



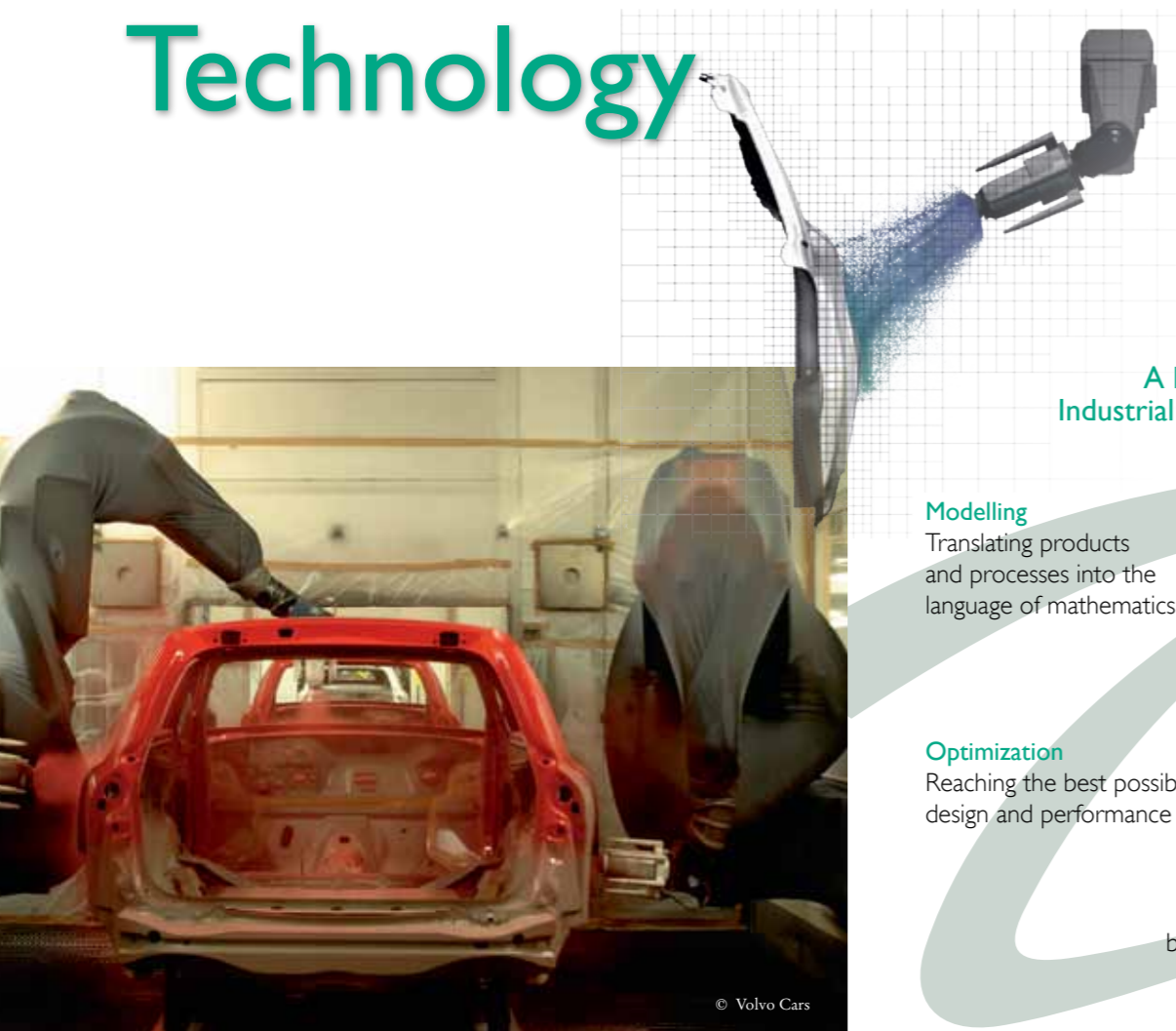
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Contact:

Roland Roll
roland.roll@fcc.chalmers.se
Phone: +46 (0)31 772 42 55

Anton Berce
anton.berce@fcc.chalmers.se
Phone: +46 (0)31-772 42 63

www.fcc.chalmers.se



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Ask yourself,

what is the American Dream?

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Editor in chief	Viktor Holmqvist
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For me and the 17 other members of CETAC 2013, the American dream was **the opportunity to experience a qualified Internship in the United States**. We all took that opportunity, and after a year of hard work we set off on our journeys.

CETAC - Chalmers Engineering Trainee Appointment Committee - is a student organization that each year makes it possible for engaged students from Chalmers University of Technology to travel to the US and gain valuable experience.

You are currently reading the 48th annual edition of the CETAC Trainee Report. This magazine will tell you stories from our respective journeys, and give you a brief look into the various challenges and adventures we have experienced so far.

It is my hope that you will be inspired by our stories, and either make it possible for other students to get the same opportunity, or make the same journey yourself.

If you like what you read, please spread the word to enable even more students to experience the American dream.

Viktor Holmqvist
Editor in chief
August 28, 2013



The board of CETAC 2013: Robin Rye *chairman*, Viktor Holmqvist *editor*, Tobias Forsberg *sales coach*, Karin Brötjefors *coordinator*, Alexander Radway *treasurer*, Björn Wessman *coordinator*.





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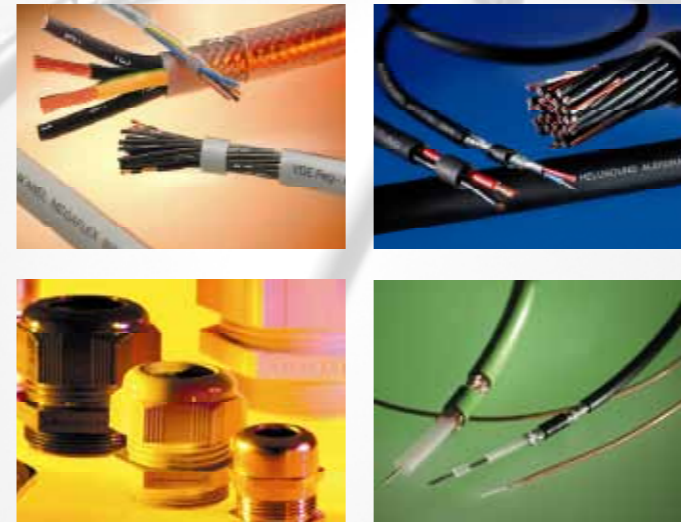
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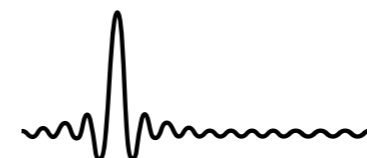
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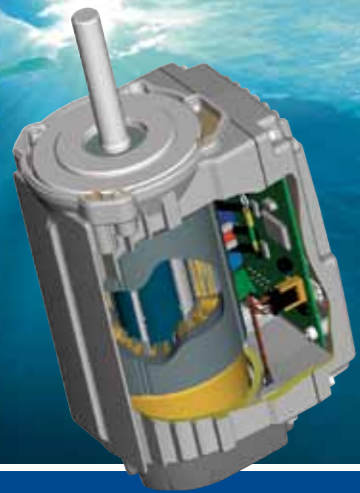
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Become a Member of CETAC 2015

Maybe you are one of the lucky students who will arrive in New York in June 2015, having a week of fun with all the other members of CETAC, before setting off to your internship situated somewhere in the US.

As a member of CETAC you get the opportunity to get a paid and qualified internship in the United States, for a summer or up to a year. In this year's issue of the CETAC Trainee Report we are proud to let you read about students working at NASA (p. 19) and at successful companies such as VMware (p. 52), but also about students that are part of smaller teams at start-up companies such as BandPage (p. 50). The internships are all different but what they all have in common is that they will give you a great amount of valuable work experience and cultural understanding, which in the long term will make you attractive for future placements and give you a good advantage on the job market.

Students at the D, E, F, IT, and TM programs at Chalmers who have passed at least 75 hp and have a Swedish citizenship or a long-stay residence permit are eligible to apply for a membership. CETAC will admit about 30 members, including a board of 6 people, during the spring of 2014. They will then work together for about a year in order to make it possible for all the students to each find an internship that will suit their skills and their preferences. To finance the flight tickets, visas and all sorts of costs that are associated with the travel, all students contribute to the Trainee Report, the

magazine you are now reading, by writing their own story about their experience as an intern, and selling advertisement space to Swedish companies. All the practical arrangements such as visas and insurances, finding host trainers and putting together the Trainee Report are taken care of by the board. The board consists of a chairman, a treasurer, two internship coordinators, a sales coach and an editor. You can read more about their specific duties on the CETAC website.

But CETAC is also a social organization. Throughout the year of preparation, dinners and activities are arranged and each new CETAC-year starts out with a sales trip to Stockholm (p. 61). There is also an alumni network, CETAC Alumni (p. 55), which is an organization intended to gather and entertain former CETAC members, that also serves as a great network.

We hope that this Trainee Report will make you interested in becoming a member of CETAC. If you want to read more about the organization you are more than welcome to visit our website www.cetac.se, where information about the application process will be announced, or you can email us at info@cetac.se.

We hope to see you next year!

Julia Reibring3
Editor CETAC 2014



Meet the Members



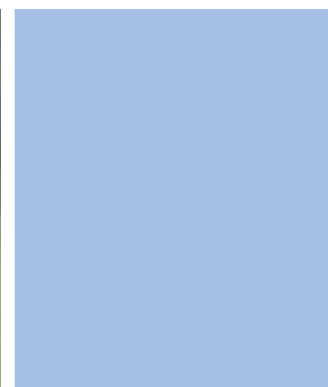
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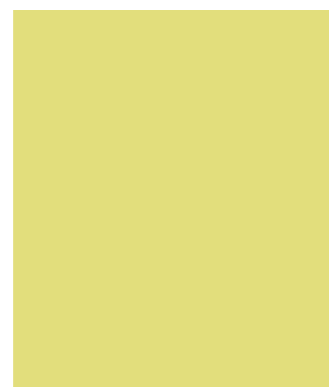
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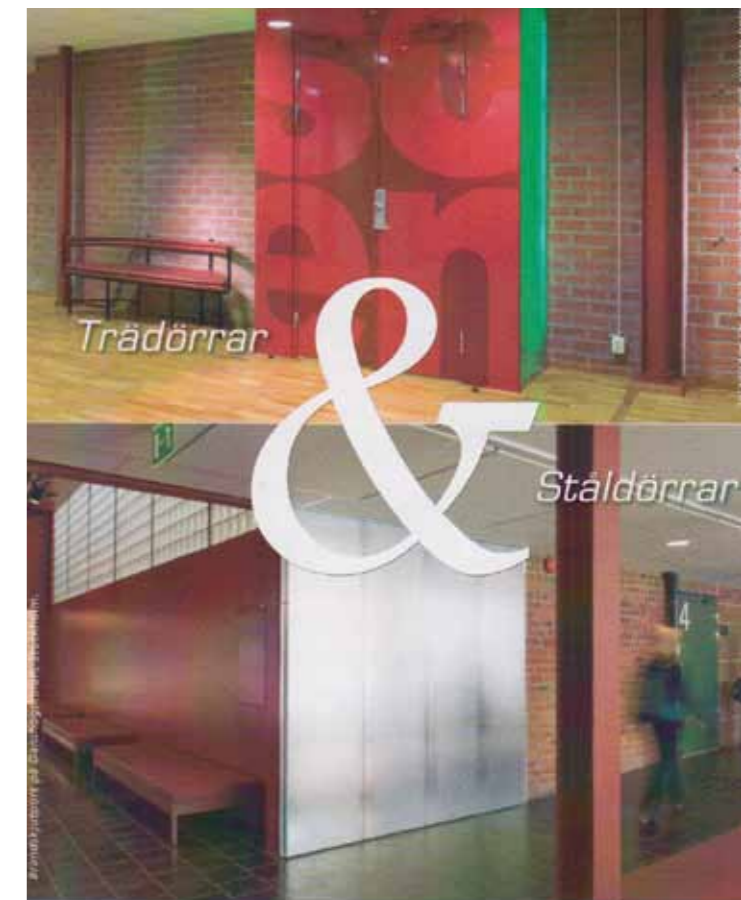
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NEW YORK



"It is amazing how much you can experience in a week in a city like New York."

After a year of hard work, we had finally arrived in New York City. The expectations were high and we were all excited to have arrived in the country we had been dreaming of for so long.

When all of us had made it into the country, we set off to check in at the hostel we had booked for the coming nights. The hostel was located on the upper west side of Manhattan, and we decided to take the subway rather than a cab to get there.

The New York City Subway is a really good and affordable way of getting around the City, and we all used it frequently throughout the week after realizing that you can not walk all

over Manhattan in sneakers without eventually getting sore feet.

Even so, walking around Manhattan is a pretty unique and rewarding experience. The city's collection of skyscrapers is definitely the largest and most varied I have ever seen, with ancient-looking churches and monuments hidden right in between.

Most of our first and second day in New York consisted of exploring the homogeneous network of streets squeezed between this amazing mess of old and new buildings. We started by walking down Broadway all the way from the upper west side to lower Manhattan, walking past Times

Square, Union Square and the Flatiron Building and taking minor detours to see Madison Square Garden, the Empire State Building and finally the new World Trade Center.

Fortunately for the hockey fans of the group, we arrived in the US right in the middle of the Stanley Cup playoffs, and we topped off both the first and second night with some food while watching the 3rd and 4th game in the semi finals.

Part of the annual New York trip is to meet up with the members of USA-SIP, the sister organization of CETAC. Each year we go together for orientation at the American-Scandinavian



Foundation (ASF), to get information about how to get a social security number and a bank account and to finalize some of the visa paperwork. The orientation gave some good insights along with a huge buffet of food and drinks.

As part of the orientation, we were also supposed to go to a Baseball game between the New York Mets and the Miami Marlins. Unfortunately, the weather was not on our side, and the game was postponed. Luckily though, the staff at ASF managed to get us a refund.

Later that day, we joined up with the members of USASIP to watch the Soccer World Cup Qualifiers game

between Sweden and Austria at a bar close to Times Square.

One of the members of USASIP had managed to get in touch with a New Yorker before leaving for the States, and had been invited to stay for free in his apartment. The apartment was located in Harlem and the whole thing seemed kind of sketchy, but in the end the guy turned out to be really nice and everything checked out. After the soccer game some of us tagged along to a party at his place.

Even though New York City is far from the most segregated city in the world, visiting Harlem really opens your eyes. It is astonishing to see that the type of people living in a certain

place can change so much in just a couple of blocks. Putting our preconceptions aside, the party and neighborhood was an absolute blast. There were people from all over the world getting together in an apartment in Harlem, New York City, just having a good time.

It is amazing how much you can experience in a week in a city like New York. So much to take in, so much to feel. All in all, we had a great time, and with newfound energy we set out to our separate destinations. Hasta la vista New York. We'll be back.

VIKTOR HOLMQUIST

AuSIM

[Awe-some]

AuSIM Inc, Silicon Valley - my first job in the field of engineering. Before coming here I was extremely nervous about the expectations on me and whether I would be able to meet them. My self-confidence is so far only based on exams and assignments from Engineering Physics – the toughest program in Sweden where you have to struggle hard just to make it – and I have long felt that I need a real-life experience to assure me that I have actually learned something. I have felt lost when it comes to knowing in which field I want to continue my studies and I sometimes, in the mist of all hard work, find myself forgetting why I chose to study physics in the first place – because I find it interesting and fun. Therefore, my main goals with this internship are to get inspired towards my future career, to increase my self-confidence within engineering, and to experience engineering, today's technology and the future's technology from a new and wider perspective.



