

Curriculum Vitae

Aila Särkkä

Personal Data

Address: Mathematical Sciences
Chalmers University of Technology and University of Gothenburg
SE-412 96 Gothenburg
Sweden

email: aila@chalmers.se

Phone: 46 (0) 31 772 3542

Birth: December 20, 1962, Pirkkala, Finland

Sex: Female

Nationality: Finnish

Languages: Finnish, English, Swedish

Positions

Present Position 1/4/2012 - : Professor (Swedish: Biträdande professor until 31/10 2015 and Professor from 1/11/2015 on) at Chalmers, Mathematical Sciences

1/9/2012-30/6/2012: Visiting scholar at the University of Washington, Dept. of Statistics (on sabbatical)

1/6/1999-31/3/2012: Associate Professor (Swedish: Docent) at Chalmers, Mathematical Sciences

1/1/2003-30/6/2003: 80% Maternity leave

1/9/2000-31/7/2001 and 19/4/2002-31/12/2002: Maternity leave

1/9/1999-31/8/2000: Visiting Assistant Professor at Emory University, Dept. of Biostatistics

1/1/1998-31/5/1999: University Lecturer at Chalmers, Mathematical Sciences

1/11/1996-30/4/1997: Postdoc at University of Western Australia, Dept. of Mathematics

1/8/1995-31/12/1997: Research associate (Swedish: forskarassistent) at the University of Gothenburg, Dept. of Statistics

1/2/1994-31/7/1995: Postdoc at INRA, Avignon, France,
Laboratory of Biometry

Degrees

Docent: Mathematical Statistics, Chalmers University of Technology, 1999.

Docent: Statistics, University of Gothenburg, 1997.

Ph.D. Statistics, Jyväskylä University, 1994.

Dissertation Title: Pseudo-likelihood Approach for Pair
Potential Estimation of Gibbs Processes

Thesis Advisor: Antti Penttinen

Ph.Lic. Applied mathematics, Jyväskylä University, 1989.

M.S. Mathematics, Jyväskylä University, 1988
(including teacher education).

Research Interests

My research areas are spatial statistics and spatio-temporal modeling, especially spatial and spatio-temporal point processes. A lot of my earlier research was on parameter estimation of Gibbs point processes and construction of new models. Currently, I am mainly working on 3D microscopy point pattern data with replicates, where the main challenges are heterogeneity and anisotropy. My main application areas are materials science and neurology.

Fellowships

1994: Academy of Finland
Postdoctoral Fellowship

1995: INRA, Avignon, France
Postdoctoral Fellowship

1996: University of Western Australia
Postdoctoral Fellowship

Special Evaluation Tasks

External reviewer and committee member for the Ph.D. Thesis of Jonatan Andrey Gonzalez Monsalve, University Jaume I, Castelló de la Plana, Spain, 2018

External examiner for the Ph.D. Thesis of Charlotte Jones-Todd, University of St Andrews, UK, 2017

Committee member for the Ph.D. Thesis by Ina Trolle Andersen, Aarhus University, Denmark, 2016

Committee member for the Ph.D. Thesis by Mohammad Ghorbani, Aalborg University, Denmark, 2014

Second opponent for the Ph.D. Thesis by Håkon Toftaker, Norwegian University of Science and Technology, Norway, 2013

Second (outside) reviewer for the Ph.D. Thesis of Na Zhang, University of Kaiserslautern, Germany, 2013

Faculty referee for the Licentiate Thesis of Margareta Häkkinen, University of Helsinki, Finland, 2012

Faculty opponent for the Ph.D. Thesis of Mari Myllymäki, Jyväskylä University, Finland, 2009

Faculty opponent for the Ph.D. Thesis of Ingrid Svensson, Umeå University, Sweden, 2007

External examiner for a Ph.D. Thesis of Carlos Comas, University of Strathclyde, UK, 2005

Faculty referee (Swedish: diskutant) for the Licentiate Thesis of Ingrid Svensson, Umeå University, Sweden, 2004

Faculty referee for the Licentiate Thesis of Salme Kärkkäinen, Jyväskylä University, Finland, 1999.

