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SÄLLSKAPET  
FÖR  
AUTOMATISERAD  
BILDANALYS

SWEDISH  
SOCIETY  
FOR  
AUTOMATED  
IMAGE ANALYSIS

MEMBER OF THE INTERNATIONAL SOCIETY OF PATTERN RECOGNITION

# SSBAktuellt

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**SSBAktuellt**

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*Cover: SCIA audience at the space excursion in the DOME.  
Photo: Anders Ynnerman*

## >>>> Ordförandes ord



Ida-Maria Sintorn

Hej SSBA medlemmar!

Vilken intensiv SSBA vår det har varit! Jättebra och välarangerat SSBA i Göteborg, och så SSDL och SCIA i Norrköping med massa intressant inbjudna talare och presentationer att lyssna på från bekväma biofåtöljer. Alla arrangemang har erbjudit möjligheter för sociala aktiviteter och nätverkande – inte minst alla intressanta diskussioner kring postrar. Detaljer från dessa tre stora föreningsevent och fler därtill samt blandat smått och gott som vanligt finner ni längre fram i nyhetsbladet. Något som inte står i dessa beskrivningar men väl värt att nämna är att det på föreningens årsmöte under SSBA-symposiet togs beslut om att erbjuda sponsring av deltagaravgiften för SCIA för föreningens doktorander. Det resulterade i att 19 av våra doktorander sökte och fick bidrag för SCIAs registreringsavgift vilket ju både gynnade våra doktorander och "vår" SCIA-konferens – bra förslag Ingela Nyström!

Apropå SCIA så arrangerade vi under konferensen i Norrköping en diskussionssession om framtiden för SCIA – viktigt och intressant. Det blev en livlig diskussion med många bra förslag och kommentarer om vad som varit bra och vad man kan göra för att förbättra och förstärka konferensen ytterligare. Några punkter som kom fram var: konferensen är bra, den behövs som komplement till trenden med jättekonferenser, den är viktig för regionalt nätverkande. Kort och gott: SCIA bör finnas kvar och behöver därför växa lite och kanske även utvidgas till att omfatta ett större basområde (Norden eller norra Europa kanske?) och annonseras bättre. Anteckningar från diskussionen finns längre fram i det här nyhetsbladet och har också vidarebefordrats till vår finska systerorganisation som står som värd för SCIA 2021.

Jag hoppas att ni medlemmar fortsätter att komma med åsikter och förslag i frågan om SCIA, våra symposier mm. Ett ypperligt tillfälle att göra det är att delta i SSBA internatet 5-6 november (se notis om internatet längre fram). Hoppas vi ses där!

Slutligen, för er som inte var med på SCIA – åk till visualiseringscentret i Norrköping för att färdas vidare ut i rymden - en fantastisk upplevelse!

Glad sommar allihop!



## >>>> SSBA 2019 Report



Axel Andersson

SSBA2019 took place in Gothenburg between 18 and 20 March. The conference began with a PhD day, where doctoral students from different Swedish universities met to eat porridge, drink tea, network, and discuss relevant topics. The event was arranged in Chalmers Hus; a 200-year-old building, and former residence of Chalmers University of Technology's founder William Chalmers. The PhD day was also my first working day as a doctoral student. I must admit, it felt quite flashy to start *off my coming years of studies* with a luxurious breakfast in a grandiose 19th century house.

The PhD day continued with visits at two interesting image analysis-linked companies: Irisity and SmartEye. Irisity showed the latest in camera surveillance technology, and shared interesting words about starting and running a company. At Smart Eye, we tested a variety of applications related to eye tracking and had the opportunity to talk with their researchers and developers. Both companies gave a very good impression. The PhD day ended with the conference welcome reception, which also took place in the luxurious Chalmers house.



During the next two days, the symposium was in full swing. The sessions were filled with presentations from PhDs, researchers and industrial representatives. The invited speakers presented topics on Segmentation without Supervision (Yuri Boykov) and Spatial Perception for Mobile Robots (Stefan Leutenegger).