Emil and I by Vernal Falls in Yosemite National Park.

I have now been in the San Francisco Bay Area for six weeks and two days. I had thought that, by this time, I would have seen everything around here – explored every inch of the hills surrounding the bay, gone surfing and swimming at all the beaches and gone up every tower in downtown San Francisco.

But I have not. The beginning of my adventure has been both challenging and stressful, having to deal with necessities like finding housing and buying a car while at the same time having the intense first weeks at AuSIM. My boyfriend Emil is here with me doing an internship at a company located opposite the bay from where AuSIM is, which limited our housing options down to two choices: either live in downtown San Francisco where both of us can go to work with public transportation, or in Fremont where I would require a car to be able to get to work. Since we did not have a car in the beginning we had no choice but to live in downtown San Francisco. We booked the cheapest hotel we could find which of course turned out to be in one of the worst areas – Tenderloin. After coming home from a long day at work and a three-hour round-commute I was met by streets full of homeless people and

Karin Brötjefors

Age: 24
Education: B.Sc. Engineering Physics
Length of internship: 6 months
Company: AuSIM Incorporated
Location: Mountain View, CA
Number of employees: 5
Webpage: www.ausim3d.com
Best US memory: Swimming at the bottom of Vernal Falls in Yosemite with Emil.

the smell of drugs in every corner.

So it was an intense time at first and our experience from living in San Francisco made us want to move to the more quiet and calmer city, Fremont. It took us about two weeks to find a car, another week to find an apartment and yet another to buy furniture. This weekend is the first that we have actually had time to go somewhere during a weekend, so we decided to go to Yosemite National Park. Since the deadline for this article is on Monday I am actually writing this while sitting on a rock overlooking the Yosemite Park, at 2200 meters above sea level. Earlier today we went hiking and swimming by the bottom of a waterfall called Vernal Falls.

Not having any time to relax has been the price for the extremely rewarding experience of being an intern in Silicon Valley. The hours I have spent away from the hotel and Emil



"In Silicon Valley, the nerds are the cool kids."

has been at a company situated on Google campus. The colorful Google-bikes that are only allowed on campus are all over and every once in a while you will see one of the self-driving cars pass by Shoreline Blvd with a sensor on their roof scanning the surroundings. It is very cool to be where the development of future technology is happening. The conversations here are all about the latest technology, ideas for start-ups and dreams about what can be someday. In Silicon Valley, the nerds are the cool kids.

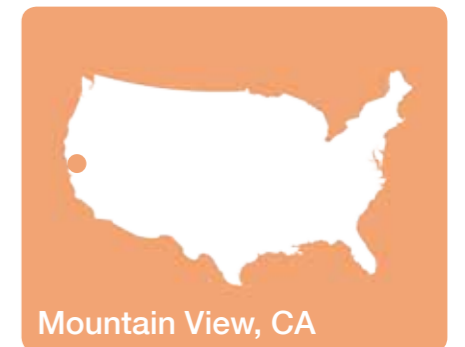
The company I am working at is called AuSIM, which stands for Audio Simulation. They provide audio simulation solutions that increase the realism of reproduced sounds, and create a three-dimensional sound experience when wearing headphones. Instead of hearing the sound "inside your head", AuSIM actually makes it possible to hear sounds in all directions with different amplitudes. With a tracker positioned on top of the headphones, the position of the sound remains the same when you are turning your head.

Furthermore, when simulating the propagation of a sound through a certain environment, electronic recording strips the coloration of that environ-

ment (coloration could be the reflections against walls or absorption of the atmosphere). AuSIM compensates for this by adding a designed environment to the signals, making the result sound like you are actually in that environment.

My first task at AuSIM has been to create a tool for visualizing and plotting Acoustic Head Maps (AHMs) in a MATLAB GUI. AHMs are maps of Head Related Transfer Functions (HRTFs) from several points in space and HRTFs are responses of how an ear receives sound from a certain point. By comparing the responses between the two ears one can calculate the distance and amplitude of the sound source and in that way reproduce it. The AHM Tools I have created show 3D plots of full-sphere responses in the time domain, the Interaural Time Difference between the two ears and how the waveform differs from one point to the two ears.

My intended task, which will be my next project, is to work with a multisink auditory display, a product called Vectsonic. By positioning loudspeakers with a certain geometry around the room, virtual sound sources will be generated to create a three dimensional effect.



Mountain View, CA



The Exterior Effects Room at NASA Langley Research Center – which was built for psychoacoustic studies on aircraft noise – is where Vectsonic was first installed. I have been given the opportunity to visit NASA in September to install and test my product development of Vectsonic, which is a dream come true.

KARIN BRÖTJEFORS

A Year in the Heart of Silicon Valley

Sun 300 days a year, a myriad of IT companies ranging from small start ups to well-known giants, and software developers everywhere. These are some of the things that describe the amazing place called Silicon Valley by the San Francisco bay in California. A very exciting place indeed for a 25 year old Swedish soon-to-be software engineer to spend a year-long internship. So far, my time here has been a great adventure, and I have developed, both on a personal and a professional level. And it has only just begun!



I have gotten the great opportunity to work as an intern on a software company called Virtual Instruments in San José, at the Southern point of the San Francisco bay. The company was founded in 2008 and is growing quickly. Most people have only worked here for a year or so, and several new hires join the company every month. I was only “the new guy” for a couple of days before someone else took that position. Working in a dynamic environment like this has been great. When a lot of people are new to a situation, the atmosphere tends to be very open and social. It is also exciting to be part of a company that is evolving as rapidly as Virtual Instruments is. Last year, the company was listed as number three on the business magazine Forbes’ list of the Most Promising Companies in America, and being in an field where companies have gone from tiny to huge in a short time before, there is good reason to have high expectations!

The source of the company’s growth is a product called Virtual Wisdom, which is a hardware and software solution for monitoring and managing IT storage infrastructure. Big com-

Mattias Henriksson
Age: 25
Education: B.Sc. Software Engineering
Length of internship: 6 months
Company: Location: San Jose, CA
Number of employees: 210
Webpage: www.virtualinstruments.com
Best US memory: The stunning view of Silicon Valley/Californian wilderness from Mission Peak

panies often handle large amounts of information that they store in big data centers, and to be able to control these data centers they need tools like Virtual Wisdom. My contribution to this lies in being part of a team responsible for collecting data on how different parts of the IT infrastructure are performing. Even though I am only an intern, I get a lot of responsibility, which is great since that gives you a chance to learn a lot.

In general, I find the working culture in Silicon Valley very appealing. The atmosphere is sometimes relaxed and sometimes intense, and working hours are flexible: as long as you get you work done, you can choose where and when you want to work, within some limits. Most people get to the office around 9.30 a.m. and leave at

“Last year, the company was listed as number three on the business magazine Forbes’ list of the Most Promising Companies in America.”



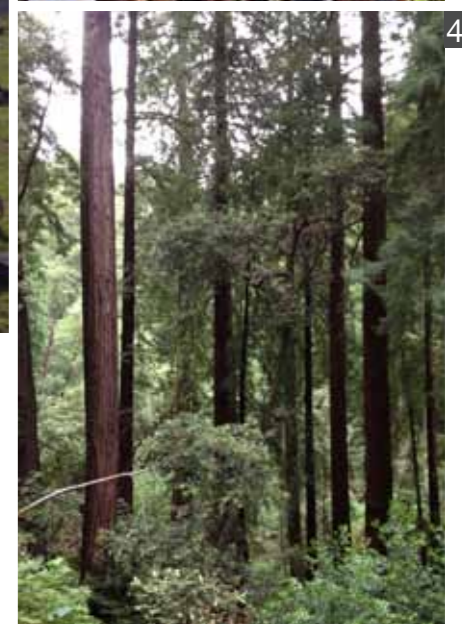
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around 6 p.m., if they are not working from home. However, everyone takes their job seriously and people are very good at what they are doing. It is very stimulating to be in an environment with so many skilled people!

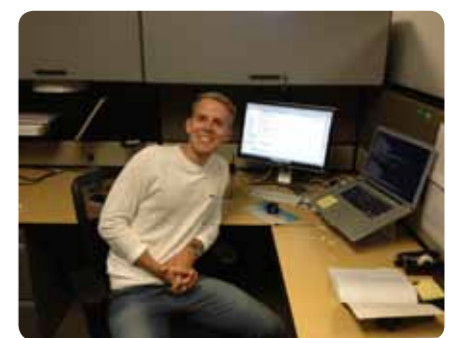
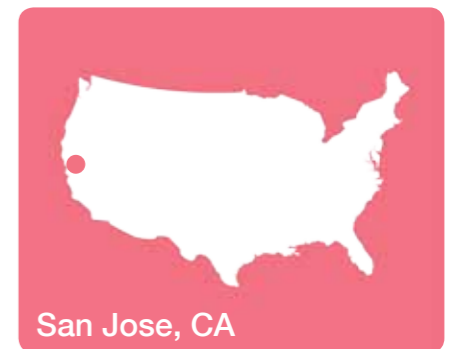
So, what do you do with your time in Silicon Valley when you don’t work? Not a lot actually, the most activity here seems to revolve around the companies, and when the workday is over, most people go somewhere else. Luckily, the area around the Valley has a whole lot to offer, especially the amazing city of San Francisco! Here I have spent a couple of days and nights with fellow interning CETAC friends, experiencing a lot of fun and weird stuff. Nowhere else have I seen so many eccentric and unconventional people as in San Francisco! This includes a guy skateboarding with a cat sitting on his shoulder, a very sparsely dressed 70 plus year old man on inlines and a homeless guy with tattoos in his face, carrying a long samurai sword. And the city also seems to host a lot of unconventional events. What I have experienced so far ranges from the famous Pride festival to the world’s biggest (and probably only) bicycle music festival (concerts performed on stages dragged by bikes, with a biking audience following).

However, the area does not only offer urban experiences; surprisingly close to the high tech companies and the skyscrapers you can find a lot of fantastic, unexploited nature. California is almost the size of Sweden, and provides a very diverse countryside with dramatic coastlines, wine farms, high snowy mountains, and deep forests with huge old trees. So far I have experienced this by hiking in the redwood forest of Muir Woods, with giant old rainforest-like trees - a relief after spending several weeks in the city. I have also taken a hike up to Mission Peak, a 2500 feet high peak in the hills east of Silicon Valley. This provided an amazing, contrasting view of the high tech industries and San Francisco skyline on the left, and the wide, empty wilderness on the right! My plan is to get a bike and try to explore as much of the Californian nature as possible before the year is over.

To wrap things up, I am having an unforgettable time here in Silicon Valley that I am sure I will bring with me for the rest of my life. Spending a year or two outside of Sweden is something that I can recommend highly to anyone, you will not regret it!

Keep it real!

MATTIAS HENRIKSSON



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Next Stop: NVI & NASA

A summer filled with lots of interesting people, a good dose of science and an even bigger dose of American culture. An internship at NASA Goddard Space Flight Centre and NVI Inc. is what every Chalmers student with a strong scientific interest should aim and hope for! Keep reading for the perspectives of interns number 16 and 17, Emma Woxlin and Tobias Forsberg.

Yes, it is true. That is actually an accurate account on how many interns have been with NVI over the years. Ed, one of the owners of NVI, counts and keeps himself updated on what has become of most of the former interns. He arranges NVI Alumni meetings every now and then when he visits Sweden. That is how much NVI cares for its interns from CETAC! Of course, there is also an antenna at Onsala that is used for Very Long Baseline Interferometry (VLBI) observations, so that is yet another reason to go to Sweden.

For those of you who do not know, NVI Inc. is a contracting firm to NASA that works with VLBI. This technique mainly determines distances between stations, or sites, on the Earth's surface and each of those distances corresponds to a baseline. As of now, the precision is down to centimeter level but the current goal is to get down to millimeter precision between continents. Pretty fascinating, huh?

The way it works is actually pretty simple - the observations are performed on quasars, or distant luminous objects in the sky that can be considered point sources. By having two or more stations locked in observing the same quasar, and then measuring the difference in arrival time of the signal to each station, it is possible to determine the distance between the stations by using basic trigonometric relations. Of course, in order to be able to measure the difference in arrival time very precise atomic clocks have to be involved. These are called Hydrogen Masers and there is at least one such clock for each station. Finally, the signal received from the quasar has to be recorded at each station, so that it can then be correlated with the records of the other site(s) involved in the measurements.

At one point during the summer, after a meeting with the U.S. Naval Observatory, a group including us interns went out to the closest VLBI site called GGAO, to see the antennas and all the

Emma Woxlin

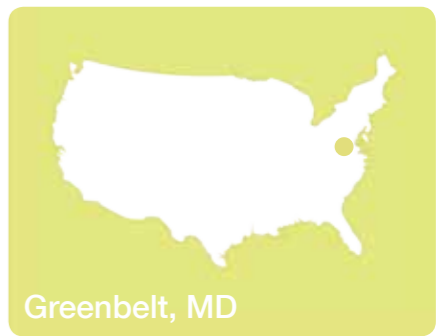
Age: 22
 Education: B.Sc. Engineering Physics
 Length of internship: 1 year
 Best US memory: Taking a shower in the Niagara Falls

Tobias Forsberg

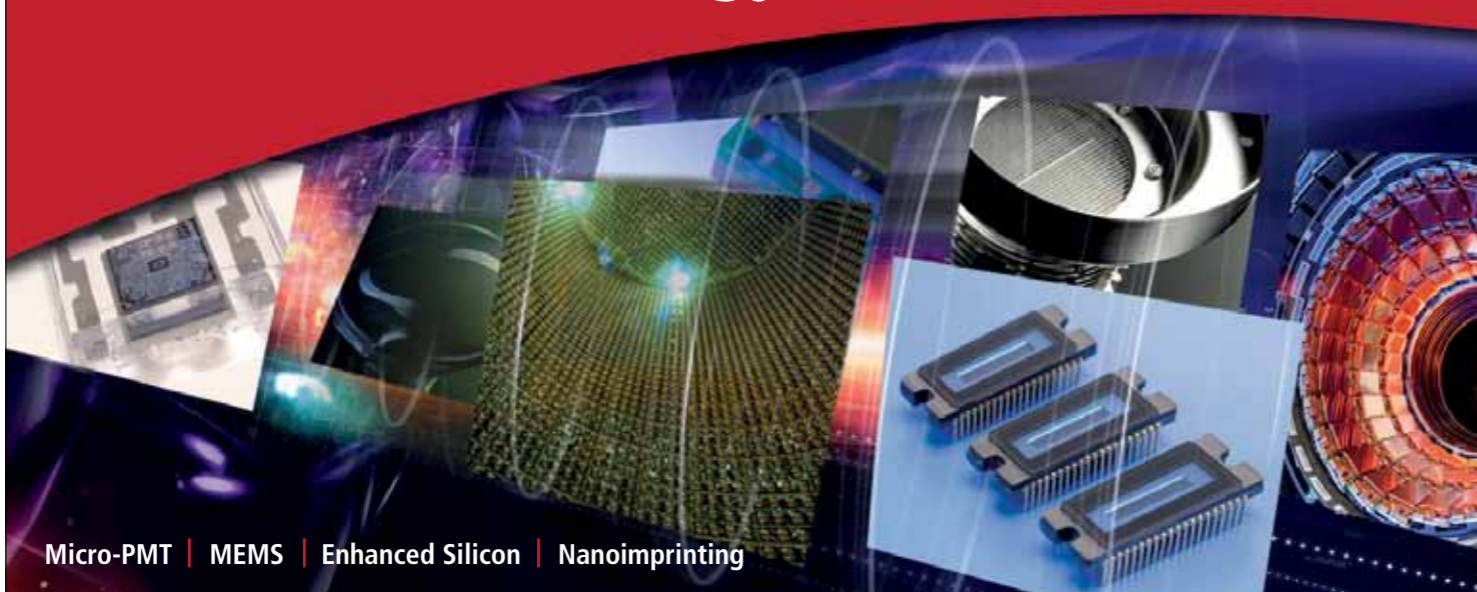
Age: 32
 Education: B.Sc. Engineering Physics
 Length of internship: Summer
 Best US memory: All the NVI luncheons

The Company

Company: NVI
 Location: Greenbelt, MD
 Number of employees: About 20
 Webpage: www.nviinc.com



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The classic NASA Goddard picture.



