

Curriculum Vitae of Thomas Schön

Uppsala, October 2021

Work Address

Uppsala University
 Department of Information Technology
 751 05 Uppsala, Sweden
 Phone: +46 (0) 18 471 2594
 Email: thomas.schon@it.uu.se
 Web: user.it.uu.se/~thosc112/

Home Address

Vreta Ekväg 2
 755 91 Uppsala, Sweden
Born:
 December 25, 1977 in Jönköping, Sweden.
Citizenship:
 Swedish

Academic degrees

Docent in Automatic Control, Linköping University, Sweden, 2009.
Doctor of Philosophy (PhD) in Automatic Control, Linköping University, Sweden, February 2006.
Licentiate of Engineering in Automatic Control, Linköping University, Sweden, October 2003.
Master of Science in Applied Physics and EE, Linköping University, Sweden, September 2001.
Bachelor of Science in Business Administration, Linköping University, Sweden, January 2001.

Academic positions

Beijer Professorship in Artificial Intelligence with the Department of Information Technology, Uppsala University, since June 2020.
Professor of the Chair of Automatic Control with the Department of Information Technology, Uppsala University, since September 2013-June 2020.
Associate Professor with the Division of Automatic Control, Department of Electrical Engineering, Linköping University, September 2008-September 2013.
Assistant Professor with the Division of Automatic Control, Department of Electrical Engineering, Linköping University, March 2006-September 2008.
PhD student with the Division of Automatic Control, Department of Electrical Engineering, Linköping University, December 2001-February 2006.
Teaching assistant (Swedish: Amanuens) at the Division of Automatic Control, Linköping University, Linköping, Sweden, August 2000-July 2001.

Membership professional and academic societies

Member of **The Royal Swedish Academy of Engineering Sciences (IVA)**, since 2018.
 Member of **The Royal Society of Sciences at Uppsala**, since 2018.
Fellow of the **ELLIS Society**, since 2019.
Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), since 2011.

Longer scientific visits

Visiting scholar with **University of Newcastle**, Newcastle, Australia, 2019 (1 month), 2017 (1 month), 2016 (1 month), 2015 (1 month, shared with the **University of Sydney**), 2012 (1 month), 2011 (1 month), 2010 (1 month), 2009 (2 months), 2006 (1 month) and 2005 (5 months).

Visiting scholar with **Universidad Técnica Federico Santa María**, Valparaíso, Chile, 2014 (1 month).

Visiting scholar with **Abisko Scientific Research Station**, Swedish Polar Research Secretariat, Abisko, Sweden, 2014 (1 month) and 2012 (1 month).

Junior guest researcher with the Control Group at the **University of Cambridge**, Cambridge, United Kingdom, 2001 (6 months).

Research awards

Tage Erlanders prize for natural sciences and technology 2017 by the **Royal Swedish Academy of Sciences (KVA)**. “*For significant contributions to nonlinear identification and particle filtering*”.

Arnberg prize 2016 (Arnbergska priset) by the **Royal Swedish Academy of Sciences (KVA)**. For excellent work in technical science.

Automatica best paper award for papers published in Automatica 2011-2013. Awarded for the paper; Thomas B. Schön, Adrian Wills and Brett Ninness. *System identification of nonlinear state-space models. Automatica*, 47(1):39-49, January 2011.

Best PhD thesis award 2013 by The European Association for Signal Processing (EURASIP). The award is based on the impact of the thesis.

Honorable mention (nominated for the best application paper award) at the 18th World Congress of the International Federation of Automatic Control (IFAC), Cape Town, South Africa, 2014 with the paper *An optimization-based approach to human body motion capture using inertial sensors*.

Nominated for best industry-relevant paper award at the Swedish Symposium on Image Analysis (SSBA), 2010 with the paper *Torch guided navigation*.

Nominated for best industry-relevant paper award at the Swedish Symposium on Image Analysis (SSBA), 2009 with the paper *Indoor photo realistic 3D mapping using stereo images from SLR cameras*.

Travel grant to participate at the London International Youth Science Forum, London, UK. Awarded for successful project presented at annual exhibit of The Swedish Federation of Young Scientists, Stockholm, Sweden, (this award was received both in 1995 and in 1996).

Teaching awards

Awarded **best teacher** at the Institute of Technology, Linköping University (“**Gyllene moroten**”), 2009.

Nominated for the **best teacher award** at Institute of Technology, Linköping University (“**Gyllene moroten**”), 2007.

Eight times selected as **outstanding lecturer** by the dean of the Institute of Technology at Linköping University. The awards were given based on the performance in the courses Automatic Control (2006 – 2012) and Digital Signal Processing (2009 – 2011).

Other awards

Y-alumnus of the year, Applied Physics and Electrical Engineering (Y), Linköping University, 2019.

Research awards given to students

Antonio Ribeiro was one of the finalists for the young author award at the 19th IFAC Symposium on System Identification (SYSID), Padova, Italy (online), 2021 with the paper *Beyond Occam's razor in system identification: double-descent when modeling dynamics*.

Christian A. Naesseth was awarded (for his PhD thesis) the **Savage Award** (Theory & Methods) by the International Society for Bayesian Analysis (ISBA), 2020.

Christian A. Naesseth was awarded the **best paper award** at the 20th International Conference on Artificial Intelligence and Statistics (AISTATS), Fort Lauderdale, FL, USA, 2017 with the paper *Reparameterization gradients through acceptance-rejection sampling algorithms*.

Christian A. Naesseth won the **best poster award** at the Summer school on deep learning for image analysis held in Copenhagen, Denmark, 2014.

Johan Kihlberg and Simon Tegelid were awarded **best Master's thesis 2012** by Dataföreningen - öst. Thesis title: *Map aided indoor positioning*.

Honorable mention (nominated for the best student paper award) at the International Conference on Information Fusion, Chicago, IL, USA, 2011 with the paper *Bicycle tracking using ellipse extraction*.

Johan Norberg was awarded **best Master's thesis 2010** by The Swedish Radio Navigation Board (Radionavigeringsnämnden). Thesis title: *Large scale terrain modelling for autonomous mining*.