The traditional conference banquet took place on the River Restaurant, a restaurant located on a pier out in the Göta Älv.

Overall, it was a real pleasure to attend to SSBA. For me, the conference was both educational and entertaining. It was a very amicable, almost familiar atmosphere throughout the entire conference. I'm already looking forward to attending in the coming years!



## »»» Call for Interest — SSBA-internat, November 5-6, 2019

SSBA-internatet är ett utmärkt tillfälle att höja blicken från din förestående ansökan, artikel eller leverans, och istället tillsammans verka för att svensk bildanalys står ännu starkare om några år än vad vi gör idag: att både företag och universitet har en kompetensbas att rekrytera från, att bidragsgivare förstår värdet av forskning på området att vi fortsatt har en utbildning och forskning i världsklass.

Målet med internaten är att ta fram planer för att genom SSBAs nätverk driva strategiskt viktiga bildanalysfrågor i och för Sverige. Internatet organiseras huvudsakligen som diskussionsgrupper med olika ingångsvinklar och med målet att ta fram konkreta planer, stora som små, som är rimliga att realisera det kommande året. Sedan tidigare har vi delat upp våra insatser i tre fokusområden: utbildning, forskning och industri.

Internatet har även den direkta effekten att utöka nätverket för deltagarna och SSBA-internaten brukar förläggas till ställen som uppmuntrar till sociala aktiviteter; internatet har arrangerats på Lovik, Lidingö (2016) och Ystad Saltsjöbad (2017). Exempel på ett lyckat resultat från internaten är SSDL-symposiet som i år arrangerades för tredje året i rad.

Tänkbara diskussionsämnen för nästa SSBA-internat:

1. De olika Masterprogram med inriktningar som är relevanta för SSBA, t.ex. bildanalys och maskininlärning, som håller på att utformas på olika håll i Sverige
2. Industrins syn på utformning av utbildningsprogram/kurser. Stämmer utbildningarna med industrins behov och önskningar och/eller hur kan industrin påverka?
3. Hur vi kan utvidga vårt nätverk och samarbeten med våra grannländers systerorganisationer för att stärka vårt ämnes varumärke ytterligare?

Anmäl ert intresse för att delta på årets SSBA-internat den 5-6-november med epost till styrelsen - [ssba@ssba.org.se](mailto:ssba@ssba.org.se).

Kom gärna med förslag på andra/ytterligare diskussionsämnen!

*SSBAs styrelse genom Robin Strand*

## >>>> Soapbox Science



Elisabeth Wetzer



Roy Francis

On May 25, 2019 Uppsala's very first Soapbox Science event took place in front of the University Library Carolina Rediviva after last year's success in Umeå as well as its very positive international reception for many years. The event is a public outreach platform which gives a stage (in form of a soapbox) to women in science to promote the research they do and why they think it's fascinating. There are no Powerpoint slides, no microphones, but the scientists can bring any equipment they can think of to demonstrate and give insight to their daily discoveries.

Uppsala's event featured women scientists from the Swedish University of Agricultural Sciences (SLU) as well as Uppsala University. Not just one, but two speakers came from the field of Image Analysis & Processing – Leslie Solorzano and Elisabeth Wetzer from the Centre for Image Analysis. The interest of passers-by and listeners of the event was big and led to many questions and discussions ranging from how Instagram filters work, over how computers can detect cancer on images to guessing if images were real or GAN generated!



## »»» Awards and Prizes at SCIA

### 1. Nordic Thesis Award 2017-2018:

Author: **Martin Danelljan**

Thesis title: **Learning Convolution Operators for Visual Tracking**

*This prize is awarded by the image analysis societies of Denmark, Finland, Norway and Sweden*

### Nordic Thesis committee 2019:

Anders Nymark Christensen, Denmark

Joni Kämäräinen, Finland

Robert Jenssen, Norway

Per-Erik Forssén, Sweden



### 2. SCIA 2019 Springer best paper award

Authors: **Phong Nguyen-Ha, and Lam Huynh and Esa Rahtu, and Janne Heikkilä**

Paper title: **Predicting Novel Views Using Generative Adversarial Query Network**

### 3. SCIA 2019 Honourable mention

Authors: **Erik Bylow, Robert Maier, Fredrik Kahl, Carl Olsson**

Paper title: **Combining Depth Fusion and Photometric Stereo for Fine-Detailed 3D Models**

### 4. SCIA Best Attendance Award 1980-2019

To **Ewert Bengtsson**, who has attended all SCIA conferences.