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- 1. Niagara falls - what a view
- 2. Visit from CETAC member Joel posing in front of Capitol Building
- 3. Road trip with Dirk
- 4. Great falls with Tobias wife Natalia
- 5. One of many company luncheons
- 6. VLBI antenna

instruments that go along with them. This gives a realization of how much information and state of the art technology that has to align for the measurements to be correct. One interesting piece of information is that some of the data recorded on site has to be shipped by physical means to the correlator centers because it is so large. The development to electronic data transfer is under way though.

Our first task was to work on some extensions to the previous interns' programs. This was a good way to start even though it is hard to read other peoples code. Especially if you have never programmed in C++ before! It was good in the sense that we could see how the others, with more experience, had built their programs and then we could simply do a lot the way they had done. And when programming as a newbie in any language, Google and various forums are always helpful tools. It did not take long until we got a more scientific project to work on though. Writing routines in C++ to investigate

station stability and possibly determine what stations to be use in the recalibration of the terrestrial reference frame is not a task to take lightly. This project has been ongoing for the better part of the summer and even though we have a presentation coming in a few days at the time of writing, none of us really see a definite end to this project. There is always more work to do in precision science such as VLBI. With the help of our excellent supervisor John we have come pretty far though, and we will have some useful things to show. We are also well prepared since we have got the chance to practice every Wednesday when we had weekly presentations. Here we have been presenting what we have been doing the past week and also listening to what everyone else has been working on.

Now let us move on to some more cultural stuff. The American culture is exactly what you could expect. At McDonalds they ask whether you are referring to white or chocolate milk when you want to add milk to your coffee and when you ask for a small

coke at IMAX you get approximately one liter. On a more serious note, to experience some of the American diversity one does not have to move far from the interns' office at NVI. Actually, one just has to move two doors down to Dirk's office. Dirk is originally from Germany and invites people to taste his fine Nespresso coffee almost every day at around 3.3. p.m., as we say in America. To this coffee break people from all over the world attends: Ed from the US, Sergei from Ukraine, Karine from France and occasionally Karen also from the US. And even more occasionally David, the third intern from Sweden, joins in. In many ways this cultural diversity expresses what America is all about. People come here from many parts of the world to live their lives and do something that they love. A lot of the time the conversations revolve around the latest thunderstorm or tornado hitting Maryland. And the coffee is great too, thanks Dirk!

Working in America is a rare opportunity to experience the American cul-

ture from the inside: getting to know all the people over a lunch at work, going out for dinner or socializing with roommates. This is what it is all about, getting to know people and strengthen the relationships to people that you want to be part of your life. One highlight of the trip, when it comes to people, was getting to know Timo Stein, a German intern at the cosmology department. This is a person that will probably have a book or two written about him at some point. He



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arranged, without hesitation when asked, a dinner with 2006 Nobel Prize laureate in Physics John Mather and his wife Jane. The Nobel Prize was awarded to John Mather and George Smoot, for their work on the Cosmic Background Explorer (COBE) satellite. For us engineering physics students, this meeting was extremely rewarding as we got to ask questions to a person that has devoted his whole life to physics and the exploration of the universe and it's workings. John also had some interesting thoughts on artificial intelligence among other things. He is now the senior project scientist on the James Webb telescope, by the way.

As for me, Emma, I got the very good news just a week ago that I am staying for another nine months, which made me very glad. Even though I have been trying to experience as much of America as possible during evenings and weekends, time flies by so fast you just have time for a small fraction of everything you want to do but now I have got plenty of time to do every-

thing I did not had time for before. Also, this means I have more time to settle down and maybe at some point I will actually feel like an American!

Since it is not very nice to be aware that there is a black widow spider living outside my window and (maybe a bigger reason) our lease is ending soon I am moving to a different house this week. Luckily my parents are currently visiting which means that they are able to perform their duty as parents, like sewing curtains and putting together furniture from IKEA – exactly what you want to do on your vacation in the States, right?

Fortunately we have also had time to do some other stuff, last weekend we went up to the Niagara Falls and Toronto. The falls were very beautiful but the surrounding areas are way too exploited, according to me. When we were going up in the Skylon tower where you can see both the American and Canadian side of the falls the guide in the elevator said "There you can see the falls on the American side and there you can see the falls on the

"He arranged, without hesitation when asked, a dinner with 2006 Nobel Prize laureate in Physics John Mather and his wife Jane."



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Canadian side, and there you can see the casino on the American side and there you can see the casino on the Canadian side." This is typical for some places in America but the good thing is that this country is big enough that there is something for everyone. America is truly a great country and I am very excited to spend the rest of the year here!

As for me, Tobias, I have been in the US five times before but this time has been the best. Getting to work with science in another country and at NASA and NVI of all places is really a dream come true. I always wanted to become an astronaut and maybe this is as close as it gets. But I hear the commercialization of space travel is on its way and becoming somewhat affordable. So maybe one day another dream

can also come true...

One of the best things about my trip was arranging for my wife Natalia to come over for the most part of the summer. We celebrated our anniversary just a couple of days ago strolling around Georgetown in Washington DC, taking in the beautiful scenery of Potomac River and dining at a nice Spanish tapas restaurant. I just should have remembered that the tapas here are a lot bigger than in Sweden.

Next weekend we are going to St Petersburg in Florida to visit CETAC member Joel Wanemark and get some beach time going. The weekend after that we are off to Los Angeles to visit another CETAC member, Tian Fu Yun, and possibly make some more contacts for the future at the company he works.

1. Huge construction somewhere inside Goddard

2. The Mormone castle

3. Dinner with Nobel Prize winner in physics 2006, John Mather and his wife Jade.

We might like to come back to the US for more work or business and in that case it is good to keep as many doors wide open as possible. After that weekend there is not much left for me in America this time: Thursday the 22nd of August we are heading home, arriving in my hometown Kalmar late night the 23rd only to attend the wedding of two good friends the 24th.

So, see you next time, America!

TOBIAS FORSBERG
EMMA WOXLIN



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Herding Bison in Boston

A little more than a year after signing up for CETAC the day we had all been waiting for finally came. I was about to depart for a one year internship as a Software Developer at a startup company in the US.



Enjoying a sunny day at the Boston Waterfront.

The last couple of weeks had been intense: Finishing up school and work, getting rid of my apartment and making sure all the paperwork that would allow me to enter the US was ready.

I arrived in New York City together with some other guys from CETAC. We were psyched to spend a few days in the Big Apple before departing to our respective final destinations.

After four nights in New York, I made my way to my final destination Boston. Lazy as I am, I had not booked any ticket in advance. I took a cab to Paddington Station where I knew the train for Boston would depart. I soon realized my stupidity when I had to pay \$100 for the train knowing others only had paid \$20 for the bus.

The night before I had hastily arranged to meet Waldron Faulkner, VP of Engineering at BISON, when arriving in Boston. He helped me find my way to the apartment where I had been lucky enough to get a room for my first month in Boston. The apartment was located in the South End, a mere 15 minute walk from the Back Bay Station where the train had arrived. The room had also been arranged a few days earlier by another coworker at BISON. The owner of the apartment was the founder of another tech startup in Boston called Qunb. Qunb and

Viktor Holmqvist

Age: 24
Education: M.Sc. Computer Science: Algorithms, Languages and Logic
Length of internship: 1 year
Company: BISON
Location: Boston, MA
Number of employees: 6+3 interns
Webpage: bison.co
Best US memory: Watching the 4th of July fireworks from the Charles river shore.

BISON had earlier been part of the same startup accelerator, TechStars.

BISON is a startup company providing a monitoring and search application for the private equity and venture capital market. The general idea is to provide a service that helps investors find information about PE and VC firms as well as funds they are interested in and in the end help them make better investments. I was hired to be part of the BISON development team and was super excited to start learning about the technologies used in the application and to start contributing as soon as possible.

The first week consisted of setting up my workstation, getting all the paperwork done, getting an initial walk-through of the code base and starting my first two small projects.

Being a web-based and data-driven application, the development work at BISON involves both front-end and

back-end development. The core application is written in PHP in addition to HTML, CSS and JavaScript for the front-end stuff. I had previous experience with all of the languages used, but needed to get to know the code base. My first two assignments, adding a progress bar to the search page of the application and improving the way the application process news articles, was perfect to get me started with the code base in terms of both front-end and back-end.

After a couple of days in Boston I realized that the first month would pass by really fast. I was in desperate need for a more permanent place to live, so I started checking out Craigslist and other similar sites without much luck. Fortunately, I had previously registered for a weekly news email from another site. One day after work I got an email with what seemed to be a good match. I called the realty agent and to my surprise I managed to get a viewing the next morning. The place was perfect: fully furnished, located in central Boston and equipped with an in-unit washing machine and a modern kitchen. I was tired of not having a permanent place to live so I basically accepted the apartment immediately.

One thing that have surprised me about living in Boston is the weather. I had imagined about the same climate as in Sweden but it turns out that it is way warmer here in the summer. The high humidity enables the air to get really hot and on rare occasions the wind can almost feel like someone is pointing a hairdryer at your face. Fortunately, that is rare, and after getting used to the humidity the climate is very enjoyable. Since high humidity should have the opposite effect and make the Bostonian winter colder, I look forward to comparing it to the Swedish counterpart.

I was lucky enough to be in the US for one of their most celebrated holidays, Independence Day - commonly known as Fourth of July. I spent the day with two Swedish guys from the sister organization of CETAC, called USASIP. We had been recommended to hang out near the Charles river



"I was hired to be part of the BISON development team and was super excited to start learning about the technologies used in the application and to start contributing as soon as possible."



1. Having breakfast next to my apartment in the South End.
 2. Watching the sunset from the Charles river shore, waiting for the 4th of July fireworks.

shore during the day and watch the fireworks later in the evening. Since the weather was awesome we headed down there at noon and the place was already packed. We managed to find a good spot to sit close to the river and as the hours passed, the expectations for the upcoming fireworks grew as more people arrived. We had heard that the Bostonian 4th of July fireworks were supposed to be some of the most spectacular ones in the States, but we could never have anticipated what would come. It was basically 30 minutes of nonstop fireworks, with spectacular colors and shapes lighting up the Charles like it was broad daylight. Even more spectacular was the crowd made visible by the fireworks: Hundreds of thousands of people, previously hidden by the darkness of the night, peacefully watching the lighting show in the sky.

At the time of writing; my third month at BISON is just about to start, and I absolutely love it. Working at a startup comes with constant change, a steady flow of technical challenges and just the right amount of responsibility. As a Developer, there is always a delicate balance between writing good, sustainable code and banging out new features to the users. Another side to it is that



you do not really know what the users want, and user feedback and discussion is crucial to maintain a direction viable in the long run. I feel like it is the perfect match for me.

VIKTOR HOLMQVIST

California Life

A friend, of a friend, of a friend. Yep, that's how I first came in contact with Dale Fox, the CEO of Tribogenics in Marina del Rey, California. I was told that they were open for interns at the time and it did not take long before I realized that this was the right internship for me. Interesting work, fun location and great weather, what more could you ask for? So, with the help of the awesome people in the board of CETAC, I was now on my way to California for a six month internship.



In China Town at downtown LA.

When arriving at the Los Angeles International Airport I was immediately struck by the perfect weather. It was warm and sunny but not too warm. My host company had provided me with a hotel for one week, while I was looking for housing. During this first week I had time to explore Marina del Rey. Bounded on all sides by the City of Los Angeles, Marina del Rey boasts the world's largest man-made small craft harbor with 19 marinas and is the home port of approximately 6500 boats. It was fairly easy to find a good apartment here through craigslist.org, although you have to be prepared to pay a lot for a place in a good neighborhood like Marina del Rey. I also got myself a beach cruiser from the same website, having heard about the famous bike lane along Venice beach and Santa Monica.

Living in Marina del Rey is great, there are tons of good restaurants and you don't have to go far to get to a grocery store. There is a supermarket close to where I live that sells everything, and when I say everything, I really mean everything. It's like a grocery store, furniture store and electronics store combined, plus even more stuff. But it is not all roses. The public transportation is virtually non-existent. The bus and railway stations are scarce and riding the bus or train is not always the most pleasant experience. As if that wasn't enough the same line can have different end terminals and the drivers usually don't know the name of the stops for their own bus/train. Anyway, for getting around you need to have a

Tian Fu Yun
Age: 22
Education: B.Sc. Engineering Physics
Length of internship: 6 months
Company: Tribogenics
Location: Marina del Rey, CA
Number of employees: 22
Webpage: www.tribogenics.com
Best US memory: Meeting the Swedish fitness celebrity Mikael "Prime" Hollsten at the legendary Gold's Gym in Venice, CA

car. The traffic is bad at daytime, but it's still better than anything else.

Something else that is different from Sweden and that I noticed right away when coming here is that the people are very open and helpful. I remember walking into this cell phone store on my very first day in L.A. (and in the U.S. as well) asking about cell phone plans. It started out with just me and the salesperson. Eventually two other customers who had overheard our conversation joined in and offered advice about carriers, plans and coverage. The discussion probably lasted for more than half an hour. Need I say that I was pleased with the service?

There is so much going on in Los Angeles that you can't possibly run out of things to do. There is the 3rd St promenade for the shopper, Hollywood for the partyer, concert halls for the music lovers, stadiums for the sports interested, beaches for the surfers, etc. Personally I like the outdoor concerts in downtown L.A. as well hanging out in Chinatown. The food there is great and very affordable. The Santa Monica Pier is also a very cool place, especially in the evening when live bands are playing. Should you have a few days free and want to see more of



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what California has to offer you could always go to Las Vegas, which is only 5 h away.

As for work, Tribogenics is a company that does research and development on a revolutionary technology that enables portable, compact X-ray solutions for applications in industrial testing, medical diagnosis, security screening and other industries. By eliminating the need for high voltage and fragile vacuum tubes the goal is to create products unattainable using existing X-ray technology. As the company name suggests we do this using triboelectric charging, which is the same kind of contact electrification that occurs when rubbing glass with fur or a balloon against your hair. The way we create X-rays at Tribogenics is really elegant and I could go on for hours about how we do it, but this is as far as I can go without revealing any company secrets.

Because Tribogenics is such a small company, you really get to know the people you are working with and the

meetings we have on Mondays and Wednesdays helps us keep track of what everyone is doing so we can learn from each others findings. It's funny how we form our own teams as a project goes along. You never know who you will be working with next. The team spirit is great. Must be because of the truly American donut socials we have on Fridays.

My working tasks have been many during these first two months. I pretty much get to choose what I want to do next. Two examples of what I've done so far is optimizing our XRF handheld elemental analyzer and researching a specific phenomenon, which I discovered, in one of our systems. Surprisingly enough I put my Chalmers studies to good use. Have you ever spent countless hours in the lab-rooms at school thinking: "What am I ever going to use this for?" Let me tell you, it all makes sense now!