Jeroen Hol won the **best student paper award** at the IEEE International Conference on Ultra-Wideband, Vancouver, Canada, 2009 with the paper *Tightly coupled UWB/IMU pose estimation*.

Jeroen Hol was awarded **best Master's thesis 2005** at the faculty of Engineering Technology at the University of Twente, The Netherlands. Thesis title: *Sensor fusion using inertial and vision sensors*.

Awarded grants

Main applicant

Kjell och Märta Beijer Foundation. *Beijer Professorship in Artificial Intelligence*. 2020-2025. Endowed Professorship.

Swedish Research Council (VR). Project: *Learning flexible models of nonlinear dynamics*. 2018-2021. Individual grant.

Swedish Foundation for Strategic Research (SSF). Project: *Automating System SpEcific Model-Based LEarning (ASSEMBLE)*. 2016-2021. Principal Investigator.

Swedish Research Council (VR). Project: *Probabilistic modeling of dynamical systems*. 2014-2017. Individual grant.

Swedish Research Council (VR). Project: *Calibrating nonlinear dynamical models*. 2011-2013. Individual grant.

Co-applicant

Knut and Alice Wallenberg Foundation (WASP). Industrial PhD project: *Predictive obstacle avoidance for industrial robots acting in dynamically changing environments*. Joint with: Dr Mikael Norrlöf (ABB Robotics). 2021-2025.

Swedish Research Council (VR). *News from a Missing Continent: exploring the world of the earliest tetrapods with synchrotron tomography and machine learning*. Main applicant: Per Ahlberg (Uppsala University). 2021-2024.

Knut and Alice Wallenberg Foundation (WASP). Project: *Deep probabilistic neural networks for survival analysis*. Joint with: Dr David Broman (KTH). 2019-2023.

Australian Research Council (ARC). Project: *Modelling complex dynamic systems from data: flexibility*

meets reliability. Main applicant: Dr Ian Manchester (The University of Sydney). 2019-2022.

Knut and Alice Wallenberg Foundation (WASP). Industrial PhD project: *Real-time image guided radiotherapy*. Joint with: Dr Jens Sjölund (Elekta). 2019-2023.

Swedish Research Council (VR). Research environment: *NewLEADS - New Directions in Learning Dynamical Systems*. Main applicant: Prof Håkan Hjalmarsson (The Royal Institute of Technology). 2017-2022.

Swedish Research Council (VR). Project: *Next generation Monte Carlo algorithms for image synthesis*. Main applicant: Dr Jonas Unger (Linköping University). 2016-2019.

Swedish Research Council (VR). Project: *Mobile human balance evaluation*. Main applicant: Dr Kjartan Halvorsen (Uppsala University). 2016-2019.

Swedish Foundation for Strategic Research (SSF). Project: *Collaborative Unmanned Aircraft Systems (CUAS)*. Main applicant: Prof Patrick Doherty (Linköping University). 2011-2016.

Swedish Research Council (VR). Project: *Extended target tracking*. Main applicant: Prof Fredrik Gustafsson (Linköping University). 2011-2014.

Swedish Research Council (VR). Project: *Control, Autonomy and Decision-making In Complex Systems (CADICS)*, a Linneaus Center. Main applicant: Prof Lennart Ljung (Linköping University). 2008-2018.

Other grants

Centre for Interdisciplinary Mathematics, Uppsala University. Project: *Thematic semester on Sequential Monte Carlo (SMC) methods*. 2017.

Linköping University. Project: *Individual Career grant from the Rector*. 2010-2015.

Invited courses, tutorials and lectures (teaching)

Invited lecturer at the Dept. of Mathematics, KTH Royal Inst. of Techn. Stockholm, Sweden, 2021.

Invited course, "Learning nonlinear dynamical models using sequential Monte Carlo methods", Benelux Meeting for Systems and Control, Elspeet, The Netherlands, 2020.

Invited lecturer (keynote) at the WASP-AI summer school, KTH, Stockholm, Sweden, 2019.

Invited lecturer at the "Gaussian Process Summer School", The University of Sheffield, Sheffield, UK, 2018.

Invited PhD course, "Sequential Monte Carlo methods", Vrije Universiteit Brussel, Brussels, Belgium, 2017.

Invited lecturer in the "Autonomous systems" course of the Wallenberg Autonomous Systems Program (WASP), "Overview of the field of Machine Learning" Stockholm, 2016.

Tutorial, "Learning nonlinear dynamical models using particle filters", the 41st IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, 2016.

Invited PhD course, "Learning nonlinear dynamical models using particle filters", DST group, Department of Defence, Adelaide, Australia, 2015.

Invited lecturer at the Summer school on foundations and advances in stochastic filtering, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Barcelona, Spain, 2015.

Invited lecturer at the Doctoral School on Identification of nonlinear dynamic systems, Vrije Universiteit Brussel, Brussels, Belgium, 2015.

Lecturer at the Machine Learning Summer School, Chalmers University of Technology, Göteborg, Sweden, 2015.

Invited PhD course, "Computational learning in dynamical systems", Universidad Técnica Federico Santa María (UTFSM), Valparaíso, Chile, 2014.

Invited lecturer in the PhD course Advanced Bayesian learning, Linköping university, 2014.

Invited PhD course, "Machine learning", Lund University, Lund, Sweden, 2013.

Invited PhD course, "Computational Inference in dynamical systems", The University of Sydney, Sydney, Australia, 2012.

Invited PhD course, “Computational Inference in dynamical systems”, KTH Royal Institute of Technology, Stockholm, Sweden, 2012.

Invited PhD course, “Computational Inference in dynamical systems”, Vrije Universiteit Brussel, Brussels, Belgium, 2012.

Invited PhD course, “Machine learning”, Lund University, Lund, Sweden, 2011.

Invited lecturer in the PhD course “Least squares estimation and SLAM”, Sapienza University of Rome, Rome, Italy, 2011.

Invited plenary/keynote speaker

The 19th IFAC Symposium on System Identification (SYSID), Padova, Italy, 2021. (Online)

The 48th NORDTEK Conference, Kristiansand, Norway, 2021. (Online)

Swedish operations analysis conference, Nyköping, Sweden, 2019.

