

## Curriculum Vitae

**Aila Särkkä**

### Personal Data

Address: Mathematical Sciences  
Chalmers University of Technology and University of Gothenburg  
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Sweden

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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

1/9/2012-30/6/2013: 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

1/9/1999-31/8/2000: 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

**Leave of absence**

10/8/2023-15/03/2024: Sick leave 75%

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

1/9/2000-31/7/2001 and 19/4/2002-31/12/2002: Maternity leave 100%

**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.

B.Sc. (Swedish: magister): 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, anisotropy, and errors. 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

Faculty opponent for one Ph.D. thesis in Sweden and one in Finland.

Faculty referee for one licentiate thesis in Sweden and two in Finland.

Second reviewer, external reviewer or committee member for two Ph.D. theses in UK, three in Germany, three in Denmark, one in Norway, one in Spain, two in Australia, and one in France.

Member of the evaluation committee of 17 Ph.D. theses in Sweden.

Faculty referee for a Habilitation thesis in Probability and Mathematical Statistics in Czech Republic.

Outside expert for four senior lectureships (Swedish: lektorat) and two "docent" promotions in mathematical statistics, one professorship in mathematical statistics applied to forest sciences and one in forest inventory and sampling, one professorship, two promotions to professor, one to "biträdande" professor, and one "docent" promotion in statistics, one associate senior lectureship (Swedish: biträdande lektorat) and one senior lectureship in health sciences statistics in Sweden. IN addition, one associate professorship and one professorship in statistics in Denmark, two associate professorships (Norwegian: førsteamanuensis) in statistics in Norway, one tenure-track position of assistant professor in statistics, one promotion to a senior lecturer in statistics, and one promotion to full professor in statistics in Finland.

In the evaluation committee for SSF Future Research leaders (Framtidens Forskningsledare) 8 (FFL8), 2021.

Referee for a proposal to the Marsden Fund, New Zealand.

In the committee to evaluate the Master's program in Mathematical statistics (main) and Bachelor's and Master's program in Mathematics (co-) at Lund University, 2023.

Regular referee for papers for statistics and forestry journals.

### Organizational Work

Member of the local organizing committee and an invited session organizer at the 29th Nordic conference in mathematical statistics, Gothenburg, Sweden, 2023.

Invited session organizer at the European meeting of statisticians, Warsaw, Poland, 2023.

Member of the program committee and an invited session organizer at the 2022 IMS International Conference on Statistics and Data Science (ICSIDS), Florence, Italy, 2022.

Session co-organizer (with Radu Stoica) at the 21st annual conference of the International Association for Mathematical Geosciences, Nancy, France, 2022.

Invited session organizer at the 28th Nordic conference in mathematical statistics, Tromsø, Norway, 2021.

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

Invited 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

Invited 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

Invited 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

Invited 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 (April 2023–present) for the Journal of the Royal Statistical Society: Series C (Applied statistics)

Elected Editor in chief (1 of 3) of the Scandinavian journal of Statistics for the period January 2025–December 2027

**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 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 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.

2018: Co-applicant for the VINNOVA project CoSiMa - concept for industrial development for the sustainable soft materials of the future (main applicant Tobias Gebäck, Chalmers), 10,000,000 SEK.

2021: Co-applicant for the VINNOVA project CoSiMa - concept for digitalized development of the sustainable soft materials of the future (main applicant Tobias Gebäck, Chalmers), 10,000,000 SEK.

### Local academic boards and administration

Deputy member of the department board (Swedish: Institutionsrådet), Mathematical sciences, Chalmers and the University of Gothenburg, 2001–2004, ordinary member 2005–2008, and deputy member (as the deputy head of the department), 2009–2011 and 2013–2023.

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

Member of the faculty senate (Swedish: Fakultetsrådet), Chalmers, 2008–2011 and 2023–present.

Deputy head (Swedish: proprefekt) of the department of Mathematical Sciences, Chalmers and the University of Gothenburg, 2009–2011 and 2013–2023.

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.

### Utilization

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 was to offer mathematical and statistical consulting for researchers in other fields both in academia and in the industry.

Member of the Chalmers utilization network (Swedish: institutionernas nyttiggörandenätverk), 2016 - 2018.

Moderator at the panel discussion in connection with the inauguration of the exhibition of Women in Mathematics, 4 April, 2019.

Chalmers impact award 2020 for a project led by Tobias Gebäck.