1. Cruising down Venice Beach
2. The laboratory
3. Exploring Venice Boardwalk



Marina del Rey, CA



TIAN FU YUN

Welcome to Cali

Going to work in the morning I pass dudes on skateboards with surfboards under their arm, and girls on beach cruisers listening to the Red Hot Chili Peppers. Going home, there's people getting burritos from Freebirds on their way to some late night beer pong to the tune of heavy hitting American Hip Hop. I have come to the heart of SoCal.



I happily purchased a '97 Ford Explorer Sport from my friend Jonas Flygare of CETAC 2012.

After a very rocky road of interviews, phone calls, hopeful waiting for responses from companies I'd interviewed for and a couple of rejections, I finally got my internship in America confirmed sitting at a mostly empty burger joint in Gothenburg.

I was going to Santa Barbara, a university town just two hours north of Los Angeles, for six months of work at CBrite, a small research and development company focused on MO-TFT device technology (Metal Oxide-Thin Film Transistor).

I started out living in a Motel 6 quite close to my workplace. After getting a little introduction to the area by Mary Jane from CBrite, I soon got a bike to explore the area. I ended up staying 21 days at the Motel 6, during which time I did several twenty-mile round trips to Santa Barbara on my bike, mostly just cruising the town, checking out the views and enjoying the great weather. These bike rides, although very nice, left me quite exhausted, and wanting for a bit more cargo space than hanging a bag from my handlebars offered me, I happily purchased a '97 Ford Explorer Sport from my friend Jonas Flygare of CETAC 2012.

Driving in California is quite different from driving back home in Sweden. Maybe in part because of the required

Olle Norelius

Age: 23
Education: B.Sc. Engineering Physics
Length of internship: 6 months
Company: CBrite Inc.
Location: Santa Barbara, CA
Number of employees: 25
Webpage: www.cbriteinc.com
Best US memory: Running through the UCSB campus dressed in booty shorts, getting pelted with dye for the Run or Dye 5k!

age for a driver's license being 16 (!), or strange road laws, people here are generally pretty bad drivers. Along the roads you will see vehicles in various states of disrepair, typically having been on the wrong side of a truck, meaning that the best way to close the door is a well-placed kick, and the best way to open a window is to remove the tape holding your piece of transparent plastic up. Drivers will cut ahead of you at any opportunity, and are exceptionally skilled in the arts of acoustic violence using their horns.

One of CBrites main goals, and the one I have been working on, is developing high mobility thin film transistors for use in modern flat screen displays. Modern displays have gotten a pixel density so dense, they can no longer be controlled by traditional transistor technology. CBrites technology aims to improve this by use of innovative thin film technologies. CBrite is actually lo-



ated a little bit outside of downtown Santa Barbara, in a small town called Goleta fifteen minutes away by car.

Going ten more minutes in the same direction will bring you to UCSB, or University of California, Santa Barbara with its' accompanying student ghetto; Isla Vista, which is where I live at the time of writing this.

One of my goals on this trip, except of course getting invaluable experience working in America and at one of the forefronts of modern technology, was to meet as many American people as possible, to actually experience the culture first hand. Living alone in a new place it is very easy to isolate yourself in your apartment, and meeting friends can take a while.

I took extreme measures. I am currently living with seven people in a house in Isla Vista. Finding the place was not straightforward however, since I needed to get a balance between socializing and work; the majority of the houses in Isla Vista are very focused on socializing and partying, while I really needed to be able to focus on my internship. I wanted to be able to meet people during weekends and holidays, but make sure that weekdays are crunch time with sleep being a priority. After looking around on craigslist, which is an online board for classifieds, I found the place. On the outskirts of

Isla Vista, so it's (mostly) quiet at night, but still close to where people live for the occasional beer.

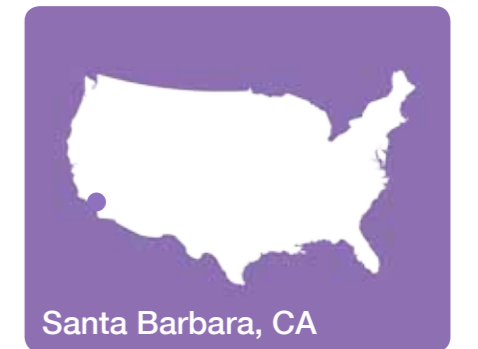
At the time of writing, everything has turned out fantastic. In the brief time I've been here, I've sampled some of the finest brews available in California straight from the brewers, while enjoying motorcycles and great food at 4BSB (Beer, Bikes, Blues and Barbecue Santa Barbara, an annual beer festival), went hiking in the mountains several times, made a trip to Los Angeles with Joakim and Agrin from CETAC, hitting the Universal Studios theme park (and of course the Hollywood sign!), and so many more things.

One of the things I haven't gotten to do yet is surfing, though I have bought a giant surfboard (9'!). Me and my roommates also recently participated in a five kilometer color run for charity; Run or Dye, where we ran five kilometers through the UCSB campus, getting pelted with powdered dye all along the way. Exhausting for a poor sap like me who doesn't really work out, but great fun, and so worth it.

As for the future, I feel that I'm getting into working here, getting into the flow. I'm getting comfortable with the technobabble in the weekly meetings, and can generally keep up with the pace of work well. On my free time, those \$150 hang gliding lessons are looking mighty tasty...

1. Beautiful view

2. Me and my roommates participated in the Run or Dye race.



Last but not least, I want to thank the board and members of CETAC 2013 for a great year, CBrite for having me and helping out with everything, and finally my friends for the support during the harrowing process that is the American VISA process!

OLLE NORELIUS

The New England Experience

I arrived at the John F. Kennedy International Airport around midnight on July 17th along with another member of CETAC, Malin Anker. We were the last members of CETAC to arrive in the US. More than a month had passed since the rest of the group had left and now my adventure had finally begun.



Me in front of Massachusetts State House

The next morning I was alone in New York City because Malin had left for Los Angeles and my train did not leave until in the afternoon. I decided to walk around in Manhattan for a while, but the high humidity and my poor ability to navigate without a map made me drift around looking for places that had air conditioning so that I could rest.

Later in the afternoon I boarded the train at Pennsylvania Station that would take me to my final destination of Williamstown, Massachusetts. A great sense of relief washed over me at this point. The trip had gone well and I had at least six months of an exciting internship ahead.

Williamstown is a very small town in the northwest corner of Massachusetts. It shares a border with Vermont to the north and with New York to the west. It is a collage town, home to Williams Collage, meaning that most people in town are connected to the collage in some way. It is also home to the Sterling and Francine Clark Art Institute which is an art museum with a large and varied collection. Today, it is best known for its works of French Impressionism, especially the paintings of Renoir. Williamstown is also home to the Williamstown Theatre Festival, which runs every July and August. It has transferred several successful shows to Broadway, which in return has given it a lot of at-

Alexander Radway
Age: 26
Education: B.Sc. Software Engineering
Length of internship: 6-12 months
Company: The White Label Agency
Location: Williamstown, MA
Number of employees: 7
Webpage: www.thewhitelabelagency.com
Best US memory: Using a drive-thru ATM!

ention.

Even though Williamstown is surrounded by mountains and is a little bit cooler than New York City, the first weeks were unbelievable hot. It was a new record, the longest hot-streak period in modern time with temperatures over 30 degrees Celsius. This was not a big problem at the office since we have air-conditioning there, but as the temperature barely dropped during the nights and I had no air-conditioning in my apartment I had a tough time trying to sleep.

As I said earlier, most people in Williamstown have a connection to the collage in one way or another. This also applies to my boss Einar: he is Swedish and a former student at Chalmers, but his wife studies at Williams College. That is why he decided to start business here. He did so together with Allen, who had experience in similar businesses around Williamstown. They started The White Label Agency together, with the main purpose of developing websites in Wordpress and Twitter Bootstrap and to make plug-



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ins for Wordpress.

The White Label Agency has a development team in Odessa, Ukraine and mainly management and quality control here in the US. For being a startup that has only been running for a couple of months we have quite a lot of people employed, with four full time employees in Odessa and three full time employees in the US.

Since we work a lot with PHP, which is a programming language I had not used before I started working here, I have spent a lot of time learning it. One of the reasons I took this job was that it also involves a lot of management tasks for me. This is something I want to learn more about to help me decide what masters program I want to study.

Since I arrived to the US after everyone else in CETAC, the others had already had time to settle down in their city and at their jobs. This meant that I had the opportunity to come and visit them almost as soon as I arrived. So the second week in the States I took my car and visited Viktor in Boston, which is a two-and-a-half-hour drive from Williamstown. That is another reason I decided to take this job. Even though it is in a small city, it is close to both Boston and New York City. New York

City is a three-hour drive away, which means that going to the big cities during weekends is no problem. So far my experience of the East Coast has been great.

The only disappointment I have had so far was when Viktor and I finally had the opportunity to go to a Red Sox baseball game, and did not get in. Since there are a lot of rules in baseball, we were supposed to go with a colleague of Viktor's who could actually explain the game for us. We waited in line for a while, but did not get any tickets. The arena, Fenway Park, was completely sold out, even though it was not one of the top matches. Apparently baseball is really popular in Boston. We watched the game at a pub nearby instead, promising ourselves that we must see a game of baseball before the season ends.

My journey has just begun, it basically feels like I touched American soil for the first time yesterday. I have already had so much fun and learnt so much that I am sure that this is going to be an adventure I will remember for the rest of my life.

ALEXANDER RADWAY

1. Enjoying a day in the Boston Bay Area

2 & 3. Experiencing American Food



Williamstown, MA





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Teknisk chef på ChemTech, Johan Jillestam

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Hella Fun in California

It was just about a year ago that we made the choice to become members of CETAC. To say that this year has gone by quickly would be an understatement. It is funny how things work out: one day you take a chance on something, and after what feels like more or less any other year at Chalmers in workload, you are halfway across the globe making money and going on adventures with a whole lot of new friends gained along the way.

After a lot of work on our respective theses (Master's for Robin and Bachelor's for Johannes), we hurried off to spend a wonderful week with fellow CETAC'ers in New York. Then it was off to the place we were going to spend the coming six months of our lives: San Francisco. Johannes took an amazing 3-day cross-country train ride and Robin had a six-hour flight. Arriving in San Francisco was quite an experience as well. Taking our first steps in San Francisco felt like walking into a movie scene: there

where rainbow flags all over and homeless people with overfilled shopping carts literally right at the top of the escalator that took you out of the subway system. We had figured this was a cliché that had been at least somewhat exaggerated in the movies, so it was quite a shock when it turned out it was actually exactly the same in real life.

San Francisco is a city widely known for its part in the counterculture movement of the sixties, which is still a big part of the city's identity especially in some neighborhoods. That is a fascinating part of San Francisco: the distinct neighborhoods and their particular cultural flavor. There is Haight-Ashbury (where the hippies live), the Castro (LGBT), the Mission (hipsters), SoMa (tech people), Chinatown (one guess), and the Tenderloin (homeless people and Robin), among others. One thing that most neighborhoods share is the extremely high rents and huge numbers of people looking for places to live. The one thing locals tell you when you are looking for a place in San Francisco is "do not live in the Tenderloin or on 6th Street" and for a good cause: it is very shady and filled with homeless people of questionable mental balance. Turns out, we both ended up in these areas! Both of us started out



San Francisco is filled with eccentric characters.

Johannes Keinestam

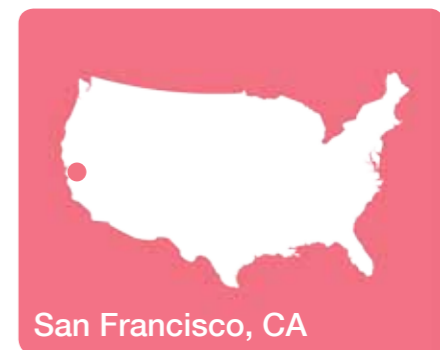
Age: 22
Education: B.Sc. Software Engineering
Length of internship: 6 months
Best US memory: Taking the train across the US, seeing the beautiful scenery in western Colorado go by my window

Robin Rye

Age: 24
Education: M.Sc. Computer Science - Algorithms, Languages and Logics
Length of internship: 6+ months
Best US memory: First sightseeing all over San Francisco with newly gained British friends

The Company

Company: Delphix
Location: San Francisco, CA
Number of employees: About 200
Webpage: www.delphix.com





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"Every Friday at the San Francisco office, there are after-work beer tastings organized by our in-office beer enthusiasts."



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living at hostels in the Tenderloin and quite quickly got used to the people living there. A lot of people in the City have prejudiced notions about these areas, and understandably so: at first it can seem quite intimidating. However, most of the people that we have talked to that have actually lived in these areas agree that there are always interesting characters around and always something going on. It is actually not all that bad, and you rarely walk through the Tenderloin without getting a "God bless you" or a "Have a great day, sir" even on days when you do not have any change to spare. Furthermore, great ethnic food is plentiful and cheap, and it is full of hip bars. It is all about your perspective.

A common misconception held by people, both of us included, is that the weather in San Francisco, while not as warm as southern California, is quite good. However, what we found out quickly is that the City is quite cold, especially when the ocean winds sweeps in and a lid of fog covers the entire city, which happens pretty often. However, when we get a good day or two, there is no way like spending it in

Dolores Park. It is always crowded on a warm day and all around you can see anything from impromptu concerts by music enthusiasts to hippies nailing the art of hula-hooping. It is the best place for chilling and people-watching, and a perfect way to spend a weekend afternoon.

While this has been quite the adventure, we are in fact here to work! We work at a software company called Delphix which specializes in database virtualization. Like for us before we started, this might not mean much to you. The Delphix product is very technical and quite hard to grasp even for experts. Nonetheless, we will try to explain it to the best of our abilities. Simply put, Delphix is version control (e.g. git) for databases. It allows database administrators to add their database environments to the Delphix engine, so they can then be snapshotted ("committed" in git parlance). Using this, the database can be provisioned ("checked out") to the state of any point in time. The important thing about this though, is that the database in that state does not need to be cop-

ied, but can be mounted as a virtual database in a fraction of the time that it would usually take to copy.

So who needs this? Well, basically any software development team that works with large databases. Take the real life challenge when a company needs to develop some new feature, where they need access to databases to test the software before pushing it out to production. However, production databases cannot be touched, since this might corrupt all the important information stored therein, and thus taking a copy of the database is necessary. The problem here lies in the fact that copying such a huge database might take days or even weeks and would take up a lot of space. Using Delphix, they can create a working virtual version of the database to test against, practically on the fly and without needing more disk space. So yeah, aside from being a really cool product, it saves companies a lot of time and money! The idea is quite simple, the product and technology behind is advanced and a real challenge to dig into, which only makes it more interesting.

Our jobs are in the quality assurance



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- 1. Hippies hula-hooping in Dolores Park.
- 2. New York, city of skyscrapers. One feels so insignificant standing on the ground and watching them tower over you.
- 3. The massive trees in Muir Woods forming a canopy above us.
- 4. The massive rocks by the Colorado/Utah border are truly a sight to behold.
- 5. Johannes, Björn, Pierre, and Mattias (L-R) in front of a redwood tree in Muir Woods.

team, more specifically we help write the Blackbox framework used for testing the Delphix engine. When we arrived at Delphix, it was quite difficult to get familiarized with the product. Thankfully though, our managers seemed fully aware of the difficulty, and did not expect us to know everything right out of the gate. Our first two projects were small and mainly cosmetic in nature: one concerned including documentation in the generated API code snippets used for contacting the Delphix server and the other was writing a script that checked code syntax and semantics using third-party utilities, where we also got to fix warnings we encountered. While not very complicated, these projects allowed us to get familiarized with the code base. We have mostly worked together on the projects and our current one is more substantial. It concerns validation of data in the virtual databases that are provisioned, which requires us to delve a bit further into the database side of things. This is quite interesting, since neither one of us has anything more than a cursory understanding of database structure.