Multiscale modelling of materials and molecules, Uppsala, Sweden, 2019.

IFAC Conf. on Modelling, Id. and Control of Nonlinear Systems (MICNON), Guadalajara, Mexico, 2018.

Max Planck ETH Workshop on Learning Control, Zürich, Switzerland. 2018.

European Conf. on Optical Com., Machine Learning in opt. com., Gothenburg, Sweden. 2017.

Workshop on nonlinear system identification benchmarks, Brussels, Belgium, 2016.

Vitalis, Medical imaging workshop, Göteborg, Sweden, 2016.

SIGRAD, Norrköping, Sweden, 2013.

3D Analysis of Human Movement (**H. J. Woltring lecture**) Amsterdam, The Netherlands, 2008.

Invited talks at conferences/workshops

Data-driven modelling and learning for cancer immunotherapy, Lund University, Sweden, May 2022.

One World Signal Processing Seminars, 2021. (Online)

Beijer research day, Swedish Livestock Research Centre, Uppsala, Sweden, 2021.

WASP4ALL 2021, Norrköping, Sweden, 2021. (Online)

Workshop on Machine Learning for e-Science, Stockholm, Sweden, 2021. (Online)

Nordic patient oriented products (NordicPOP) annual meeting, Uppsala, Sweden, 2021. (Online)

Swedish Academic Initiative for Nuclear Technology (SAINT) workshop, 2021. (Online)

Data-driven life science, Uppsala University, Uppsala, Sweden, 2020. (Online)

Mathematics for Complex Data, KTH, Stockholm, Sweden, 2019.

Symposium on Advances in Approximate Bayesian Inference, Montreal, Canada, 2018.

Quantum Chemical Löwdin Lectures, Uppsala University, Sweden, 2018.

LCCC Workshop on Learning and Adaptation for Sensimotory Control, Lund University, Sweden, 2018.

Workshop on Advances in Kernel Methods, The Univeristy of Sheffield, Sheffield, UK, 2018.

SIAM Conference on Uncertainty Quantification, Garden Grove, CA, USA, 2018.

Sydney Control Workshop, Sydney, Australia, 2017.

Workshop on Mathematical Systems Theory and Applications, Newcastle Australia, 2017.

Workshop on learning from a control perspective, Linköping University, Sweden, 2017.

Data analytics workshop, KTH Royal Institute of Technology, Stockholm, Sweden, 2017.

Mathematics in Biology and Medicine, Linköping University, Linköping, Sweden, 2017.

DALI meeting - Data lerning and inference, Tenerife, Canary Islands, 2017.

WASP Machine Learning Day Stockholm, Sweden, 2017.
 The 9th Int. Conf. on Computational and Methodological Statistics, Seville, Spain, 2016.
 ABC Workshop on board, Helsinki-Stockholm, Finland-Sweden, 2016.
 Swedish Symposium on Image Analysis, SSBA, Uppsala, Sweden, 2016.
 The Joint Meeting for Uppsala Statisticians, Uppsala University, Uppsala, Sweden, 2015.
 6th Chinese-Swedish Control Conference, Chengdu, China, 2015.
 2nd Swedish-Israeli Control Conf., Technion - Israel Inst. of Techn., Haifa, Israel, 2014.
 Institut Mittag-Leffler, Mathematical and numerical modelling in finance, Stockholm, Sweden, 2014.
 Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, 2014.
 Workshop of the European Research Network on Sys. Id., Nancy, France, 2013.
 Workshop on Machine Learning for Sys. Id., ICML, Atlanta, GA, USA, 2013.
 Workshop on Sequential Monte Carlo, The University of Warwick, Coventry, UK, 2012.
 Workshop on Complex modeling, Uppsala University, Uppsala, Sweden, 2012.
 Symposium on Robotic Skill Learning, Lund University, Lund, Sweden, 2012.

Invited seminars at universities and museums

Örebro University, Unit of Statistics, Örebro, Sweden, 2020. (Online)
 The diplomatic forum, Uppsala University, Sweden, 2020. (Online)
 Chalmers AI Talks, Chalmers University of Technology, Göteborg, Sweden, 2020. (Online)
 Uppsala University, Department of Peace and Conflict Research, Uppsala, Sweden, 2020.
 University of Cambridge, Department of Engineering, Cambridge, UK, 2020.
 University of Sydney, Sydney Institute for Robotics and Intelligent Systems, Sydney, Australia, 2019.
 University of Newcastle, School of Engineering, Newcastle, Australia, 2019.
 Uppsala University, Department of Medical Sciences, Uppsala, Sweden, 2019.
 University of Stuttgart, Institute für Systemtheorie und Regelungstechnik, Stuttgart, Germany, 2019.
 Chalmers University of Technology, Department of Mathematical Sciences, Göteborg, Sweden, 2018.
 Delft University of Technology, Delft Center for Systems and Control, Delft, The Netherlands, 2018.
 Uppsala University, Department of Mathematics, Uppsala, Sweden, 2018.
 Harvard University, Department of Statistics, Cambridge, MA, USA, 2018.
 University of Potsdam, Institute for Mathematics, Potsdam, Germany, 2018.
 Uppsala University, Department of Statistics, Uppsala, Sweden, 2018.
 Technical University of Denmark, Department of Photonics Engineering, Copenhagen, Denmark, 2017.
 Swedish museum of natural history, Stockholm, Sweden, 2017.
 Lund University, Department of Automatic Control, Lund, Sweden, 2017.
 KTH Royal Institute of Technology, School ICT, Stockholm, Sweden, 2016.
 Shanghai Jiao Tong University, Shanghai, China, 2016.
 University of Newcastle, Newcastle, Australia, 2015.
 University of Sydney, Sydney, Australia, 2015.
 Aalto University, Department of Information and Computer Science, Espoo, Finland, 2015.
 Åland University of Applied Sciences, Mariehamn, Åland Islands, 2014.
 Uppsala university, Forskning för framtid, Uppsala, Sweden, 2014.
 The Hebrew University of Jerusalem, The School of CS and Engineering, Jerusalem, Israel, 2014.
 Linköping University, Division of Automatic Control, Linköping, Sweden, 2014.