Member of the evaluation committee of 13 Ph.D. theses in Sweden.

Outside expert for lectureships in mathematical statistics/statistics at Högskolan Skövde in 1999 and 2000, for an associate professorship (Norwegian: førsteamanuensis) in statistics at NTNU in 2005 and 2006, for a lectureship in mathematical statistics at Umeå University in 2009 and 2011, for an associate senior lecturership (Swedish: biträdande lektorat) and a senior lectureship (Swedish: lektorat) in health sciences statistics at the University of Gothenburg in 2013 and 2014, respectively, for a tenure-track position of Assistant Professor in Statistics at the University of Helsinki, Finland, in 2015, for a "docent" application at Lund University in 2015, for an associate professorship (Swedish: universitetslektor) in mathematical statistics at Stockholm University in 2016, for a professorship in Statistics at Umeå University in 2017, and for a promotion to a University lecturer in Statistics at Jyväskylä University in 2017.

Regular referee for papers for statistical and forestry journals

Organizational Work

Member of the program committee of the 30th International Biometric Conference, Seoul, Korea, 2020.

Session organizer at the European meeting of statisticians, Palermo, Italy, 2019.

Member of the program committee of the Nordic-Baltic Biometric conference (NBBC19), Vilnius, Lithuania, 2019.

Co-organizer of the 9th Smögen workshop, Smögen, Sweden, 2018

Member of the program committee of the 27th Nordic Conference on Mathematical Statistics, Tartu, Estonia, 2018.

Member of the local organizing committee and an invited session organizer of the 40th Conference on Stochastic Processes and Their Applications (SPA 2018), Gothenburg, Sweden, 2018

Co-organizer of the Smögen workshop “New challenges in spatial and spatio-temporal modeling”, Smögen, Sweden, 2014

Session organizer at the 11th European Congress of Stereology and Image Analysis, Kaiserslautern, Germany, 2013.

Member of the program committee of the 24th Nordic Conference on Mathematical Statistics, Umeå, Sweden, 2012.

Co-organizer of the initiative seminar “Scientific models”, Chalmers, Sweden, 2010

Co-organizer of the Smögen workshop “Spatial and Spatio-temporal Models in Science, Engineering, and Medicine” Smögen, Sweden, 2010

Session organizer at the 23rd Nordic Conference on Mathematical Statistics, Voss, Norway, 2010

Co-organizer of the Smögen workshop “Random Modelling in Science, Engineering and Medicine”, Smögen, Sweden, 2008

Session organizer at a Bernoulli Society satellite meeting of ISI’2007, Porto, Portugal, 2007

Member of the program committee of “Sonja Kovalevsky-dagarna”, Gothenburg, Sweden, 2006 and 2007

Co-organizer of the Smögen workshop “Spatial and Spatio-temporal Modelling in Biology, Ecology and Geosciences”, Smögen, Sweden, 2006.

Co-organizer of the Smögen workshop “Spatial statistics, image analysis and signal processing within bioscience and technology”, Smögen, Sweden, 2004.

Co-organizer of the session Spatial point processes at the ENAR meeting, Charlotte, North Carolina, USA, 2001.

Co-organizer of the workshop “Image Analysis and Spatial Statistics”, Chalmers, Sweden, 1999.

Organizer for the workshop “Spatial Statistics and GIS”, University of Gothenburg, Sweden, 1997.

Editorial Work

Associate Editor (July 2012–2018) for Scandinavian Journal of Statistics

In the editorial board of Spatial Statistics (March 2015–present)

Associate Editor (January 2016–present) for Journal of the Iranian Statistical Society

Research grants

1999: NFR grant for the project Spatial statistics (main applicant), 600,000 SEK.