### The SCIA 2019 award committee:

Michael Felsberg, Per-Erik Forssén, Ida-Maria Sintorn, Jonas Unger



## >>>> SSDL 2019 Report



Ankit Gupta



The third Swedish Symposium on Deep Learning (SSDL) arranged by the Swedish Society for Automated Image Analysis was held in Norrköping during June 10-11. The symposium was dedicated to the latest trends and developments in deep learning. It took place in Norrköping Visualization center C of Linköping University in co-location with SCIA 2019.

The symposium featured keynote speakers from Google, KTH Royal Institute of Technology, Radboud University Medical Center and Erasmus MC. The topics of the keynotes varied from computer vision and natural language processing to biomedical imaging and computational pathology.

Overall, 20 papers were accepted and 7 of them were selected for oral presentations. The papers featured a diverse variety of applications of deep learning in various fields such as CT/MR imaging, in-vehicle activity, word-spotting and, aerial imagery. The participants came mainly from academia and industry in Sweden.





## >>>> SCIA 2019 Report



Emanuel Sanchez Aimar

The twenty-second Scandinavian Conference on Image Analysis (SCIA) was held at the Linköping University Campus in Norrköping, Sweden, nearby the twin city of Linköping, where the first SCIA took place almost 40 years ago. And still, it has been the first time I had the privilege to be present at the conference, lucky enough to attend on my first week as a PhD student.

Day one of SCIA began immediately after the end of the co-located event SSDL'19. For three days, I had the opportunity to attend to several oral sessions, poster spotlights (3-minute talks), poster sessions and keynotes given by renowned speakers. I especially enjoyed poster sessions during coffee breaks, or fikas, as they are known in Sweden. Not only it was very interesting to learn about the research breakthroughs that PhD students are doing in Scandinavian countries, but also allowed me to chat with my newly acquainted community, while immersed in Norrköping Campus' beautiful landscape.

Deep learning is now ubiquitous in computer vision and image analysis, and its influence was very noticeable in a large majority of research papers. The conference covered a wide range of topics such as recognition, segmentation and 3D vision; as well as many exciting industrial-focused applications. I would like to make a special mention to the large number of accepted articles in medical imaging, that are leveraging state-of-the-art deep learning techniques, with the aim of improving health care.



Each day, the climax of the event would be an exciting keynote, presenting highly relevant topics such as: Strategies to leverage temporal information in dynamic scene understanding (Laura Leal-Taixé). Capturing 3D models of the world from video (Lourdes Agapito). Efficient signed graph partitioning for computer vision problems (Fred Hamprecht). All keynotes were well-reasoned and had excellent standards, even providing the audience with details of ongoing research work.

As part of the social events, I was amazed by Norrköping's Visualization Center, where we went into a journey through space and time, in which we vividly relived the Apollo 17 moon landing and explored the solar system, as part of an immersive 3D exhibition. Last but not least, during the conference dinner I was introduced to several delicious Swedish dishes, followed by a musical performance by the local band "Lorator", who astonished us with a show of special effects produced by two musical tesla coils, sparkling to the beat of the music.

Even though the exact location for SCIA'21 is still a mystery, and without discarding a trip in ferry between Sweden and Finland as a candidate venue, I am looking forward to attending my second SCIA, for a couple of days full of stimulating research ideas, amicable people and amusing social activities.

## Photos from Beautiful Norrköping during the SSDL and SCIA Conferences



Axel Andersson



## Future of SCIA — Ideas

At SCIA 2019 we had a plenary session where we invited suggestions from the audience on how to modernise the conference. Below we have listed the suggestions and comments received.