Uppsala University, Department of Linguistics and Philology, Uppsala, Sweden, 2014.
 KTH Royal institute of technology, School of Computer Science, Stockholm, Sweden, 2014.
 University of Oxford, Department of Statistics, Oxford, UK, 2014.
 Universidad Técnica Federico Santa María, Department of Elec. Eng. Valparaíso, Chile, 2014.
 Uppsala University, Division of Scientific Computing, Uppsala, Sweden, 2013.
 Lund University, Centre for Mathematical Sciences, Lund, Sweden, 2013.
 Uppsala University, Machine Learning Seminar Series, Uppsala, Sweden, 2013.
 The University of British Columbia, IEEE Vancouver section, Vancouver, Canada, 2013.
 University of Cambridge, Department of Engineering, Cambridge, UK, 2013.
 University of California Santa Barbara, CCDC, Santa Barbara, CA, USA, 2013.
 University of California Berkeley, Department of EECS, Berkeley, CA, USA, 2013.
 Linköping University, Division of Statistics, Linköping, Sweden, 2013.
 University of California Berkeley, Department of EECS, Berkeley, CA, USA, 2012.
 Royal Institute of Technology, Automatic Control Laboratory, Stockholm, Sweden, 2012.
 University of Sydney, Australian Center for Field Robotics (ACFR), Sydney, Australia, 2012.
 University of New South Wales, School of EE and Telecom., Sydney, Australia, 2012.
 University of Newcastle, The School of EECS, Newcastle, Australia, 2012.
 Vrije Universiteit Brussel, Department of Fundamental Elec. and Inst. Brussels, Belgium, 2012.
 Linköping University, Department of Mathematics, Linköping, Sweden, 2012.
 Uppsala University, Division of Systems and Control, Uppsala, Sweden, 2011.
 Lund University, Department of Automatic Control, Lund, Sweden, 2011.
 Sapienza University of Rome, The Department of Computer and System Sciences, Rome, Italy, 2011.
 University of Newcastle, The School of EECS, Newcastle, Australia, 2010.
 Chalmers University of Technology, Department of Signals and Systems, Göteborg, Sweden, 2010.
 Royal Institute of Technology, Centre for Autonomous Systems, Stockholm, Sweden, 2009.
 Fudan University, Department of Electronics Engineering, Shanghai, China, 2009.
 University of Newcastle, The School of EECS, Newcastle, Australia, 2009.
 University of Sydney, Australian Center for Field Robotics (ACFR), Sydney, Australia, 2009.
 Swiss Federal Institute of Technology (ETH), Automatic Control Lab, Zürich, Switzerland, 2008.
 Royal Institute of Technology, Department of Mathematics, Stockholm, Sweden, 2007.
 Chalmers University of Technology, Department of Signals and Systems, Göteborg, Sweden, 2006.
 Lund University, Department of Automatic Control, Lund, Sweden, 2006.
 University of Cambridge, Department of Engineering, Cambridge, UK, 2006.
 University of Newcastle, The School of EECS, Newcastle, Australia, 2005.
 The Institute of Statistical Mathematics, Tokyo, Japan, 2005.

Invited seminars at companies and research institutes

Mitsubishi Electric Research Labs (MERL), Cambridge, MA, USA (Online), 2021.
 Skandinaviska Enskilda Banken (SEB), Stockholm, Sweden (Online), 2021.
 Tobii, Stockholm, Sweden (Online), 2021.
 Peltarion, Stockholm, Sweden, 2020.
 Max Planck Institute for Intelligent Systems, Tübingen, Germany, 2019.
 Skandinaviska Enskilda Banken (SEB), Stockholm, Sweden, 2019.

ABB Corporate Research, Västerås, Sweden, 2018.
 Bosch center for Artificial Intelligence, Renningen, Germany, 2018.
 Max Planck Institute for Intelligent Systems, Tübingen, Germany, 2018.
 Elekta, Stockholm, Sweden, 2018.
 Eriksholm Research Center, Helsingør, Denmark, 2017.
 Swedbank Quantitative Research, Stockholm, Sweden, 2017.
 Nira dynamics, Linköping, Sweden. 2017.
 Swedish Institute for Computer Science, Kista, Sweden, 2017.
 formulate, Stockholm, Sweden, 2016.
 Autoliv Electronics, Linköping, Sweden, 2015.
 Ericsson Research, Stockholm, Sweden, 2014.
 Saab Dynamics, Linköping, Sweden, 2013.
 Sennheiser Research & Innovation, San Francisco, CA, USA, 2013.
 Swedish Defence Research Agency, Linköping, Sweden, 2010.
 Saab Aerosystems, Linköping, Sweden, 2009.
 Xsens Technologies, Enschede, The Netherlands, 2008.
 Autoliv Electronics, Linköping, Sweden, 2008.
 Volvo Technology, Göteborg, Sweden, 2007.
 Fraunhofer Chalmers Research Centre, Göteborg, Sweden, 2006.
 DaimlerChrysler, Research and Technology, Stuttgart, Germany, 2004.

Popular scientific lectures

Uppstalk Weekly, Uppsala, Sweden, October, 2021. (Online)
 Folkuniversitetet, Östersund, Sweden, May, 2021. (Online)
 Royal Society of Sciences at Uppsala, Uppsala, Sweden, 2021. (Online)
 The Diplomatic Forum, Uppsala, December, 2020. (Online)
 Rotary, Uppsala, Sweden, November, 2019.
 Framtidsdagen om AI, beslutsfattande och arbetsliv, Stockholm, September, 2019.
 Samtal kring AI med Karim och Thomas, Uppsala University, February, 2019.
 Understanding the Human Brain — Re-thinking Man and Machine, Geneva, Switzerland, May, 2018.
 Jensen's gymnasium, January, 2018.
 Senioruniversitetet, Uppsala, November, 2014.