### Teaching

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, Design of experiments, and Spatial statistics and image analysis (University of Gothenburg and Chalmers), Statistical inference (University of Gothenburg and Chalmers)

Ph.D. courses: Markov random fields (University of Gothenburg); Spatial statistics (University of Gothenburg and Chalmers); Computer intensive methods for zoologists (University of Gothenburg)

Pedagogical education: Chalmers diploma of higher education (15 credits); Chalmers "handledarforum"; Chalmers "Coachande handledarskap"

### **Completed Doctoral Student (main advisor)**

2004 Sharon Kühlmann-Berenzon, Chalmers University of Technology

2008 Viktor Olsbo, Chalmers University of Technology

2011 Ottmar Cronie, Chalmers University of Technology

2013 Magnus Röding, Chalmers University of Technology

2017 Henrike Häbel, Chalmers University of Technology

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

2019 Marco Longfils, Chalmers University of Technology

2024 Konstantinos Konstantinou, Chalmers University of Technology

### **Doctoral Students (not completed)**

I am currently co-advisor for Julia Jansson, who is expected to present her Ph.D. thesis in 2027, and for Ruben Seyer, who is expected to present his Ph.D. thesis in 2028.

### **Bachelor and Master Thesis Supervision**

2008 1 Bachelor's 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's thesis

2017 1 Master's thesis

2019 2 Bachelor's theses  
2020 1 Bachelor's thesis  
2020 1 Master's thesis  
2021 1 Bachelor's thesis  
2022 1 Bachelor's thesis  
2022 3 Master's theses  
2023 2 Bachelor's thesis  
2023 1 Master's thesis  
2024 2 Bachelor's thesis

### **Postdocs**

Claudia Lautensack (May-October, 2007)  
Mari Myllymäki (August-September, 2010)  
Tuomas Rajala (January 2014-December 2015)  
Philip Townsend (November 2018-October 2020)  
Sandra Barman (April 2023-present)

### **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 Reisenburg, 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 Ranney, 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 (plenary 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
- 2014: The 25th Nordic Conference on Mathematical Statistics, Turku, Finland
- 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.
- 2019: SuMo-Treesearch workshop: What are the next steps to achieve sustainable bio-based materials? Gothenburg, Sweden.
- 2019 Point processes in space, time and beyond, Skagen, Denmark.
- 2019 SuMo workshop, Gothenburg, Sweden.
- 2020 3D Tree Models For Forest Dynamics (3DFDYN), Helsinki, Finland (keynote speaker).
- 2022: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, satellite seminar organized by the Finnish Society of Biostatistics, Helsinki, Finland.
- 2022: 10th International Workshop on Spatio-temporal modelling, Lleida, Spain.
- 2023: The French-Danish Workshop on Spatial Statistics and Image Analysis in Biology, Grenoble, France (unable to participate).
- 2023: Euromech Colloquium 632 "Data-driven modeling of porous, composite and polycrystalline microstructures for predicting their mechanical and transport properties ", Ulm, Germany (unable to participate).
- 2023: French Geostatistical Days, Fontainebleau, France (unable to participate).

### **Invited talks on Ph.D. supervision**

- 2019: Conference on teaching and learning (KUL), Chalmers, Gothenburg, Sweden.
- 2019: Course "Supervising research students" (two times), Chalmers, Gothenburg, Sweden.
- 2020: Cramér Society's Autumn meeting.
- 2020: Course "Supervising research students", Chalmers, Gothenburg, Sweden.
- 2021: Course "Supervising research students" (two times), Chalmers, Gothenburg, Sweden.
- 2022: Course "Supervising research students" (two times), Chalmers, Gothenburg, Sweden.
- 2023: Course "Supervising research students", Chalmers, Gothenburg, Sweden.
- 2024: Course "Supervising research students", Chalmers, Gothenburg, Sweden.

**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
- 2007: Workshop: Stochastic Geometry, Spatial Statistics and their Applications, Reisenburg, Germany
- 2007: The first Nordic-Baltic Biometric Conference,
- 2012: The 24th Nordic Conference on Mathematical Statistics, Umeå, Sweden

**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 University
- 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
- 2020: Online Seminar on Spatial and Spatio-temporal Point processes and Beyond (OSSP)
- 2021: Online Seminar, Department of Mathematics, University of Kaiserslautern, Germany

2021: Online Seminar, Department of Mathematics and Statistics, Umeå University

2022: School of Business and Economics, Humboldt University, Berlin, Germany

2023: Online seminar, Hillert Modeling Laboratory, KTH Royal Institute of Technology