Arriving at a new company is always difficult and Delphix may be even more so because of the complex product. What is wonderful about the company, though, is exactly that: it is a very technical product, and consequently,

the team is fantastically knowledgeable. This can very well be somewhat intimidating, but as we quickly learned, our team members are to be seen as resources and not competitors. Delphix has about 200 employees (about half of them are in engineering) and a lot of them are experts in their fields from big companies like Oracle and VMWare. The company is by no means a startup but still not particularly big, which fosters a very casual atmosphere. Every Friday at the San Francisco office, there are after-work beer tastings organized by our in-office beer enthusiasts. We can safely say that we have tasted more interesting beer here than anywhere else - sour beers, quadruples, saisons, the list goes on... People who say that the United States lacks good beer certainly do not know what they

are talking about! All in all, we are very glad to have gotten the chance to work at Delphix.

However fun work may be, we have also had time for some excursions in the weekends, to experience some of the major attractions in our proximity: concerts, hikes, and sightseeing. One of them was a trip to Muir Woods, a national park with some very big trees. We got an early morning pickup in San Francisco by our San Jose and Berkeley based CETAC brethren. There was a lot of energy in the car, everyone was excited to get out of the bustling city. That energy took a slight toll due to the fact that almost none of us had brought any food or water! The way of living here in San Francisco is that when you are hungry, you grab something to eat!



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There is always a restaurant, deli or grocery lurking around the corner. This had obviously made us a bit too comfortable - so comfortable that when going to a national park with great scenery and humongous trees everywhere, we subconsciously still expected there to be a bunch of food trucks lined up and waiting for us. After hiking up and down trails for several hours with most of us carrying only about a liter of water, the energy had almost run out but the scenery and a half hour break kept us going. Eventually we ended up in Sausalito at a small French restaurant, all fancy with the owner greeting us in French. We finally ended up ordering burgers, all of us - a true testament to our ongoing Americanization!

There is so much to do here and you just want to do it all immediately. At one point, we had camping gear rented, a car booked, and were getting ready to go on our most anticipated trip yet: a weekend in Yosemite National Park. However, just a few hours before we were scheduled to head out on Friday, a state-wide flash flood warning was issued and the weather forecast said that

thunderstorms were to dominate the sky the entire weekend. We were further discouraged hearing that thunderstorms are one of the most common causes of death in Yosemite because most of the trails lead to high mountain peaks like the Half Dome (which of course was the one we were going to hike). Due to this, our trip was unfortunately cancelled, but no worries, we will be back and this time we will be even more prepared.

While the end of summer is approaching, our adventure is nowhere near over, yet. At the time of writing we have only been here two months out of six, and there is a lot to explore in the Bay Area and its proximity. Consequently, we have multiple planned trips in the works - among them are (excluding the aforementioned Yosemite): outings in Napa Valley, hiking in Grand Canyon and other national parks, weekend trips to Los Angeles, Las Vegas, San Diego, Santa Barbara, and Portland. Our goal is to make the most of this opportunity and see as much as possible of what the United States has to

1. Palace of Fine Arts, beautiful neoclassical architecture.
2. Johannes outside of the Lucasfilm HQ.
3. What would a trip to San Francisco be without seeing the Golden Gate Bridge?

offer. We can do no more than heartily recommend joining CETAC; for some minor effort we got the opportunity to add valuable experience to our resumé's while having the time of our lives!

JOAKIM KEINESTAM
ROBIN RYE



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Seeing the Light in the Sunshine State

When most Swedes hear St Petersburg, they do not think of a hot place with endless beaches, a water temperature of 90°F and sun 360 days a year. But St Petersburg, FL, is all of that and a bit more! And this is where I have been not only enjoying the outdoor light, but also been a part of making medical lights.



Visiting Key West and the southernmost point of continental USA.

Unlike many of the other members of CETAC, I did not go to NYC before starting my internship because of the simple reason that there was not enough time. The last day in school was the 5th of June, and I was to start my internship on the 10th already, and so I decided to arrive to Tampa on Friday the 7th. I was picked up at the airport by my supervisor Patricia and she took me across the Tampa Bay to St Petersburg, or St Pete, to a hotel where I would spend my first nights. The company had arranged it so that I would live in their company apartment, which they used as an accommodation apartment for their president who lived in Boston and was here every other week. The apartment had two bedrooms so we would be flat mates. They had also arranged it so I could use their company car, so I was pretty much carefree when I arrived!

The company I am doing my internship for is called Sunnex Inc and is one of roughly 20 companies in the Swedish-owned Sunnex Group. The company has been a manufacturer of task and medical lighting for decades, but has also recently started providing medical equipment such as surgical tables, patient monitors and so on.

My first week started off with getting to know the company and their products, and I also got to meet my new boss and flat mate, who turned out to

Joel Wanemark
Age: 22
Education: B.Sc. Engineering Physics
Length of internship: 6 months
Company: Sunnex Inc.
Location: St Petersburg, FL
Number of employees: 20
Webpage: www.sunnexonline.com
Best US memory: Going to a concert with Anberlin at the St Petersburg State Theatre

be Swedish. So it was a kind of smooth transition to the American life since we talked Swedish back in the apartment. The second week I got my first task assigned to me. They had noticed that a lot of their products were not properly documented with drawings and instructions which was where I came in. My most important task was to go through their medical lights and create CAD-drawings and Manufacturing Instructions, and make sure that these were consistent with the inventory lists. This not only helped me to learn more about their products but the company as well as I had to check everything with both engineers, production, and inventory staff. It was an exciting assignment as I had no real experience of CAD-software before, and I feel that I have learnt not only to use CAD, but also a lot about different stages in product development.

This assignment has however not always been my first priority as the management of Sunnex Group has decided to relocate the company to

Charlotte, NC, where one of the sister companies is situated. The relocation will happen in October, and a lot of things concerning the move have to be done before that, so I have been a part of that too. The relocation took us all somewhat by surprise, but I will move with the company to do my last couple of months of my internship up there, and I am looking forward to seeing a bit more of this magnificent country.

The life here in St Pete is quite different from the one in Sweden, and it has both its good and bad sides. On the good side, St Petersburg has some of the best beaches in all of Florida, and the Tampa Bay Area has around 360 sun days a year so you can spend a lot of time on the beaches. On the other hand, the area also has the highest number of lightning strikes per year in the U.S., and during the summer months, i.e. the hurricane season, thunderstorms come in almost every day in the afternoon or evening. So whenever you are at the beach here, you must always keep an eye on the horizon as the thunderstorms come in quick and they are truly massive.

I have spent a lot of my leisure time on the beaches here, but I have also explored the Tampa Bay area and it has got a lot to offer, especially for tourists. They have amusement and water parks here in Tampa, and the Disney World Theme Parks in Orlando is only a one hour drive away. They have also got a lot of wildlife parks here including aquariums, zoos and so on, and the massive swamps of Everglades are also a couple of hours away. Especially awesome is the Big Cat Rescue which is a rescue center for abandoned and mis-



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treated cat animals. They have guided tours which show you all kinds of lions, tigers, cheetahs and so on. The cutest couple was a white tiger and a lion that had grown up together at a road zoo and was madly in love with each other. But even the beach and parks can get tiring sometimes so a couple of weeks ago I went up to Washington DC to visit some friends from CETAC; Emma, Tobias and Tobias' wife Natalya. We had a great weekend doing the tourist stuff in D.C!

As I believe many of my fellow friends from CETAC feel, time passes really fast over here, and I must say I am glad that I decided to stay for 6 months. I feel that I now truly contribute to Sunnex with my work, and I am excited for my last time here.

Finally, I would like to give a special thanks to my supervisor Patricia who has been taking such good care of me, and also to all the people in CETAC and all the supporting companies for making this possible.

JOEL WANEMARK

1. The sun is going down after yet another hot day.
2. Me after finishing the Picnic Island Adventure Run.
3. The cute couple, a female white tiger and a male lion, at Big Cat Rescue.



St Petersburg, FL



On the Outskirts of Silicon Valley

I have a broken laptop, bike, glasses, washer and dryer, I missed the bus and I had to walk for four hours. But still, I'm having a blast.



Playing around at Google headquarters with the Jelly Bean statue, before going to a Bob Dylan concert.

It is the fourteenth of June, and everyone left for the U.S last week, except me. I find myself traveling alone, leaving the country of potatoes, pickled herring and sour cream to go to the land of freedom and burgers.

Since there was still some time until the internship began, I took the time to visit a dear friend of mine, Pontus Laurell, who has been working on his Ph.D. in Austin, Texas. I got a crash course in everything American and I got to try the famous Texas BBQ. It was a great way to start my adventure, with the exception of the first day, when I got lost and was attacked by crows.

After what only seemed like minutes, but was in fact five days, it was time to go to the West Coast, the Best Coast?

Morgan Hill is a small town with about 40,000 inhabitants. Biking is a big thing here, which suited me fine because I still have not gotten myself a driver's license. Public transport exists here, but is not as developed as in Sweden. When you use it, you need to be prepared to walk for half an hour to actually get to where you are going and the consistency of the timetable is questionable.

I spent a week in a motel before I found more permanent lodging, with a single mother in a three bedroom

Joakim Garcia Wernersson

Age: 25
Education: M.Sc. Wireless, Photonics & Space Engineering
Length of internship: 1 year
Company: Infineon Technologies North America Corp.
Location: Morgan Hill, CA
Number of employees: 300 (30,000 worldwide)
Webpage: www.infineon.com
Best US memory: When Agrin almost fell out of the window of a moving bus on the highway going into Santa Barbara.

apartment. Of course there are a couple of pools as well, this is California after all.

Even though Morgan Hill is a relatively small town, it has a lot to offer. My computer broke down during the first week of the internship, so I had some time to really explore Morgan Hill. It has a fairly big movie theater, which I've come to visit frequently since going to the movies is a lot cheaper here than in Sweden. If you visit on a weekday, you might even be alone in the theater. The scenery in and around Morgan Hill is lovely, with a lot of hills where you can take your bike up and check out the view. My first time doing this I was attacked by a dog just before the hill started, which made me lose all momentum. Soon thereafter I saw a large piece of snake skin, which made me wonder if it was such a good idea after all. Eventually I made it all the

way up and it was totally worth it.

Next to Morgan Hill is a town called Gilroy, which is the self-proclaimed capital of garlic. Each year it has a garlic festival for which I took time from my busy schedule to attend. Here you can try all sorts of different things, garlic ice cream for instance is really popular. The taste was, quite surprisingly, very good. The garlic fries had more garlic than potato in them and after eating half of them I started crying cloves of garlic and had to throw the rest of them away.

Infineon Technologies is a global semiconductor company, with its base in Germany. In Morgan Hill they do production and R&D for transistors. My first day of work was exciting. I did not know what to expect but had checked the place out a couple of days earlier, in case Google Maps was lying about where it was located. My supervisor had left the company a couple of weeks before my arrival, so there were some uncertainties, but I was well taken care of. My temporary supervisor is a Chalmers graduate from the Electrical Engineering Department, so we got along fine. Everyone has been really helpful. After working here for a couple of weeks there is one thing I can say for certain: I have chosen a great line of education. Not only is it fascinating to work with RF technology, it is also a lot of fun. After studying Engineering Physics, you tend to undervalue your own abilities since the program is so demanding, and you end up questioning if you really know anything at all. When starting to work you realize how wrong that is. You know a lot more than you think you do.

The first week was only three days where I got an introduction to Infineon and what they do. Afterwards I was quickly assigned my own project, where the goal is to make their biasing routine faster and more robust. Every day I learn something new and I am really grateful for this experience.

Having said that – sometimes things don't go your way, like the day when me and Agrin missed the last light rail to his place and ended up walking for four hours, only to get there and have



"Something strange that I have noticed while being in the U.S. is that everything is calculated so that big numbers are good and small numbers are bad."



my glasses broken. When I finally got home the day after, the washer broke and filled the apartment with water. It took us several hours to dry the carpet.

Something strange that I have noticed while being in the U.S. is that everything is calculated so that big numbers are good and small numbers are bad. For example, to measure how much gas a car uses they calculate how many miles they can drive per gallon of gas. Sometimes though, this gets very confusing. In the supermarket there is food that says 96% fat free, instead of just saying 4% fat.

I would like to give some special thanks to Henrik Sjöden and Chris Jakubiec, who have made this internship possible. I would also like to thank all the people in the Test/Production team for taking such good care of me, so far. Hopefully the rest of the year here will be as exciting as these first two months.

Peace,
 JOAKIM GARCIA WERNERSSON

1. San Francisco's steep hills with its famous cable car.
2. Two deers at the road side when on a stroll in Morgan Hill
3. Beautiful view of Morgan Hill, after I was attacked by a dog.



How I Learned to Stop Worrying and Love Nuclear Physics

So I was told that Berkeley, CA, was a special place. Finally arriving on June 7, someone told me it was not only special, but extreme. A place with one of the top universities in North America, as well as a thriving political and cultural scene. Hard days of science in the Lab has been combined with hard work up and down the Berkeley hills.



Sightseeing SFs the Castro with Brazilian friends.

Eating locally and thinking globally is standard in Berkeley, birthplace of the Californian kitchen where ingredients come straight from the local farms. The appetite for science caught on when professor Ernest O. Lawrence was awarded the 1939 Nobel Prize in physics, as the first laureate representing the University of California, Berkeley. As one of but a few scientists awarded for inventions, Lawrence's most important contribution is arguably the cyclotron. A machine being the predecessor of modern day particle accelerators, the first prototype is a hockey-puck-sized mess of bronze, glass and wires waxed together. Apparently it worked well enough for Lawrence and his colleagues to continue working on the idea.

After Lawrence was named a Nobel Laureate, someone thought: "Hey, we should make a really big lab to promote more discoveries!". Cue Lawrence Berkeley National Laboratory. An institution devoted to research in the sciences and their engineering derivatives, the Berkeley Lab prides itself with being associated to no less than 12 Nobel Laureates. The latest, hardly the last, laureate is 2011's Saul Perl-

Björn Wessman

Age: 25
Education: B.Sc. Engineering Mathematics
Length of internship: 10 weeks
Company: Lawrence Berkeley National Laboratory
Location: Berkeley, CA
Number of employees: Some 4000
Webpage: www.lbl.gov
Best US memory: Spending the morning at the bike shop chatting about bike mechanics and then riding all day along the Contra Costa Range above Berkeley accompanied by two ravens for several miles

mutter, who together with his team found evidence that the expansion of the universe is accelerating. At LBNL, every week some new exciting report is presented at a seminar. I have attended a number of open lectures on diverse topics, most notably on IceCube, a cubic-kilometer sized detector for cosmic neutrinos bored down into the antarctic ice.