Teaching experience at home universities

Lecturer and developer, Advanced Probabilistic Machine Learning (4-5th year, 2 occasions, Uppsala University), 2019-2020.
 Lecturer and developer, Statistical Machine Learning (4-5th year, 4 occasions), 2017-2020.
 Lecturer and examiner, Machine Learning (PhD course, 6 occasions, Uppsala University and Linköping University), 2011, 2013, 2014, 2016, 2018.
 Lecturer, Deep Learning (PhD course), Uppsala University, 2019.
 Lecturer, developer, Sequential Monte Carlo methods (PhD course, 3 occasions), Uppsala University, (2017, 2019 and 2021).

Lecturer and examiner, Automatic Control III (4-5th year, 4 occasions), 2013-2016.

Lecturer and examiner, Digital Signal Processing (4-5th year, 4 occasions), 2009-2012.

Lecturer and examiner, Automatic Control (3rd year, 7 occasions), 2006-2013.

Lecturer, developer and examiner, Dynamic Vision (PhD course, 1 occasion), 2009.

Lecturer and examiner, Linear Feedback Systems (3rd year, 1 occasion), 2009.

Teaching assistant; Digital Signal Processing (4th year, 2 occasions), Automatic Control (3rd year, 9 occasions), Digital Control (3rd year, 3 occasions), Automatic Control - Project Course (4th year, 3 occasions), Matlab Introductory Course, 2000-2005.

Teaching assistant (Swedish: Amanuens) at the Division of Automatic Control, Linköping University, Linköping, Sweden, 2000-2001.

Lab assistant in more than 10 different labs in automatic control and signal processing, 2001-2006.

Supplemental instructor in mathematics. Department of Mathematics, Linköping University, Sweden. August 1997-January 1998.

Developed and improved labs and other course material for several courses at the Division of Automatic Control, Linköping University, Linköping, Sweden, 2000-2013.

Leadership education

The vice chancellor's leadership program *Research and leadership*, designed for research leaders active in large knowledge-intensive environments, 2017.

Entrepreneurial achievements

Owner and co-founder of ConvoFold AB, precision medicine within cardiology, 2016-2021.

Owner and founder of Schön Industrial Mathematics, technical consulting within the areas of machine learning, signal processing, and sensor fusion. Customers include; Saab, Autoliv and Electrolux, 2006-2021.

Supervision

Postdocs

Dominik Baumann (2022-) PhD with Max Planck Institute for Intelligent Systems, Tübingen, Germany.

Çağatay Yıldız (2022-) PhD from Aalto University, Helsinki, Finland.

Antônio Ribeiro (2021-) PhD from Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.

Andreas Lindholm (2018-2020) PhD from Uppsala University, Sweden. Currently: Self-employed consultant within AI/ML, Uppsala, Sweden.

Riccardo Risuleo (2019-2020) PhD from KTH, Sweden. Currently: Machine Learning researcher at Klarna Bank, Stockholm.

Koen Tiels (2018-2020) PhD from Vrije Universiteit Brussel, Belgium. Currently: Assistant Professor at Eindhoven University of Technology, The Netherlands.

Jack Umenberger (2017-2019) PhD from The University of Sydney, Australia. Currently: Postdoc at MIT, Cambridge, MA, USA.

Juozas Vaicenavičius (2017-2019) PhD from Uppsala University, Sweden. Currently: Co-founder Sensmetry, Vilnius, Lithuania.

Jalil Taghia (2017-2019) PhD from KTH, Sweden. Previously at Stanford University, CA, USA. Currently: Researcher at Ericsson Research, Sweden.

Niklas Wahlström (2016-2019) PhD from Linköping University, Sweden. Currently: Assistant Professor at Uppsala University, Sweden.

Lawrence Murray (2016-2018) PhD from Edinburgh University, UK. Previously at Oxford University, UK. Currently: Research Scientist Manager at Uber AI Labs, San Francisco, CA, USA.

Johan Dahlin (2016-2017) PhD from Linköping University, Sweden, industrial Postdoc working together with Sectra. Currently: Founder and head of product at AgriOpt, Stockholm, Sweden.

Current PhD students (as main supervisor)

Bernhard Wullt (previously at Luleå University of Technology, Sweden), industrial, ABB Robotics, since 2021.

Daniel Gedon (previously at Delft University of Technology, The Netherlands), since 2019.

Niklas Gunnarsson (previously at Uppsala University, Sweden), industrial, with Elekta, since 2018.

Fredrik Gustafsson (previously at Linköping University, Sweden), since 2018.

Maria Bänkestad (previously at KTH, Sweden), industrial, with RISE SICS, since 2018.

Carl Jidling (previously at Uppsala University, Sweden), since 2017.

Carl Andersson (previously at Uppsala University, Sweden), since 2016.

Johan Wågberg (previously at Linköping University, Sweden), since 2013.

Current PhD students (as active co-supervisor)

Muhammad Osama (previously at Lahore University of Management Sciences, Pakistan).

Mina Ferizbegovic (previously at University of Sarajevo, Bosnia and Herzegovina, now at KTH Royal Institute of Technology).

Graduated PhD students (as main supervisor)

Christian A. Naesseth (2018). **Machine learning using approximate inference - Variational and sequential Monte Carlo methods.** Currently: Postdoc at Columbia University, New York, NY, USA.

Andreas Svensson (Lindholm) (2018). **Machine learning with state-space models, Gaussian processes and Monte Carlo methods.** Currently: Machine learning research engineer, Annotell, Göteborg, Sweden.

Manon Kok (2017). **Probabilistic modeling for sensor fusion with inertial measurements.** Currently: Assistant Professor at Delft University of Technology, The Netherlands.

Johan Dahlin (2016). **Accelerating Monte Carlo methods for Bayesian inference in dynamical models.** Currently: Founder and head of product at AgriOpt, Stockholm, Sweden.

Liang Dai (2016). **Identification using convexification and recursion.** Currently: Postdoc at Chalmers University of Technology, Sweden.

Fredrik Lindsten (2013). **Particle filters and Markov chains for learning of dynamical systems.** Currently: Associate Professor at Linköping University, Sweden.