Some are suggestions from single attendants and do not represent consensus. Some ideas we put to a vote, these are more representative.

### Proceedings:

- IEEE instead of Springer?
- CVF proceedings? (we asked for SCIA2019, and CVF said "maybe next time")

### Advertising:

- Booth at big conferences? (this is expensive)
- Encourage participants to advertise the conference?
- Advertise on linked in?
- SCIA facebook page?

### Misc:

- Invite Nordic thesis winner?

### Format:

- Annual SCIA? Vote: mixed
- Add workshops, and tutorials
- SSDL together with SCIA. Was this a good idea? Vote: half for, others did not attend.
- Scandinavian symposium on deep learning? Vote: mixed, majority positive.
- Other focus topics as well, e.g. geometry?
- Keep the spotlight format? Vote: good, keep
- More posters, also for orals? (we invited orals to have posters this year, perhaps we should use coercion at next SCIA?)
- Nectar sessions as on GCPR? (re-presentation of CVPR/ICCV/ECCV work as SCIA posters without review or publication)
- Rename SCIA to Nordic conference on image analysis? Vote: Mixed, majority positive.



## >>>> Network of EUropean BioImage AnalystS Conference 2019 (NEUBIAS) Report



Nadezhda Koriakina

The 3rd NEUBIAS conference is the first conference I attended as a PhD student. This year it was held in the heart of Europe, Grand Duchy of Luxembourg. The network aims to promote the mutual communication between specialists in life science and specialists in computer science, and nearly 300 participants were able to share experience and knowledge on various topics.

During the conference, a wide range of activities was offered: taggathon, training schools, workshops, speaker sessions, special sessions, poster lunches. I presented my early results in a poster and had a chance to communicate with other researchers with different background and from different countries. I found it as a rewarding experience, since I had a chance to listen to opinion of researchers about my work as well as understand the problems of others. Talking about speaker sessions, I would say it was a good balance between life science and image analysis topics, and both experienced and early career speakers were presenting their research.

My colleagues were actively involved in giving talks, presenting posters and software, and I hope this trend will remain for the next years. Overall, I like the attitude of the network to share the knowledge in both theoretical and practical aspects, promoting open-source software tools and similar. I envision that an important goal of the network and rich program of the conference would attract more and more people.