While there are a lot of cars, Berkeley and San Francisco are bike-friendly towns, with lanes along most streets and racks for locking up when finished riding. Not even a week into my stay did I manage to find a 70's road bike, of a now long gone all-American brand,

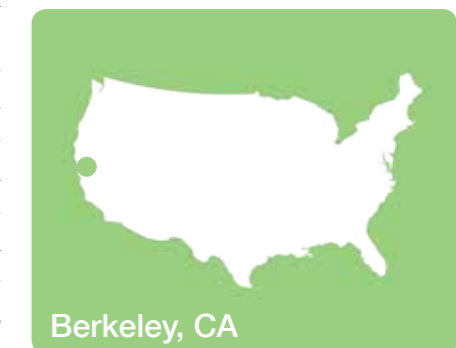
and every week do I get an appreciative nod or a thumbs-up from a fellow biker. Bringing it back to Sweden would be a waste, though, since the company had their own standard metrics - spare parts are rare even in the United States. To keep the mechanics in good shape, frequented a local bike shop with a generous loan policy: two spaces equipped with tools available for anyone wishing to do some wrenching on their own. Biking is also a good way of sight-seeing, and every weekend here I have been riding to some more or less remote place to see something. The best ride ever was after I had made some adjustments making the bike go really smooth. So smooth, in fact, that I did not stop riding until evening, having spent some six hours in the saddle along the Contra Costa Range just east of Berkeley. Some five of those miles I was accompanied by two ravens, probably hoping to get some snacks.

The project that I have been working on at LBNL concerns a detector for a type of high-energy photon beams as well as the beam source itself, based on a photon-electron interaction known as Compton scattering. In the photon source, free electrons accelerated to relativistic energy levels collide head-on with a laser beam, emitting high-energy and high-intensity photons. The properties of this photon beam, mostly confined within a small angle, is largely determined by the properties of the electron beam. The detector system must be able to characterize the photon beam, including the energy-angle spectrum, with sufficient accuracy to infer the properties of the distribution of the photons. Detection and characterization of such beams is challenging because conventional detectors are of order the beam size and hence cannot characterize the energy-angle distribution in a single shot. My task has been simulations of the photons as they impinge on the detector, combined with sampling of the spatial distribution of the beam to determine necessary detector properties. Simulations were carried out in a custom C++ program to calculate the distribution of a photon beam for different parameters of the



"Every week do I get an appreciative nod or a thumbs-up from a fellow biker."

1. Tall hikers dwarfed by Redwoods in Tilden Park, Berkeley.
2. Gothenburg old-timer in Solano.
3. Mural in SFs Haight-Ashbury.



ing: science and technology is so much fun. Of course, there are gaps in my knowledge, and I look forward to start a new semester at Chalmers to try to fill them.

input electron and laser, and to study how this distribution changed with the laser and electron beam. The detector properties were studied by random sampling of a given photon beam, to see how well a non-ideal photon detector would determine beam properties when there is some uncertainty present. Perl and Python scripts have been used to couple simulations of beams based on different parameters, as well as extracting data. Most data processing took place in Matlab. For all this, Chalmers have prepared me well with (among others) last year's course in applied statistics. Needless to say, though, have I spent a lot of time reading books and papers on detectors and the underlying physics of photon interactions.

Together with old and new friends I have seen really old trees in Muir Woods, new arts and crafts in San Francisco, really old folk singers in Mountain View and really old football stadiums in Berkeley and SF and eaten the best burgers ever. During these very rapid ten weeks I have learned so much, both formally within the project and informally just talking to people. Everyday has been full of new impressions, and I have found out that I am on the right track studying engineer-

Big thanks to Drs. Brian Quiter, Kai Vetter, Cameron Geddes and Sergey Rykovanov for supervision and support. To Drs. Sam Huh and Mike Quinlan for generous sharing of office space. To the whole of the Applied Nuclear Physics department for great hospitality. To the lovely people that I have met in and around Berkeley. To my fellow CETAC-ers who endured this intense year. It is time to go for now, but I am sure we will see each other again.

BJÖRN WESSMAN

Sunshine and AGVS

After spending the last three years at Chalmers University of Technology, where I had just finished my Bachelor's degree, I felt like I was ready for a new challenge. I was ready for a job that would test and improve my engineering skills. What I got was an engineering internship in the United States. I was ready for an adventure, the adventure of my life.



A typical American hotel in the American south. My home for over a month.

Not even one week after I completed my Bachelor's degree, my airplane landed at Jacksonville International Airport. It was a sunny day and as I walked off the plane, I felt the heat and the high humidity while at the same moment I was dazzled by the bright sun. The sunshine state truly lives up to its name with an average temperature of over 30 degrees Celsius during the summer. I was waiting for my supervisor and former CETAC-member Jonas Ohlsson to come and give me a ride to St. Augustine, Florida where I have lived since then. He also showed me Jacksonville Beach and I felt really welcome when we ate lunch at a beachfront restaurant.

I work at Amerden Inc., a small company specializing in Automatic Guided Vehicle Systems used in material handling applications. Amerden offers customized solutions for each client's needs. The company installs, develops and tests the complete system on site, consisting of vehicles and software. To make the chain complete, Amerden also provides support and maintenance. The company has many customers spread across the United States and in different sectors, which makes working here an adventure.

My part in this is the development of the software, both the implementation and the work on site, but I have also been working with electronics, making drawings, writing documentation and

Fredrik Einarsson
Age: 22
Education: B.Sc. Computer Science and Engineering
Length of internship: 1 year
Company: Amerden AGVS
Location: St Augustine, FL
Number of employees: 8
Webpage: www.amerden.com
Best US memory: Manhattan

even training the operators. The main advantage of working for a small company, which Amerden is, is that you get the complete picture and you are not just specialized in a small area. This has helped me learn a lot and receive a lot of applied knowledge in the short period of time I have been here, and there is even more knowledge waiting for me during the next few months.

When I started working here, I received a short introduction and training in the complex system that constitutes an AGVS. After that it was time to get in the car with my supervisor for a trip to Alabama. The final implementation and testing of a system consisting of 27 vehicles for a customer in the vehicle manufacturing industry awaited us in Montgomery. It is a very large and complex system which, besides many vehicles and many people involved, also contains complex time-critical parts where different systems must work together to provide materials to the assembly line in time. Even something as simple as a well-functioning wireless communications experiences

"The main advantage of working for a small company, which Amerden is, is that you get the complete picture and you are not just specialized in a small area."



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problems in a technical industry with machinery and electronics everywhere.

In Montgomery, I stayed for seven weeks in total with a break for a two-week visit to my American hometown, Saint Augustine. During my stay there I got to learn about all the components of a project that the technology industry offers and got so much more experience than I could ever have hoped for.

Besides working, I have also been part of the American South's culture and cuisine. The food here is varied and there is always plenty to choose from – not only the fatty foods you see when you are watching TV in Sweden. But I still got pretty tired of the same hotel breakfast for over a month.

Good food is one of the many amazingly nice and funny things the small town of St. Augustine has to offer. Despite its small population of about 13,000, the city offers everything one might need. The city is located on Florida's Atlantic coast and offers not only great food, nice shopping and nice beaches but also cultural heritage.

St. Augustine is the oldest continuously occupied European-established settlement and port in the continental

United States. The Spanish founded the town 1565 and the town contains many old buildings for example the Fort, Castillo de San Marcos. Unlike American cities that are usually very scattered with the result that you need to take your car where you're going this city feels like a European Mediterranean city with a nice compact city center pedestrianized. My favorite place in this small town is probably still near the water. To spend the day at the beach or on a boat beats most alternatives.

I would like to thank my supervisor Jonas Ohlsson and the business owners Roland and Patricia Anderson because they introduced me to this job, and for everything they have taught me inside and outside of work. They have really done their best to make me feel comfortable here.

Finally, as I sit here in late summer and write up my travel story, I think of the adventures and new interesting tasks I will get to do on this side of the Atlantic the remaining months here. I'm really looking forward to it.

FREDRIK EINARSSON

1. Night view over the wonderful town of St. Augustine.
2. The view from my housing.



Some of These Days

This summer has been something really extraordinary. It has been a summer of new cultures, places and friends, but most of all it has been a summer of new experiences.



Me in Professor Shealeys boat.

As I sit here and listen to the melody playing clock tower of Cornell University, the one thing that strikes me is that the U.S. never ceases to surprise me. Everything, be it the economic structure or the weather, is just more extreme here than in Sweden, for the better or the worse. And all things seem to be on a larger scale here. I have heard all my life that everything is bigger in the States, but not really understood until now. Take Cornell for example – while it has only about twice as many students as Chalmers, the campus is easily more than 6 times larger.

During the summer here at Cornell I have been working for professor Shealy at the department for Electrical and Computer Engineering, ECE. My main task has been to write drivers so that the program IC-CAP can communicate with various measurement instruments, which hopefully will make life easier for future students and postgraduates. Mostly it has been a question of finding out how IC-CAP and the instruments work, searching in manuals of varying standards and emailing the respective companies. When I finally wrote the code, it went far more smoothly than I would have expected.

Joakim Strandberg
Age: 21
Education: B.Sc. Engineering Physics
Length of internship: 10 weeks
Company: Cornell University
Location: Ithaca, NY
Number of employees: 9500
Webpage: www.cornell.edu
Best US memory: When Professor Shealy invited all his interns and post graduates to his marina

Other than programming, the other two interns in the lab and I have been testing the code by performing measurements. Shealy's research includes producing and testing semiconductor materials, so we have measured on wafers with a multitude of capacitors on them to establish their voltage and doping profiles.

The internship has been a great experience; for once in my life I have actually achieved something, rather than just learning new things. Most of the time I have just had an instrument handed to me, and then it has been up to me to find out how it works and what needs to be done. The freedom and responsibility have been really stimulating, and the internship has proven that the foremost thing you learn at Chalmers is the ability to adapt to new situations.

But the summer has not been all work; I have had a lot of time to ex-



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perience the American culture and nature as well. Cornell is located in the town of Ithaca, but comparing the size of Ithaca's central areas with the campus, it could almost be the other way around. Together with Collegetown, where most students live, Cornell occupies a fair share of the Ithaca area, and demographically, there are about 25 000 students compared to the 30 000 permanent residents. Being a student town, there is always something happening on or around campus. Throughout the summer there has been a set of outdoor concerts and shows by local students and alumni. And if you are in the mood for a more social gathering, there is always one fraternity or another that is organizing something.

The rest of Ithaca, excluding Collegetown, is a typical U.S. town where everything requires you to have a car. Even though the big lake is only 10 minutes by foot from centrum, the closest place to swim is a good hour's walk away. But other than that, Ithaca

is a really great place: situated in an area rich of waterfalls and creeks, there is a lot of beautiful places to explore if you make a little effort, so I have had a lot of long walks in gorgeous surroundings. A boat tour on Cayuga lake is also a wonderful experience, the mix of wineries and old factories makes it a nice visual experience. And if you actually have a car you can always explore the rest of upstate NY, maybe even go as far as Niagara Falls, which really is a must-see.

There is a lot left to explore and a lot of surprises yet to be discovered, and hopefully I will come back to see at least a little bit more of the States. But for now the summer is over, and it is time to pack up and go home with a lot more experience in my luggage. For all of you students thinking about joining CETAC, do not hesitate; it will really be the summer of your life.

JOAKIM STRANDBERG

1. One of many old buildings on campus
2. Waterfall in Robert H. Treman State Park
3. Concert on campus
4. Penguin in Syracuse Zoo



Ithaca, NY



Adapting to the LA Lifestyle?

One and a half year ago, I couldn't really have pictured me sitting here in LA writing this. I had heard a lot of good things about CETAC, but had not seriously considered applying myself. So when I suddenly found myself walking towards Chalmers 3.30 am that morning, I didn't really know what to expect. Just that it, possibly, could be the first step towards some kind of new, life changing reality. Maybe.



Working on the true LA look, representing the athletic team of my university!

Now, after what kind of felt like a small era of uncertainty, it still feels incredible to have been given the opportunity to come to Los Angeles to work as a software development intern, and have University of Southern California rapidly turning that 'maybe' in to something definite. As I am an unusually bio-interested software engineering student, I could not really have wished for a better first internship; so I am truly happy I hung in there, even if the year with CETAC definitely offered many challenges.

When I arrived in LA, I was lucky to have one of my absolute best friends meeting me at the airport. She was part of our sister organization two years ago, and fell in love with the country as well as with this cool guy from Michigan, and is now spending a lot of time here in the States. As this is my first time in the US, it was great to have someone point out all those small differences that you will eventually notice, but that just makes your life a little better, knowing about from the start. After not have been driving for almost a year, it was kind of funny that I would get thrown in to the amazingly deranged traffic of LA - and I definitely appreciated having Mai telling me all these, for the uninitiated, secret tricks of getting around by car in America.

Malin Anker

Age: 25
Education: B.Sc. Software Engineering
Length of internship: 3 months
Company: University of Southern California
Location: Los Angeles, CA
Number of employees: 15509
Webpage: www.usc.edu
Best US memory: When I went to kite-surf at Crown Beach with my boyfriend and we ended up hanging out with this yoga- & kitesurfing instructor, who showed us around all his favorite spots in Oakland, including a small art festival.

We had a great couple of days together, staying in a relaxed yet groovy neighborhood called Silver Lake, located right next to Hollywood. The area is known for its creative spirit and prominent indie rock music scene, so it is definitely a fun place to be around, with lots of cafés, clubs and small shops.

Our goal was to find a nice place for me to stay before leaving our cosy airbnb-home, and after have gotten the opportunity to turn down just the worst shared apartment I have ever seen, we actually did, and I moved in with this laid back, dubstep-producing couple, right at the border of Silver Lake and Hollywood. Perfect. The day after, I was ready for my first day at the Department of Preventive Medicine, at Keck School of Medicine, University of Southern California.



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Even though we, as human beings, share more than 99 percent of our DNA with each other, there are of course also many places where variations occur. Those locations in the DNA where base pairs are differing, are called single nucleotide polymorphisms, or SNPs, as you would say if you were in the game. These SNPs are of big interest in genetic epidemiology as they both can be used as genetic markers to follow inheritance in families, as well as in genome-wide association studies to analyze how genetic differences might be associated with certain diseases.

As University of Southern California put a great effort into genetic cancer research and generates large quantities of data, there is a need for good software to accompany its progression. Without getting into too much detail, my task is to develop a Java-based open source application, that will be used to narrow down SNPs shown to be associated with cancer. In a previous study, my supervisor, Chris, wrote a prototype for this in VB.NET and I now use that to abstract out required functionality for the program. The idea is that the Java-based version will be expanded with lots of new features, redesigned to be more user friendly and eventually published, available to researchers around the world.

It is a very interesting project, and I am really learning a lot as I am developing the new program from scratch. Since I am the only one working on

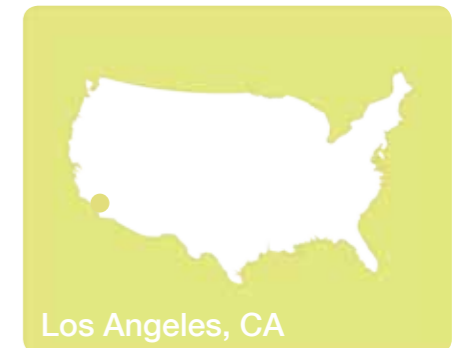
this project, I pretty much get to make up my own schedule, which also is a nice feature. I usually get up early, grab a freshly made vegetable juice on the go, and head off to the office. A typical day includes a lot of coding, design work and discussions with Chris, as well as a good lunch in the sun and a yoga session at our fitness center.

So, am I adapting to the LA lifestyle? I would not really say that. Of course, it is kind of cool to get home from work on a regular Wednesday, and get asked if you want to come to a private party where Skrillex is playing. Or not plan anything for the weekend, and end up going photo shooting with your roomies and a great photographer, who shot music videos for Muse. And it is definitely a lot of fun to hang around in Hollywood and watch the eclectic mix of crazy people, tourists and occasionally one or another celebrity.