Karl Granström (2012). **Extended target tracking using PHD filters.** Currently: Autonomous vehicle perception at Embark trucks, San Francisco, CA, USA.

Jeroen Hol (2011). **Sensor fusion and calibration of inertial sensors, vision, ultra-wideband and GPS** Currently: Senior Sensor Fusion Engineer, DAQRI Holographics, Wien, Austria.

Graduated PhD students (as active co-supervisor)

Jan Kudlicka (2021) **Probabilistic Programming for Birth-Death Models of Evolution.** Currently: Assistant Professor at BI Norwegian Business School, Oslo, Norway.

Antônio Ribeiro (2020) **Learning nonlinear differentiable models for signals and systems: with applications.** Currently: Post-doc at Uppsala University, Sweden.

Niklas Wahlström (2015). **Modeling of magnetic fields and extended objects for localization appli-**

ications. Currently: Assistant Professor at Uppsala University, Sweden.

Martin Skoglund (2015). **Inertial navigation and mapping for autonomous vehicles.** Currently: Postdoc at Linköping University, Sweden.

Zoran Sjanic (2013). **Navigation and mapping for aerial vehicles based on inertial and imaging sensors.** Currently: Engineer at Saab, Sweden.

Christian Lundquist (2011). **Sensor fusion for automotive applications.** Currently: Co-founder and CEO at SenionLab, Sweden.

David Broman (2010). **Meta-languages and semantics for equation-based modeling and simulation.** Currently: Associate Professor at KTH Royal Institute of Technology, Sweden.

David Törnqvist (2008). **Estimation and detection with applications to navigation.** Currently: Co-founder and CTO at SenionLab, Sweden.

Graduated licentiate students

Mina Ferizbegovic (2020). **Robust learning and control of linear dynamical systems,** co-supervisor.

Muhammad Osama (2020). **Machine learning for spatially varying data,** co-supervisor.

Carl Andersson (2019). **Deep learning applied to system identification: A probabilistic perspective.**

Carl Jidling (2019). **Tailoring Gaussian processes for tomographic reconstruction.**

Andreas Svensson (2016). **Learning probabilistic models of dynamical phenomena using particle filters.**

Manon Kok (2014). **Probabilistic modeling for positioning applications using inertial sensors.**

Johan Dahlin (2014). **Sequential Monte Carlo for inference in nonlinear state space models.**

Niklas Wahlström (2013). **Localization using magnetometers and light sensors,** co-supervisor.

Martin Skoglund (2011). **Visual inertial navigation and calibration,** co-supervisor.

Fredrik Lindsten (2011). **Rao-Blackwellised particle methods for inference and identification.**

Karl Granström (2011). **Loop detection and extended target tracking using laser data.**

Zoran Sjanic (2011). **Navigation and SAR auto-focusing in sensor fusion,** co-supervisor.

Christian Lundquist (2009). **Automotive sensor fusion for situation awareness,** co-supervisor.

Jeroen Hol (2008). **Pose estimation and calibration algorithms for vision and inertial sensors,** co-supervisor.

Pre-docs

Fabio Bonassi (September 2021 - December 2021), Politecnico di Milano, Milan, Italy.

Cagatay Yildiz (March 2021 - July 2021, online), Aalto University, Aalto, Finland.

Filip de Roos (October 2019 - December 2019), University of Tübingen, Tübingen, Germany.

Johannes Hendriks (November 2018 - February 2019), The University of Newcastle, Newcastle, Australia.

Antônio Ribeiro (Sep. 2018 - Sep. 2019) Uni. Federal de Minas Gerais, Belo Horizonte, Brazil.

Timothy Rogers (June 2018), University of Sheffield, Sheffield, UK.

Matteo Scandella (September - November, 2017, June 2018), University of Bergamo, Bergamo, Italy.

Tom Jin (May-June, 2017), Warwick University, Warwick, UK.

Koen Tiels (May, 2017), Vrije Universiteit Brussel, Brussels, Belgium.

Jack Umenberger (September, 2016), The University of Sydney, Sydney, Australia.

Hildo Bijl (April - June, 2015), Delft University of Technology, Delft, The Netherlands.

Roger Frigola (April - June, 2013), Machine learning, University of Cambridge, Cambridge, UK.

Graduated MSc students

Supervisor/examiner for more than 65 MSc students, 2003-present.

Expert assignments

Journal services

Associate Editor, IEEE Control Systems, 2019-

Associate Editor for the IFAC journal Automatica, 2015-2019.

Expert reviewer for universities

Expert reviewer, Associate Professor, Machine Learning, Mid Sweden University, Sundsvall, Sweden, 2021.

Expert reviewer, promotion to Professor, University of Sydney, Australia, 2020.

Expert reviewer, Assistant Professor, Machine Learning, KTH, Stockholm, Sweden, 2020.

Expert reviewer, Habilitation à Diriger des Recherches, Université de Pau et des Pays de l'Adour, France, 2019.

Expert reviewer, promotion to Associate Professor, University of Technology Sydney, Australia, 2019.

Expert reviewer, promotion to Professor, University of Newcastle, Australia, 2017.

Expert reviewer, Docent evaluation, Mechatronics, Chalmers Univ. of Techn., Sweden, 2017.

Expert reviewer, Associate Professor evaluation, The Open University of Cyprus, Cyprus, 2017.

Expert reviewer, promotion to Reader, Statistics, University of Warwick, UK, 2016.

Expert reviewer, Docent evaluation, Signal Processing, Royal Institute of Technology, Sweden, 2015.

Expert reviewer, promotion to Associate Professor, Aut. Control, University of Sydney, Australia, 2015.

Expert reviewer, Assistant Professor, Signal Processing, Chalmers Univ. of Tech., Sweden, 2014.

Expert reviewer, promotion to Senior Lecturer, Australian National University, Australia, 2014.

Expert reviewer, evaluation of Senior Lecturer, Cambridge University, UK, 2014.

Expert reviewer for funding agencies

Member of the **Novo Nordisk Foundation** Committee on Interdisciplinary Research, 2021-2024.