2002: Co-applicant for the SSF grant (ramanslag) for the project Spatial statistics and image analysis for environment and health (main applicant Professor Ulla Holst, Lund University), 9,000,000 SEK total.

2003: VR grant for the project Statistical models for the influence of trees on the abundance of understory vegetation species in boreal forests (main applicant), 200,000 SEK.

2005: Coapplicant for the SSF grant for Gothenburg Mathematical Modelling Center (main applicant Professor Holger Rootzen, Chalmers), 22,000,000 SEK total.

2006: VR grant for the project Development of spatio-temporal models for tree growth (main applicant), 1,950,000 SEK.

KVA grants for collaboration with researchers from the former Soviet Union 1998 (30,000 SEK), 2004 (35,000 SEK), 2005 (35,000 SEK), 2006 (30,000 SEK), 2007 (20,000 SEK)

2013: VR grant for the project Spatial statistical methods for detecting small fiber neuropathies (main applicant), 4,660,000 SEK.

2014: SSF grant (Swedish: rambidrag) for the project Material structures seen through microscopes and statistics (main applicant), 21,000,000 SEK

2018: VR grant for the project Extracting information from complicated point patterns (main applicant), 3,200,000 SEK.

Local academic boards and administration

Deputy member of the department board (Swedish: Institutionsrådet), Mathematical sciences, Chalmers, 2001–2004, ordinary member 2005–2008, and deputy member (as the deputy head of the department), 2009–2011 and 2013–present.

Member of the central hiring committee, Chalmers, 2005–2008

Member of the faculty senate (Swedish: Fakultetsrådet), Chalmers, 2008–2011.

Depute head (Swedish: proprefekt) of the department of Mathematical Sciences, Chalmers, 2009–2011 and 2013–present.

Member of the management group of the division of Mathematical statistics, 2011–2012 and 2013–2014.

Member of the management group of the Chalmers SuMo Biomaterials VINN EXCELLENCE centre, 2013–2015.

Statistical consulting center

I was the head of the Center for Applied Mathematics and Statistics (University of Gothenburg and Chalmers) 1/4 2005 - 31/3 2008. The main task of the center is to offer mathematical and statistical consulting for researchers in other fields both in academia and in the industry.

Teaching Experience

- Undergraduate courses: Courses on calculus, problem sessions on probability theory and mathematical statistics (University of Jyväskylä); Course on mathematical statistics, course on probability theory, and basic courses in statistics and probability theory (University of Gothenburg and Chalmers)
- Master level courses: A special course on geometry (University of Jyväskylä); Statistical computing (Emory University); Statistical consulting and Design of experiments (University of Gothenburg and Chalmers)
- Ph.D. courses: Markov random fields and Spatial statistics (University of Gothenburg and Chalmers); Computer intensive methods for zoologists (University of Gothenburg)

Completed Doctoral Student

- 2000 Eric Järpe, University of Gothenburg (coadvisor (Swedish: biträdande handledare) with Marianne Frisé)
- 2004 Sharon Kühlmann-Berenzon, Chalmers University of Technology (main advisor)
- 2005 Mats Kvarnström, Chalmers University of Technology (coadvisor with Mats Rudemo)
- 2005 John Gustafsson, Chalmers University of Technology (coadvisor with Mats Rudemo)
- 2008 Viktor Olsbo, Chalmers University of Technology (main advisor)
- 2011 Ottmar Cronie, Chalmers University of Technology (main advisor)
- 2011 Sofia Tapani, Chalmers University of Technology (coadvisor with Torbjörn Lundh)

2013 Magnus Röding, Chalmers University of Technology (main advisor)

2017 Henrike Häbel, Chalmers University of Technology (main advisor)

2018 Claes Andersson, Chalmers University of Technology (main advisor)

Doctoral Students (not completed)

I am currently the main advisor for one Ph.D. student Marco Longfils who is expected to present his Ph.D. thesis in 2019.