## »»» Photos from NEUBIAS



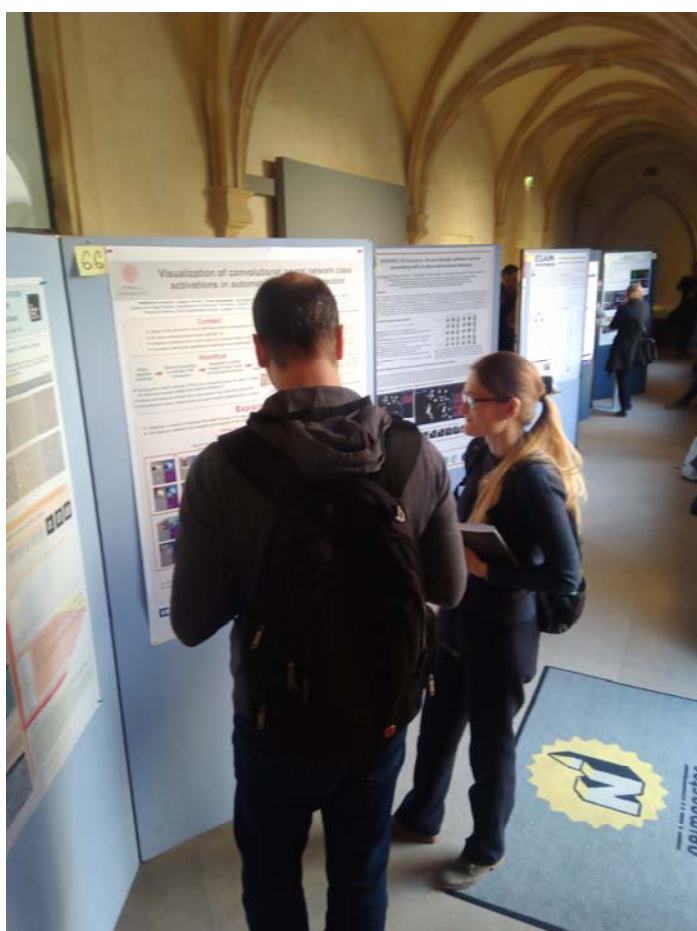
Elisabeth Wetzer



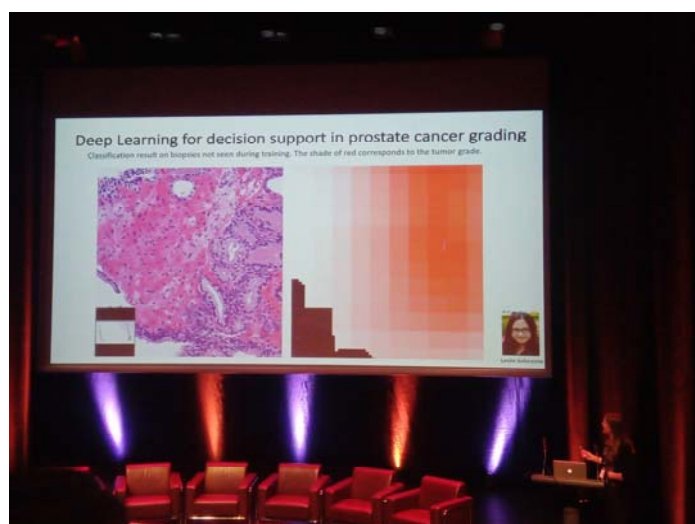
Luxembourg City



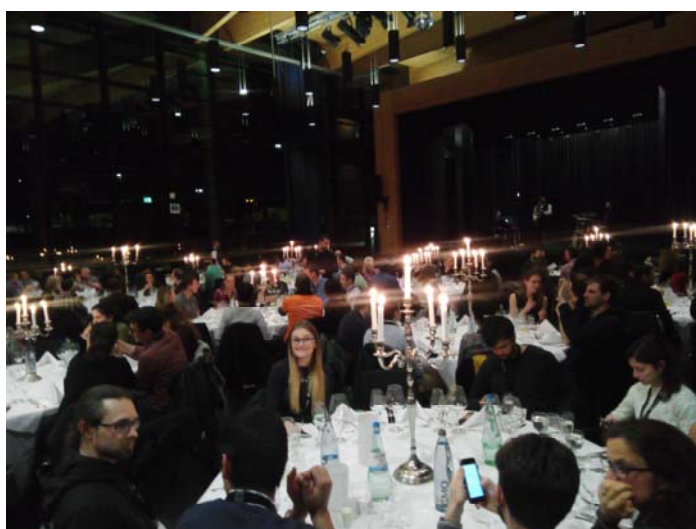
Open-Source Software Lounge



Poster Session



Invited Speaker Carolina Wählby



Gala Dinner

## >>> Aktuella avhandlingar



Här presenteras de avhandlingar som publicerats sedan senaste numret av SSBAktuellt och kommit redaktionen till känna. Meddela redaktionen om aktuella avhandlingar.

### Doktorsavhandlingar

**Bertil Grelsson**

*Linköpings universitet*

*Vision-based Localization and Attitude Estimation  
Methods in Natural Environments*

**Ehsan Miandji**

*Linköpings universitet*

*Sparse representation of visual data for compression  
and compressed sensing*

**Amit Suveer**

*Uppsala universitet*

*Methods for Processing and Analysis of Biomedical  
TEM Images*

**Tomas Wilkinson**

*Uppsala universitet*

*Learning based Word Search and Visualisation for  
Historical Manuscript Images*

**Kalyan Ram Ayyalasomayajula**

*Uppsala universitet*

*Learning based segmentation and generation  
methods for handwritten document images*