Member of the **Swedish Research Council's (VR)** evaluation panel for The Sino-Swedish Joint Research Program, 2021.

Member of **The Royal Swedish Academy of Sciences (KVA)** evaluation panel for Wallenberg Academy Fellow, 2021.

Member of the selection committee for Research2Business, **The Royal Swedish Academy of Engineering Sciences (IVA)**, 2021.

Member of the **Novo Nordisk Foundation** expert Committee for Data Science, 2020.

Vice chairman of the **Swedish Research Council's (VR)** evaluation panel for signals and systems, 2019-2020.

Member of the **Swedish Research Council's (VR)** evaluation panel for international postdocs (science and technology), 2018-2019.

Member of the **Swedish Research Council's (VR)** evaluation panel for signals and systems, 2014-2016.

Various smaller assignments for the Swedish Research Council, Knut and Alice Wallenberg Foundation, European Research Council (ERC), Swiss National Science Foundation, Research Grants Council (RGC) of Hong Kong, and the Israel Science Foundation, 2014 - present.

PhD thesis opponent/external examiner

Opponent, Carl Ringqvist, Mathematics, KTH, Stockholm, Sweden, 2021.
 External examiner, Thiago Burghi, Automatic Control, University of Cambridge, Cambridge, UK, 2020.
 Opponent, Juha Ala-Luhtala, Engineering Sciences, Tampere University of Technology, Finland, 2018.
 Opponent, Ilari Vallivaara, Computer Science, University of Oulu, Finland, 2018.
 External Examiner, Adam J. Hall, Statistics, University of Warwick, Coventry, UK, 2016.
 Examiner, Victor Romero-Cano, Robotics, University of Sydney, Sydney, Australia, 2015.
 External examiner, Enrico Di Lello, Robotics, KU Leuven, Leuven, Belgium, 2014.
 Opponent, Roland Hostettler, Automatic Control, Luleå University of Technology Luleå, Sweden, 2014.
 External examiner, Joseph Hall, Automatic Control, University of Cambridge, Cambridge, UK, 2013.
 Pre-examiner, Jouni Hartikainen, Computational Engineering, Aalto University, Aalto, Finland, 2012.

PhD thesis committee member

Tianfang Zhang, Mathematics, KTH, Stockholm, Sweden, December, 2021.
 Hany Abdulsamad, Technical University in Darmstadt, Darmstadt, Germany, November, 2021.
 Taro Langner, Radiology, Uppsala University, Sweden, September, 2021.
 Vien Van Mai, Automatic Control, KTH, Stockholm, Sweden, August, 2021.
 Dominik Baumann, Automatic Control, KTH, Stockholm, Sweden, December, 2020.
 Mahmoud Shepero, Civil Engineering and Built Environment, Uppsala University, Sweden, September, 2020.
 Judith Butepage, Robotics, KTH, Stockholm, Sweden, September, 2019.
 Markus Eriksson, Signal Processing, Uppsala University, Uppsala, Sweden, May, 2019.
 Fredrik Bagge Carlson, Automatic Control, Lund University, Lund, Sweden, January, 2019.
 Hildo van Bijl, Automatic Control, Delft University of Technology, Delft, The Netherlands, October, 2018.
 Nils Bore, Robotics, KTH, Stockholm, Sweden, January, 2018.
 Johan Wahström, Signal Processing, KTH, Stockholm, Sweden, December, 2017.
 Gabriel Hollander, Automatic Control, Vrije Universiteit Brussel, Brussels, Belgium, October 2017.
 Juozas Vaicenavicius, Mathematics, Uppsala University, Uppsala, Sweden, June, 2017.
 Jonas Hallgren, Mathematics, KTH, Stockholm, Sweden, October, 2016.
 Johannes Andreas Stork, Robotics, KTH, Stockholm, Sweden, June, 2016.
 Marcus Olofsson, Mathematics, Uppsala University, Uppsala, Sweden, May, 2015.
 Christian Larsson, Automatic control, KTH, Stockholm, Sweden, October, 2014.
 Jimmy Azar, Computer Vision, Uppsala University, Uppsala, Sweden, October, 2014.
 Christian Hardmeier, Computational Linguistics, Uppsala University, Uppsala, Sweden, June, 2014.
 Dennis Sundman, Communication theory, KTH, Stockholm, Sweden, May, 2014.
 Yubin Kuang, Mathematics, Lund University, Lund, Sweden, May 2014.
 Ghazaleh Panahandeh, Signal Processing, KTH, Stockholm, Sweden, April 2014.
 Toivo Henningson, Automatic Control, Lund University, Lund, Sweden, December 2012.
 Carl Svård, Vehicular systems, Linköping University, Linköping, Sweden, June 2012.
 Anne Van Mulders, Automatic Control, Vrije Universiteit Brussel, Brussels, Belgium, May 2012.
 Lars Hammarstrand, Signal Processing, Chalmers University of Technology, Göteborg, Sweden, April 2010.

Licentiate thesis discussion leader/opponent

Erik Lindén, Automatic Control, KTH, Stockholm, Sweden, June, 2021.

Rebecca Carney, Physics, Stockholm University, Stockholm, Sweden, June, 2017.

Fredrik Bagge Carlson, Automatic Control, Lund University, Lund, Sweden, March, 2017.

Muhammad A. Yaqoob, Signal processing, Lund University, Lund, Sweden, May, 2016.

Johan Westerborn, Mathematics, KTH, Stockholm, Sweden, June, 2015.

Olov Rosén, Automatic Control, Uppsala University, Uppsala, Sweden, April 2013.

Mohammad Ali, Signal Processing, Chalmers University of Technology, Göteborg, Sweden, May 2010.

Examination committee, half-time seminars

Taro Langner, Radiology, Department of Surgical Sciences, Uppsala University, Uppsala, May, 2020.

Organization of scientific events and scientific committees

Scientific Program Committee (chair), European Research Network System Identification (ERNSI) workshop, Rennes, France, September, 2021.

Organizing committee of the 18th IFAC Symp. on System Ident. (SYSID), Stockholm, Sweden, July, 2018.