But as living in one of the most polluted cities in the US, my health concerned inner spirit screams every time I breath in the smoggy LA air. As a city ruled by cars, LA is definitely not built for traveling without one; and riding the metro to work, as I am trying to now, isn't really the way to go if you want to keep your LA swag up.

The differences in this city are striking. If you mix some fancy, artsy, poor and dangerous neighborhoods, blend it with a good dose of segregation and add really interesting and creative people to the already mentioned, ec-

1. Pershing Square in Downtown
2. Photo shoot in Downtown LA



tic troop; you are in for a fascinating ride. Sharing that ride with someone is always the most fun. So even if we just ended up on the beach, doing nothing, the best weekend I had in LA so far, is still when my now very hip, San Francisco-based boyfriend Pierre, came visiting for the first time!

MALIN ANKER

Rockstar Engineering in San Francisco

There was a little more than one month left until I was supposed to start my internship, but I had a problem: I had no internship! My phone rang: "Pierre, you are not going to believe this but BandPage, an IT startup in the music business, found your resume to be very interesting and they would like to have an interview with you. And yeah, they are located in San Francisco". That call was the beginning of several hard evaluations that kept me coding 24/7 for almost a week. That is the reason I can proudly say that I missed how the season shifted from spring to summer in the year of 2013. But it was worth it, because I got the job and was heading to San Francisco.



Hanging out with Co-founder Chris Tholén and founder J Sider, in our office.

Oh boy, what a city. I spent my first week walking around with my camera pretending to be a photographer, eating good vegetarian food and enjoying the unusually good weather. I soon realized that the place actually felt like home. Market Street, Mission District and Embarcadero were just like Avenyn, 2th Long Street and Lilla Bommen back in Gothenburg, just a bit bigger.

I had the opportunity to see my first Pride festival and there were a lot of "just married" signs being waived around because of the recent legalization of same-sex marriage in California. Love is love, right?

My father had planned on visiting me in San Francisco, so he took the opportunity to come here on his vacation. Since both me and my roommate Robin, who is also a member of CETAC, did not want any money from him for staying here, he bought us a TV. Thanks for that, dad, but deep inside I think you enjoyed it as much as we did since you used it twice as much as us.

The first day of work was getting closer so I had to think about all the formalities, such as getting an apartment, buying a racer bike and an acoustic guitar.

Pierre Reimertz

Age: 26
Education: B.Sc. Software Engineering
Length of internship: 12 months
Company: BandPage Inc.
Location: San Francisco, CA
Number of employees: 35
Webpage: www.bandpage.com
Best US memory: This will be when I have saved up some money for two flight tickets so that my little brothers can visit me here in San Francisco.

With that done, I felt ready to take on my first week at BandPage. BandPage, formerly know as RootMusic, got famous over one night when they introduced themselves as the one and only complete solution for artists on Facebook. The idea was to help musicians share their content, such as their biography, music, photos and events through an app that fans could easily access. They further developed their product by offering stand-alone widgets that artists could use outside of Facebook, for example, on their official homepage.

I had the luck of joining the front-end team as a JavaScript developer at the most interesting of times. I got there when BandPage was just rolling out a new product called Experiences, a tool that helps artists create unique offers for their fans. These offers could



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be a "meet and greet" with the artist backstage or a private show online over Skype. I also had the opportunity to do work that involved the now public partnership with Xbox Music and Vevo; sounds pretty cool, right?

A regular day for me starts with a wonderful breakfast served by our chef Callie, followed by a standup meeting where we just chat about what we will do during the day. I then code for some hours until lunch, where Callie shines again with an organic lunch that always has a good vegetarian alternative. These meals are the only reason I get the nutrients I need, so thanks Callie! At 6 pm, the BandPage tap opens, which often results in a Balmer's peak situation combined with some more coding. Repeat this pattern for 5 days a week with some surprising moments like live shows during lunch and off-site working. Who would not be satisfied?

They say that the colleges are one of the most important parts of being satisfied at work, so I guess I will be a very

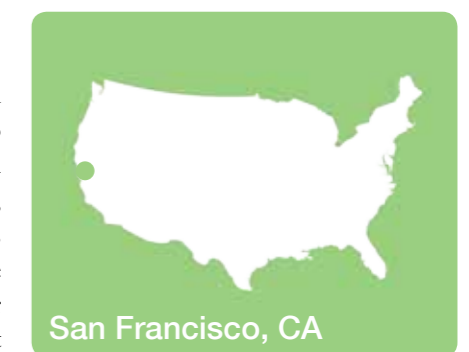
happy person during this internship. For example, Josh, my mentor, is one of those people who are super smart, have worked at all these cool places like Google and Meebo and manage to keep calm even when asked dumb questions every five minutes.

But no job, city, food or colleges could make me feel this good if I had to think about how far away I was from my girlfriend back in Sweden. Luckily, she is now just one hour away in Los Angeles, doing an internship just like me! So, forgive me Mother Nature for taking a flight once in a while to visit her, but I miss her so badly.

To round things up, don't worry, follow your heart and you might end up as a Rockstar Engineer surrounded by the best kind of people and with the kind of job that makes you stay late each day, because it is - just - that - fun.

PIERRE REIMERTZ

1. A camera is a must have since San Francisco is a very photogenic place.
2. A lot of colors, interesting outfits and one and another naked body.



Where It All Happens

At the place where it all happens, where new technology is created, where people dream and do big things while keeping their feet on the ground.



Relaxing with the other interns at VMware.

I had an awesome flight from Arlanda to Newark airport. Getting from the airport to the immensely hot New York City was simple but finding my hotel at Times Square was more difficult. I had no idea that the city that looked so small from the sky would be so intimidatingly huge seen from the streets. The smells were new and strange; some stunk while others were so good I could almost taste them. After finding and checking into my hotel my two friends from Sweden and me set out to explore the city. We saw the Empire State building, Times Square and much more in that incredible city.

The next day I had to leave the city even though I wish I could have stayed for just a bit longer. I now flew to San Francisco. Surprisingly, San Francisco was cold, especially compared to the incredibly hot New York. It took me a couple of hours to get all the way down to my apartment in Northern San Jose where I first met my three roommates. The following Monday I started working at my host company VMware in the Palo Alto campus. VMware makes a big deal out of the first day, which in many ways I appreciate. New hires and new interns are introduced to the life at VMware; we were shown around the campus and got to know what our internship would look like. In the end I got to meet my mentor who brought me to our building on campus and introduced me to everyone in our team.

I work with the scale test team of the network virtualization product NSX at

Agriin Hilmkil
Age: 22
Education: B.Sc. Engineering Physics
Length of internship: 7 months
Company: VMware
Location: Palo Alto, CA
Number of employees: 13800
Webpage: www.vmware.com
Best US memory: Seeing Mark Zuckerberg in Facebook HQ very unassumingly sitting by a desk and playing with his phone.

VMware. We have to ensure that our product works on huge scales. In practice this means that we ensure it works with big scales of thousands of hypervisors on many networks. Since we cannot buy a whole datacenter we have to simulate our hypervisors. So far I have been working on several smaller tasks, getting used to the codebase. After finishing these I started my current bigger project, which is ensuring compatibility with the cloud management system OpenStack by building in support for it in our testbed. All our code is written in Python which suits me perfectly: it is a language where every now and then you see things that are so beautifully simple they seem like magic. For quick breaks I usually go down to our basement and play pinball. We have an awesome pinball machine – Mars Attacks. I have saved the earth and even destroyed Mars several times. Unfortunately though I have yet to rule the universe, but the legend says that no one has managed to do so at our office since the pinball machine was acquired.

There are tons of interns here and at



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other companies in the Bay area as well and thanks to the competitive market, companies race to impress on all of us with events where they invite us over. The events range from simple visits to tours and even hackathons. Visiting other companies and talking to the people there gives great insight into what is happening around and how life is at different companies. Every now and then there are also interesting talks for everyone. I recently visited PayPal at eBay's campus for a talk by Andrew Ng, a machine learning teacher who through his online courses first introduced me to machine learning. Seeing all of this and meeting all these amazing people is incredibly inspiring; this truly is the place where it all happens and where new inventions sprout up like crops planted by farmers. It motivates me and makes me want to perform even better.

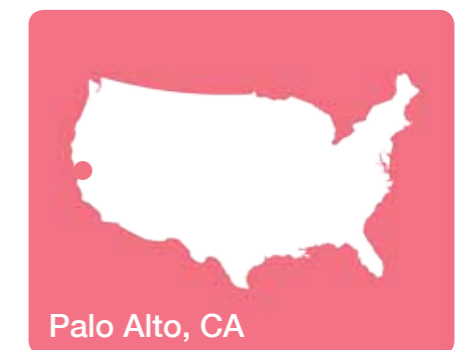
Work and technology is not everything though. Apart from visiting countless amazing places including Yosemite and Santa Barbara I decided to embrace the Californian spirit by getting a long-

board. It is something I have had on my mind for a long time, but the weather and people around just made it feel like the right thing to do. I ended up first buying a cheap one, then realizing it sucked and getting a good one instead (including a helmet!). Since then I have been getting more and more accessories and soon I am about to clean and lube my bearings for the first time with speed cream, exciting stuff! I can get to places so much faster than by walking that I end up going places I wouldn't have gone to otherwise. It is one of the best feelings of freedom in the world - taking the longboard out for a ride on a lone paved walkway in the sunset. Awesomeness defined.

I still have so much more time here and I am taking in new impressions everyday, things are so similar yet so different over here and I feel very lucky to have gotten this opportunity. I want to thank everyone involved, especially my mentor, manager and everyone in CETAC.

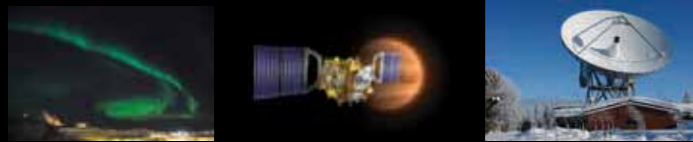
AGRIN HILMKIL

1 & 3. Hike at 10,500 feet in Yosemite
 2. In the middle of nowhere along the road to Yosemite



Palo Alto, CA





Institutet för rymdfysik, IRF, bedriver forskning och utbildning i rymdfysik, rymdteknik och atmosfärfysik.

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www.irf.se

Tau beräkning stödjer CETAC.



CETAC Alumni

CETAC Alumni was founded in 2006 and has ever since worked to create a network of former CETAC members. Today, we have more than 160 members, from CETAC 1973 and onward, and is growing steadily every year. Our activities includes arranging dinners and get-togethers for alumni as well as helping each new CETAC year. Our main purpose is to be a social platform for former CETAC members and share ideas, memories and work opportunities while at the same time having some fun!

CETAC and CETAC Alumni are helping each other to grow and to improve. By joining CETAC you will not only give yourself the chance of an internship in the United States, you will also provide yourself with the opportunity of joining the Alumni network. By doing so you will have a unique chance of meeting old and new friends who shares your past, and can lead you to new and exciting experiences!

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e-man brinner för att ta socialt ansvar och värna om miljön.
Vi är stolta över vårt engagemang i CSR Västsvrige, Tällberg Forum, Kiva, och vår sponsring av idrott som ger dameliten bättre villkor.

Så, vad är viktigt för dig när du söker jobb eller väljer leverantör?



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The ASF is a publicly supported, non-profit organization housed in Scandinavia House, New York City, which serves as the Nordic Center in America. Our organization strives to promote international understanding and cross cultural exchange between the United States and the Nordic countries.

The Chalmers Engineering Trainee Appointment Committee (CETAC) and The American-Scandinavian Foundation began its fruitful relationship in 1980. Since then, the Foundation has provided visa sponsorship for Committee members studying electrical, electronic and computer engineering.

What is the Foundation's role you may ask? Well, the Foundation has been designated by the U.S. Government as an Exchange Visitor (J visa) program sponsor for on-the-job training. Any student who wants to work in the United States must have a visa and that is where we come in. The Foundation receives the student's application and the Form DS-7002 Training/Internship Placement Plan from the U.S. Firm. Once we make sure that the internship position is appropriate and meets program requirements, ASF issues the U.S. Government documents that make it possible for students to come into the United States and obtain this on-the-job experience and receive income. Once in the United States the students receive a meaningful internship and in turn provide the host firm with a highly motivated, skilled individual who is eager to learn and contribute to the particular company's growth. We at the ASF understand how much work and effort the members of the committee put into obtaining their assignments therefore we try to help in every way.

CETAC 2013

13 INTERNS

PARTICIPATED IN THE CHALMERS/ASF PROGRAM FOR 2013

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WHERE INTERNS WERE SENT

6+ MONTHS

IS THE AVERAGE LENGTH OF THE INTERNSHIPS 2013

It is not only the professional growth you experience during your summer in the United States it is also your personal evolution. Year after year, students mention on their final reports how much they enjoyed themselves, how many friends they made and how many things and people they got to see and meet. It is fascinating to read about your personal and professional accomplishments during such a short time span. We anticipate this to be a natural consequence of this program and hope that the friendships you make last a lifetime.

It has been a great pleasure to work with this particular group because of the infinite energy and zeal they bring to the program. The positive feedback we continue to receive at the conclusion of a student's internship program is well worth the effort.

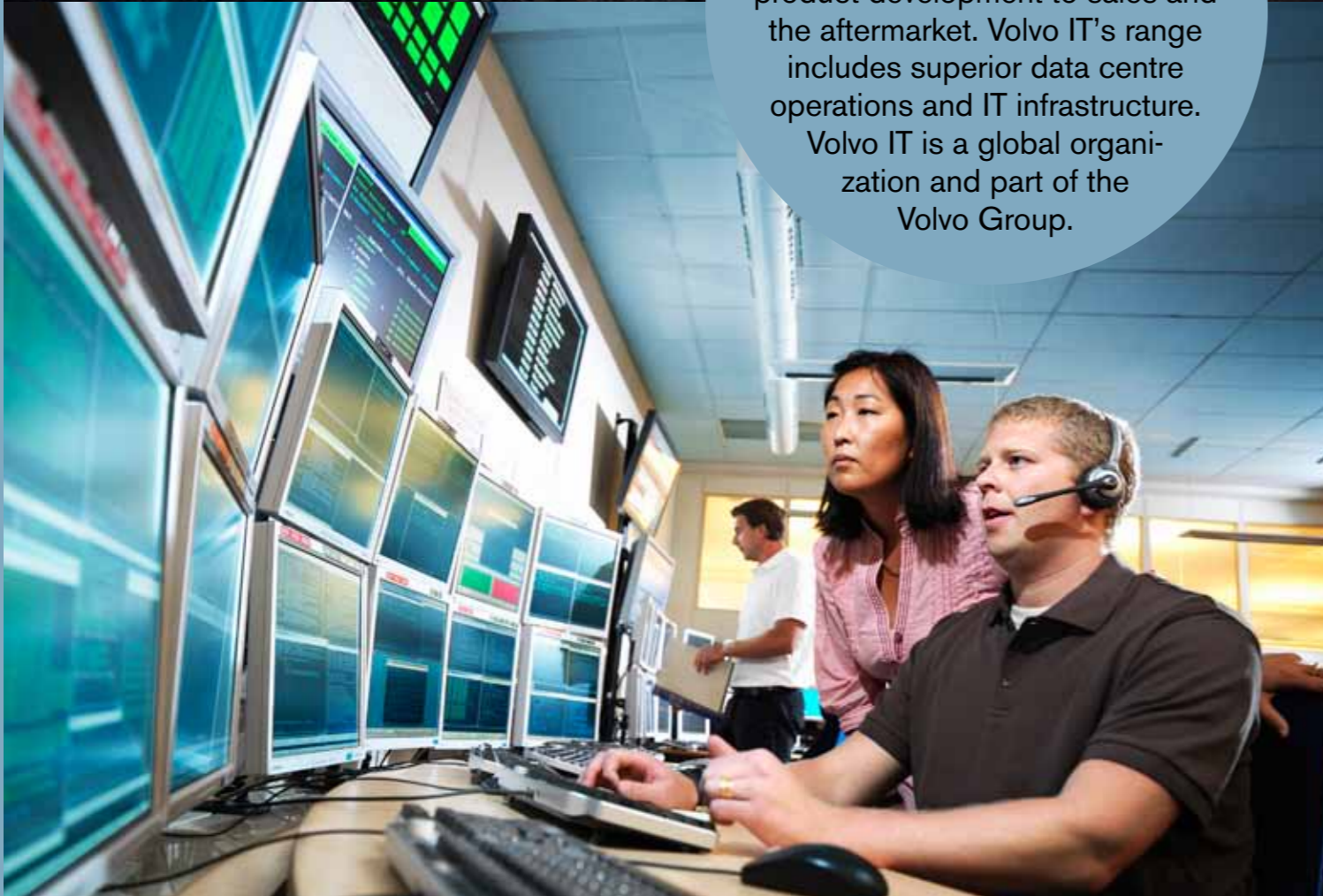
We at the American-Scandinavian Foundation wish you continued success in your future endeavors.

