984.
FREDRIK WADSTRÖMN works as a foreign cor-respondent for Sweden’s Radio Ltd (SR) in Moscow, Russia. He studied Cultural Studies at LiU in the 80’s.

Campsala Tungyasuk
LiU alumnus Campsala Tungyasuk
works at Saab, participated in a panel discussion.

Which one is the greatest student overall?

There was lots to do for the more than 200 alumni who showed up for the reunion.

The day concluded with dinner and light entertainment. And for some it did not end there. There was dancing and mingling into the small hours at the student bar Herrgårn.
WITH SIGHT SET ON THE STARS

He has progressed from computer games to visualisation tools for planetariums and science centres. LIU alumnus Jonas Lindqvist is a media engineer with a fancy for enterprise. Right now, San Francisco is his base.

...continued on the next page...
What do unique creativity, leading technology and international success have in common?

The Twin Cities of Sweden, made up of the cities of Linköping and Norrköping, has a proud tradition. A whole host of unique ideas have been born here – particularly at Linköping University, as well as the Science Parks in Mjärdevi and Norrköping. These ideas have now become a reality, creating internationally successful products and concepts. This is one reason why the twin cities is enjoying such strong growth!

**PS:** Linköping University (LiU), one of Sweden’s leading centres of higher education, currently has over 25,000 students in a number of prominent research areas. Interest in studying in Norrköping and Linköping has shown a marked upswing.

The Center for Medical Image Science and Visualization (CMIV) is a multidisciplinary research centre initiated by Linköping University, Östergötland County Council and Sectra AB. It carries out research that leads the world in several medical technology areas.

One of the most successful companies in the region is Gripen International, a company owned by Sweden’s Saab and the UK’s BAE SYSTEMS. Gripen has delivered or will be delivering fighter planes to the Swedish, South African, Hungarian, Thai and Czech air forces, among others. The fighter planes are manufactured in Linköping.