Special Sessions chair at the 21st Int. Conf. on Information Fusion (FUSION), Cambridge, UK, July, 2018.

Co-organizer of the workshop on probabilistic programming, Uppsala, Sweden, November, 2017.

Co-organizer of the workshop on sequential Monte Carlo methods, Uppsala, Sweden, August, 2017.

Scientific committee, Workshop on nonlinear system identification benchmarks, Brussels, Belgium, April 2017.

Scientific committee, Workshop on nonlinear system identification benchmarks, Brussels, Belgium, April 2016.

Scientific committee, CIM Workshop on Machine Learning, Uppsala, Sweden, October, 2015.

Co-organizer of the workshop on sequential Monte Carlo methods, Paris, France, August, 2015.

Co-organizer of the OPTEC Workshop on moving horizon est. and sys. id., Leuven, Belgium, August, 2012.

Co-organizer of the Linköping-Freiburg workshop on "Learning world models", Linköping, Sweden, June, 2010.

Organizer of invited sessions at conferences

Co-organizer of session; "Identification of nonlinear benchmark systems" at the 18th IFAC Symposium on System Identification (SYSID), Stockholm, Sweden, July, 2018.

Co-organizer of two invited sessions; "Nonlinear system identification and state estimation using SMC methods 1" and "Nonlinear system identification and state estimation using SMC methods 2" at the 17th IFAC Symposium on System Identification (SYSID), Beijing, China, October, 2015.

Co-organizer of two invited sessions; "Sequential Monte Carlo methods 1" and "Sequential Monte Carlo methods 2" at the 16th IFAC Symposium on System Identification (SYSID), Brussels, Belgium, July, 2012.

Co-organizer of the invited session "Particle filter approaches to estimation and system identification" at the 15th IFAC Symposium on System Identification (SYSID), Saint-Malo, France, July, 2009.

Program committees of international conferences

Member of the Program Committee for the International Conference on Probabilistic Programming (PROBPROG), October, 2021 (online).

Member of the International Program Committee (IPC) of the 19th IFAC Symposium on System Identification – Learning Models for Decision and Control (SYSID), July, 2021 (online).

Member of the program committee for the 3rd Conference on Learning for Dynamics and Control (L4DC), ETH, Zürich, Switzerland, June, 2021.

Technical Associate Editor, IFAC World Congress, Berlin, Germany, 2020.

Member of the program committee for the 2nd Conference on Learning for Dynamics and Control (L4DC), UC Berkeley, Berkeley, CA, USA, June, 2020.

Member of the International Program Committee (IPC) of the 18th IFAC Symposium on System Identification (SYSID) held in Stockholm, Sweden, July, 2018.

Member of the International Program Committee (IPC) of the 17th IFAC Symposium on System Identification (SYSID) held in Beijing, China, October, 2015.

Member of the Technical Program Committee (TPC) of the Eighth International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP) held in Melbourne, Australia, April 2013.

Member of the International Program Committee (IPC) of the 16th IFAC Symposium on System Identification (SYSID) held in Brussels, Belgium, July 2012.

Member of the Technical Program Committee (TPC) of the Seventh International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP) held in Adelaide, Australia, December 2011.

Member of the International Program Committee (IPC) at the 5th European Conference on Mobile Robots (ECMR) held in Örebro, Sweden, September 2011.

Reviewing: journal papers

IEEE Transactions on Signal Processing, Automatica, IEEE Transactions on Automatic Control, IEEE Transactions on Intelligent Transportation Systems, IEEE Signal Processing Letters, International Journal of Robotics Research, Control Engineering Practice, Statistics and Probability Letters.

Reviewing: conference papers

Neural Information Processing Systems (NIPS), International Conference on Machine Learning (ICML), IEEE Conference on Decision and Control (CDC), IFAC World Congress, IFAC Symposium on System Identification (SYSID), American Control Conference (ACC), and IEEE Int. Conf. on Robotics and Automation (ICRA).

External boards and committees

Member of the Executive Committee, The Wallenberg Artificial Intelligence, Autonomous Systems and Software Program (WASP), 2021-present.

Member of the Guild Heads of digital research. The Guild of European research-intensive universities, 2020-present.

Member of the Program Management Group WASP-AI/MLx, The Wallenberg Artificial Intelligence, Autonomous Systems and Software Program (WASP). 2018-present.

Founding member of the IEEE CSS Technical Committee on System Identification and Adaptive Control, 2006-present.

Member of the EURASIP Special Area Team (SAT) on **Signal and data analytics for machine learning**, 2015-2017.

Home university commissions of trust

Scientific leader, AI for Research (the university AI initiative), Uppsala University, 2020-present.

Program responsible Professor, Artificial Intelligence (AI), Uppsala University, 2020-present.

Member of the board, Department of Information Technology, Uppsala University, 2018-present.

Deputy head of division at the Division of Systems and Control, Uppsala University, 2017-2020.

Professor responsible of the research education, Signal Processing, 2016-2020.

Member of the Celsius-Linné committee, Uppsala University, 2016-present.

Member of the Electoral Board (“elektorsförsamlingen”) of the Faculty of Science and Technology, Uppsala University, 2016-present. Vice chairman 2019.

Member of the Election Committee of the Department of Information Technology, Uppsala University, 2015-present.

Deputy member of the Board, The Centre for Interdisciplinary Mathematics (CIM), Uppsala University, 2016-2019.

Deputy member of the Board for the Master of Science in Industrial Engineering and Management program at Linköping University, Sweden and **responsible** for Technical profile – Electrical Engineering, 2008-2013.

Member of the program planning committee for the Master of Science in Industrial Engineering and Management program at Linköping University, Sweden, 2008-2013.

Pedagogical education

Teaching in Higher Education, Step 3a. Research Supervision (4hp), 2009.

Teaching in Higher Education, Step 2. Designing, Evaluating and Organizing Learning (6hp), 2009.

Teaching in Higher Education, Step 1. Learning, Instructing and Knowledge (4hp), 2005.

Languages

Swedish (mother tongue)

English (fluent)

German (intermediate knowledge)