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VOLVO IT. LET'S MAKE SURE.



Per Adamsson left and Peter Grönberg right calls the development in telematics for a service explosion.

Text and photo Malin Willbro

Vehicles are becoming smartphones on wheels

About 1,7 million vehicles are being connected by Volvo IT at Lindholmen Science Park in Gothenburg, and that number is ticking fast with 80 000 additional vehicles per month. Through telematics cars and commercial vehicles are now able to do everything from calling for help, connecting fleets, saving fuel, tracking stolen vehicles, to preheating your car. It seems that with the right connectivity you can do almost anything.

The development of services is based on existing wireless technology such as 3G, 4G and satellite communication and the development of services on the back office side is mostly done by leading edge Java Technology. Per Adamsson, director for Strategy and Portfolio Management at Volvo Group Telematics at Volvo IT, calls it a service explosion.

- The penetration of these services was very slow and then something happened, the smartphone came and with that apps. The smartphone created a new ecosystem around the vehicle – the connected vehicle ecosystem. Telematics became something tangible that you could touch and understand, all of a sudden I can say what I do when I for example go to weddings says Per Adamsson. Our solutions now exist both in Volvo Group products and other products in the automotive industry in Europe, Asia and US and South America.

He explains that part of the rapid evolution of telematics is that they now work closer to the different players in their ecosystem and that key is to really understand the value of these new services for everyone around the vehicle, such as drivers, fleets, service shops and leasing companies for instance.

- Going forward we think that the most important thing is not to grow only on a technical level but emphasizing the importance of understanding and connecting the different ecosystems, in the end enabling “the connected society”. Maybe in the future vehicles will talk to each other, which will improve and enable safe mobility and green transportation, and maybe we as drivers can relax in the back seat says Per Adamsson.

Peter Grönberg head of Volvo Group Telematics at Volvo IT adds: - it took 13 years to connect one million vehicles, but as we are closing in on two million, we can predict that it will only 13 months to connect the next million, that says a lot about the pace in telematics right now.

About VOLVO IT – VOLVO GROUP TELEMATICS

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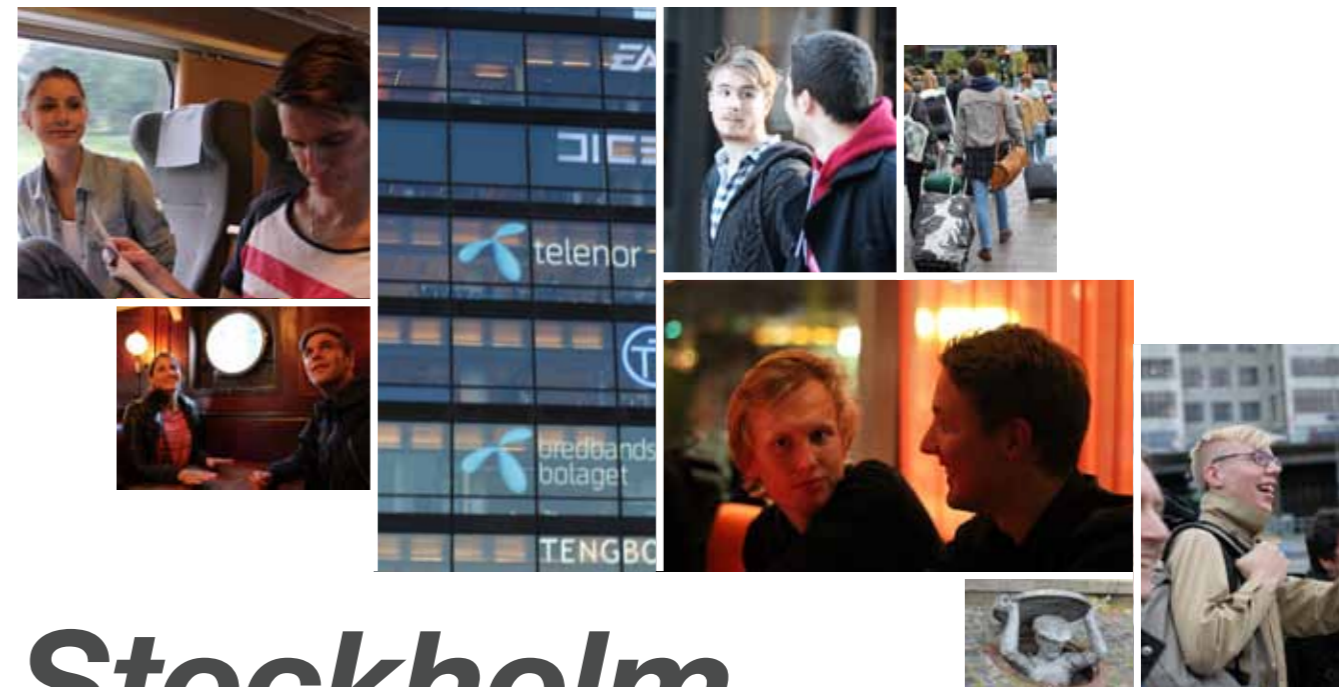
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Stockholm

– a City Full of CETAC-Friendly Companies?

You betcha! Most of all tech companies in Sweden have their headquarters in Stockholm so it is a perfect city for the purpose of sales meetings and team building. And of course, the yearly kick-off trip to Stockholm is a tradition and it probably has as long a history as the organization CETAC itself.

Catching the train from Gothenburg, a few people from the group are very close to missing it. Luckily no one does. There are questions within the group whether all the boxes of Trainee Reports will be enough, whether the sales pitches will be satisfactory and so on. There is quite a bit of excitement and nervousness – almost no one has experience of booking meetings with big and small companies with the main purpose of getting them to advertise through an organization like CETAC.

Together we have to remind ourselves what we already know, that the companies like to show off to engineering students and that most of them think that the end goal of going to the US is a very good cause. This mindset inspires and fuels our

confidence for the coming meetings. The first couple of meetings start at lunch time and many of the smaller groups within the group are off to booked appointments as soon as we arrive at the train station. Others are off to the hostel which this year was a big boat in the heart of Stockholm, at Slussen. Very cozy indeed, and there is a sufficiently big common area where the internship coordinators can set up their business for this trip. In case you wonder about their business it is getting to know what all the individuals in the group want to work with when going to the US, and to help sharpen up everyone's resumes.

Every one of us gets to go to at least one booked meeting. Some of the smaller groups have been both better and luckier than others in booking these. There are quite a few sales coming from these meetings, some of them on the spot but most after some more contact later during the semester.

This year's first sales competition is also under way and people that only have meetings booked the next day are on their phones trying to book new ones. The prices in the competition are generous and will give the winners a head start in their goals to reach a certain sales quota set every year. This

is a prerequisite for being able to go to the US and needed for the whole organization to function. Thus, team work is encouraged from day one!

Apart from sales pitches and meetings there is usually a small Alumni event during this trip, and this year it happened at a restaurant called Imperiet followed by some pool playing and night clubbing at different venues in Stockholm. This is a very nice thing about being a member of CETAC: that you get to meet people in your field that are already way ahead in their careers. You can connect with the Alumni in such a way that you both make friends and gain a valuable contact for your future work career. Actually, maybe some of you readers will become CETAC Alumnis too one day!

All in all, the trip to Stockholm was a great success and the members of CETAC 2013 hope that this tradition will remain for as long as CETAC exists, and that in the future the trip will involve more valuable meetings, more members of the organization and of course, more fun. Thank you for this year, Stockholm!

TOBIAS FORSBERG

W Advokatfirman WOXLIN



Linda Rudén



Marcus Högberg



Hållbara lösningar för miljö och hälsa

Kunskaper i kemi och bioteknik är centrala för samhällets fortsatta tillväxt och för att lösa samhällets klimatrelaterade utmaningar. Vid institutionen för Kemi- och bioteknik erbjuder vi utbildning och forskning för hållbar utveckling, förbättrad hälsa och livskvalitet.

Ett yrkesliv inom akademi eller näringsliv?

Med en utbildning i kemi blir du attraktiv inom många branscher i näringslivet. Kompetens inom kemi- och bioteknik behövs för att utveckla miljöanpassade produkter, utveckla nya bränslen och råvaror till industrin, och skapa ren och effektiv produktion. Efter examen kan du till exempel jobba inom livsmedels-, läkemedels- och pappersindustri eller offentlig verksamhet. Eller så väljer du en akademisk karriär och fördjupar dig inom forskning.

Forskningen vid Chalmers största institution sträcker sig brett inom fältet kemi- och bioteknik. Från grundläggande kemi och biokemi, till tillämpad kemi inom energi och material, vidare till livsvetenskap, bioteknik

och kemiteknik. Bredden av ämnen och framgångsrika forskare har gjort det möjligt att sätta samman starka konstellationer, vars forskningsresultat får stor betydelse för individ, samhälle och industri.

Molekyler som lagrar solenergi och tekniklösningar för sjukvården

Ett exempel på framgångsrika forskare är Kasper Moth Poulsen, forskarasistent i polymerteknologi, som söker lösningar för ett hållbart energisystem. Solen som energikälla ger stora möjligheter för detta, och en utmaning är att hitta effektiva lagringsmetoder, för att transportera och spara energi. Kasper Moth Poulsen har tillsammans med sitt team utvecklat ett system, som lagrar solenergi i kemiska bindningar. Det baseras på tidigare

upptäckter av forskare från UC Berkeley i Kalifornien och Kasper med flera har omsatt teorin i praktisk tillämpning.

Ett annat exempel är Elin Esbjörner Winters, forskarasistent i biofysikalisk kemi, som forskar på proteiners beteende inom sjukdomar som Alzheimers, Parkinson och ALS. Hon studerar proteinaggregat, som orsakar skadliga angrepp på nervceller och som återfinns i sk plack, i hjärnan hos patienter med Alzheimers sjukdom. Genom att förstå aggregatens reaktioner, strukturer och lokalisering i celler skapar hennes forskning kunskap om hur nervcellernas funktion påverkas.

Laboratoriechef och processingenjör i industrin

Marcus Högberg är utbildad högscoleingenjör i kemiteknik vid Chalmers. I dag arbetar han som laboratoriechef på AkzoNobel, en av världens ledande industrikoncerner. Hans jobb innebär bland annat att göra kvalitetssäkrande analyser av produkter samt miljöanalyser.

En annan alumn är Linda Rudén, som efter sin civilingenjörsexamen i kemiteknik fick jobb som processingenjör på Södra Cell Värö, som tillverkar pappersmassa. Som processingenjör jobbar hon med att lösa och förebygga olika problem, som uppstår i fabriken. Linda arbetar även som energisamordnare, vilket innebär att hon identifierar och kartlägger hur företagets energiförbrukning ser ut och vad man kan göra för att minska den genom energieffektivisering

För mer information om utbildning och forskning inom Kemi- och Bioteknik se www.chalmers.se/chem

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Institutionen för Kemi- och bioteknik bedriver forskning och utbildning av högsta kvalitet för hållbar utveckling, förbättrad hälsa och livskvalitet. Våra utbildningar genomsyras av teknologiska lösningar för att förbättra människors vardag, och utvecklas kontinuerligt för att tillgodose och driva samhällets och näringslivets utveckling. Vår forskning täcker in hela fältet från naturvetenskaplig kemi och biovetenskap via tillämpad kemi till bioteknik och kemiteknik.

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CHALMERS

The Chairman Speaks

Thinking back at the past year I cannot believe how fast it passed. There has been a lot of work and pressure from time to time during this period, saying anything else would be lying. Even so, I can honestly say is that I do not regret a moment of it!

What started out as a group of slightly confused students, in a lecture hall at Chalmers in mid May 2012, resulted in us together landing 18 qualified internships in the US. I think all of us had our doubts during the year, if we were really going to make this happen. For me this was especially true when I had my first interview late last year: let's just say I felt that I did not exactly sell myself fully. If you have ever had an interview you might recognize this situation of sudden loss of confidence. Luckily we all stuck together as a group and encouraged each other at these times and as it turns out the interview was not actually as bad as I thought and I was called for a second interview. Self-esteem boosts like this kept spreading across the organization and everyone kept struggling together. We have all grown so much as a group and everyone has gained so much important experience! Not only in America but all throughout the year; from interviews to sales, working as a group and not giving up even when times are tough. Together we managed to get an amazing set of companies and thanks to everyone we managed to rekindle our connections with a bunch of companies from the good old days!

Looking back at the spring in Sweden I remember calling and emailing companies like crazy. One of our efforts was to reach out to members of our alumni organization as well as hundreds of former CETAC members that had not yet heard of the alumni organization. This resulted in a lot of leads on potential internships but even better; a whole lot

of new members in the alumni organization which will make the upcoming alumni events even more interesting and rewarding. Everyone we contacted was very supportive and did what they could to help us out and a lot of alumni used this opportunity to tell interesting stories from their time in CETAC which for me was a really big source of motivation! The alumni organization has expanded and the communication between us improves all the time which is very important for CETAC in order to keep growing instead of having to invent the wheel all over every year.

We got so much done as a group and one of the most important lessons that I have learned during this year is just that; a tight group can get so much more done than a group of individuals.

It would not be possible for me to list every single person that I would like to thank on this limited space, but I am truly thankful to everyone that I have had the privilege to have met or talked to during this year, without you the most rewarding year of my life would not have been possible.

The biggest thank you of all is to my fellow CETAC members! We are now living the American dream and dear reader, so can you! Do not miss out on this opportunity!

Robin Rye
Chairman CETAC 2013



THANK YOU The board and members of CETAC 2013 would like to direct our sincerest gratitude to our advertisers and to all of the following people and companies for your fantastic support and essential contributions to make this project possible.

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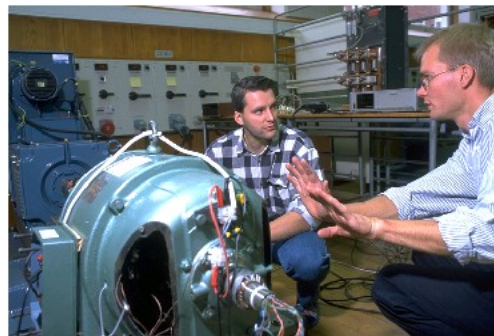
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