Bachelor and Master Thesis Supervision

2008 1 Bachelor thesis (Swedish: kandidatarbete)

2011 2 Master's theses

2012 1 Master's thesis

2014 3 Master's theses

2015 1 Master's thesis

2016 1 Master's thesis

2017 1 Bachelor thesis

2017 1 Master's thesis

Postdocs

Claudia Lautensack (May-October, 2007)

Mari Myllymäki (August-September, 2010)

Tuomas Rajala (January 2014-December 2015)

Awards

Supervisor of the Year 2016/2017 at Chalmers

Elected member of the Royal Society of Arts and Sciences in Gothenburg, 2017

Elected Member of the International Statistical Institute (ISI), 2018.

Invited lectures at summer and winter schools

2014: Series of four lectures at the 14th Annual Winter School in eScience with the theme Big data challenges to modern statistics, Geilo, Norway

2014: Lecture and practical session on spatial point processes at the summer school Spatio-Temporal Statistics organized by Pan-American Advanced Study Institute, Búzios, RJ, Brazil

Invited conference talks

1995: IUFRO XX world congress, Tampere, Finland

1996: The French-Danish Workshop on Spatial statistics and image analysis in biology, Garchy, France

1998: The French-Danish Workshop on Spatial statistics and image analysis in biology, Sandbjerg, Denmark

1999: SEMSTAT (Séminaire Européen de Statistique Complex Stochastic Systems) meeting, Eindhoven, The Netherlands

1999: The 52nd Session of the International Statistical Institute, Helsinki, Finland (invited discussant)

2000: EURANDOM Workshop on Stochastic Geometry and Spatial Statistics, Eindhoven, The Netherlands

2000: 18th Nordic Conference on Mathematical Statistics (unable to participate)

2003: Symposium: Surveillance and other topics in medical statistics, Gothenburg, Sweden

2006: Miniworkshop on spatial statistics and stochastic geometry, Jyväskylä, Finland

2006: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Skagen, Denmark

2007: Stochastic geometry, spatial statistics and their applications, Schloss Reisensburg, Günzburg, Germany

2007: The First Nordic-Baltic Biometric Conference, Research Centre Foulum, Denmark

2007: Uncovering Hidden Patterns - A Symposium in Honour of Mats Rudemo, Chalmers, Sweden

2007: Probability and Statistics in Science and Technology, a Bernoulli satellite meeting of ISI'2007, Porto Portugal

- 2008: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Toulouse, France
- 2009: The 57th Session of the International Statistical Institute, Durban, South Africa (invited discussant)
- 2010: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Copenhagen, Denmark
- 2010: The 23rd Nordic Conference on Mathematical Statistics, Voss, Norway
- 2010: Symposium in honour of Bo Ranneby, Swedish University of Agricultural Sciences, Umeå, Sweden
- 2012: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Avignon, France
- 2012: Recent advances in spatial and spatio-temporal stochastic modelling, Lund University, Sweden
- 2012: University of Miami Spatial Statistics conference 2012, Miami, Florida, USA
- 2013: Nordic Baltic Biometric conference, Stockholm, Sweden (planary speaker)
- 2013: Symposium in honour of Adrian Baddeley, Aarhus, Denmark
- 2014: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Aalborg, Denmark
- 2015: Annual meeting for FMS (Föreningen för medicinsk statistik), Stockholm, Sweden
- 2016: The 27th Nordic Congress of Mathematicians, Stockholm, Sweden
- 2016: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Rennes, France
- 2016: The 10th Tartu Conference of Multivariate Statistics, Tartu, Estonia
- 2016: Smögen workshop on Spatial and spatio-temporal models, hierarchical modeling and model selection with a focus on the analysis of large and complicated data structures, Smögen, Sweden
- 2016: From nano to macrostructures - design and characterisation of soft materials, Strömstad, Sweden (keynote speaker)
- 2017: Forskning och forskare i skogens utkant, Göteborg, Sweden
- 2017: Soft Microscopy workshop, Göteborg, Sweden
- 2017: Spatial Statistics 2017: One World: One Health, Lancaster, UK (keynote speaker)

- 2017: Challenges in the statistical modeling of stochastic processes for the natural sciences, Banff International Research Station (in honor of Peter Guttorp), Canada
- 2017: 125th IUFRO Anniversary Congress - Cross-boundary modelling in a changing world, Freiburg, Germany
- 2018: Workshop on Can Stochastic geometry handle dynamics of risk management? Lund, Sweden.
- 2018: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Aalborg, Denmark.

Contributed conference talks

- 1990: 13th Nordic conference on mathematical statistics, Odense, Denmark
- 1992: 14th Nordic conference on mathematical statistics, Røros, Norway
- 1993: IUFRO conference Stochastic spatial models in forestry, Thessaloniki, Greece
- 1993: The 5th symposium on biometrical problems in agricultural, forestry and animal investigations, Garpenberg, Sweden
- 1994: 15th Nordic conference on mathematical statistics, Lund, Sweden
- 1995: 21st European meeting of statisticians, Aarhus, Denmark
- 1996: 16th Nordic conference on mathematical statistics, Lahti Finland
- 1998: Spatial and computational statistics workshop, Aussois, France
- 1998: 17th Nordic conference on mathematical statistics, Elsinore, Denmark
- 1998: 22nd European meeting of statisticians, Vilnius, Lithuania
- 1999: Image analysis and spatial statistics, Gothenburg, Sweden
- 1999: 2nd Workshop on Spatial and Computational Statistics, Crete, Greece
- 2001: ENAR meeting, Charlotte, North Carolina, USA (session organizer and speaker).
- 2004: Spatial point process modelling and its applications, Castellón, Spain.
- 2005: Workshop: Spatial Statistics and Image Analysis for Environment and Medicine, Lund, Sweden
- 2006: Internatinal workshop on spatio-temporal modelling (METMA3), Pamplona, Spain
- 2012: The 24th Nordic Conference on Mathematical Statistics, Umeå, Sweden
- 2014: The 25th Nordic Conference on Mathematical Statistics, Turku, Finland

Seminars (outside my own department)

- 1990: Bergakademie Freiberg, Germany
- 1996: Department of Statistics, University of Jyväskylä, Finland
- 1997: Department of Mathematics, University of Western Australia
- 1998: Department of Mathematical Statistics, Lund University
- 1998: Department of Mathematics, University of Jena, Germany
- 1999: Department of Statistics, Rice University, USA
- 1999: Department of Biostatistics, Emory University, Atlanta, USA
- 2001: Department of Statistics and Modelling Science, University of Strathclyde, U.K
- 2002: Astra Zeneca, Göteborg
- 2005: Fraunhofer ITWM, Kaiserslautern, Germany
- 2005: Department of Mathematical statistics, Stockholm University
- 2007: Centre of Biostochastics, Swedish University of Agricultural Sciences, Umeå
- 2009: Department of Mathematics and Statistics, University of Jyväskylä, Finland
- 2009: Department of Mathematics, University of Oslo, Norway
- 2011: Department of Mathematics, University of Kaiserslautern, Germany
- 2011: Department of Statistics, Lund University
- 2013: Department of Statistics, University of Washington, Seattle, USA
- 2013: Laboratory of William R. Kennedy, Department of Neurology, University of Minnesota Medical School, Minneapolis, USA
- 2013: Department of Mathematical Sciences, NTNU, Norway
- 2013: Department of Mathematics, Linköping University
- 2013: Department of Mathematics and Mathematical Statistics, Umeå
- 2014: Department of Mathematics, University of Kaiserslautern, Germany
- 2014: Department of Mathematics and Statistics, University of Cyprus
- 2016: Department of Mathematics, Aarhus University, Denmark
- 2017: School of Mathematics and Statistics, University of St Andrews, UK
- 2017: Department of Economics and Statistics, Linnaeus University