

## Personal details and date of CV

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- Date of CV: 2024-05-09

## Degrees

- 2001-12-17, Doctor of Science in Technology (computational science), Helsinki University of Technology, Espoo, Finland, with distinction (top 15%), dissertation topic: Bayesian model assessment and selection
- 1997-10-28, Master of Science (computer science), Helsinki University of Technology, Espoo, Finland, with distinction (top 15%)
- 2006-10-30, Title of Docent: Statistics, University of Helsinki

## Current employment

- 2014–, Professor, Department of Computer Science, Aalto University, Finland

## Previous work experience

- 2012-2019, Research visits (total of 5.5 months), Columbia University, New York, USA
- 2012-2019, Visiting Professor (total of 7 months), Technical University of Denmark, Denmark
- 2013-2014, Senior Researcher, Aalto University, Department of Biomedical Engineering and Computational Science, Finland
- 2008-2013, Academy Research Fellow, Aalto University (former Helsinki University of Technology), Department of Biomedical Engineering and Computational Science
- 2002-2008, Senior Researcher, Helsinki University of Technology, Lab of Computational Eng.
- 1997-2001, Researcher, Helsinki University of Technology, Lab of Computational Engineering
- 1997, Student researcher, Helsinki University of Technology, Lab of Computational Engineering
- 1992-1997, Application specialist, Carelcomp Industria

## Research funding and grants

- 2021-2025, PI of Academy Project funded by Academy of Finland (531 k€)
- 2019- Co-PI and responsible coordinator of research program *Agile probabilistic AI* in Academy of Finland's Flagship *Finnish Center for Artificial Intelligence* (FCAI) (8 269 000 €)
- 2019-2022, Co-PI of Future Makers project funded by Technology Industries of Finland Centennial Foundation and the Jane and Aatos Erkko Foundation (1 000 000 €)
- 2018-2020, PI of Academy Project funded by Academy of Finland (191 081 €)
- 2016-2020, PI of Academy Project funded by Academy of Finland (574 560 €)
- 2008-2013, PI of Academy Research Fellow grant by AoF (own salary + 300 000 €)
- 2009-2012, Co-PI of Academy project funded by Academy of Finland (200 000 €)
- 2009-2010, PI of a project funded by The Ministry of Agriculture and Forestry (220 000 €)
- 2006-2011, Leader of computational health research group in Centre of Excellence in Computational Complex Systems Research, funded by Academy of Finland, Ministry of Education, and Finnish Funding Agency for Technology and Innovation (total funding for CoE about 7 million €)
- 2005-2008, Co-investigator and project manager of a project funded by National Technology Agency of Finland (800 000 €)

## Research output

- Total number of peer reviewed publications: 162
- Three text books (all available also online open access): *Bayesian data analysis*, 3rd ed, 2013, 675 pages, Chapman and Hall/CRC, *Regression and other stories*, 2020, 544 pages, Cambridge University Press, *Active Statistics*, 2024, 361 pages, Cambridge University Press.
- Developed methods implemented in several software packages: Member of the development teams of *Stan* (probabilistic programming language for Bayesian inference, more than 200k users), *loo* (efficient approximate cross-validation), *projpred* (projection predictive variable selection), *posterior* (posterior tools), *priorsense* (prior and likelihood sensitivity diagnostics), and *ArviZ* (exploratory analysis of Bayesian models).
- Many case studies, videos, and a FAQ for Bayesian data analysis and workflow.

## Research supervision and leadership experience

- Primary supervisor for 9 past and 2 current postdocs, 13 graduated and 5 current doc. students
- Secondary supervisor for 12 graduated doc. students
- Primary supervisor for 31 MSc thesis and more than 30 research assistants

## Teaching merits

- 2003–2004, Completed 20 ECTS study module of pedagogical courses for the teaching staff
- Lecturer: Bayesian Data Analysis (Aalto, 2002–, 250+ students; Tech. Uni. of Denmark, 2015–2019, 40+ students; for Global South, 30+ students), Elementary Bayesian Analysis (Uni. of Helsinki, 2007–2008), Lecturer/co-lecturer: Gaussian Processes (Aalto, 2004–),
- All teaching material online as open access (several courses in other universities are based on this material). Co-author of three open access text books widely used in teaching.

## Awards and honours

- 2025, PROSE award in Mathematics and Statistics from The Association of American Publishers for the book “Active Statistics” (Gelman and Vehtari, 2024).
- 2024, 2025 Research.com Mathematics in Finland Leader Award (2025 national ranking 2., world ranking 742.)
- 2020, W. J. Youden Award in Interlaboratory Testing: Bayesian Aggregation of Average Data: An Application in Drug Development (Weber, Gelman, Lee, Betancourt, Vehtari, Racine-Poon)
- 2016, De Groot Prize of the International Society for Bayesian Analysis for the third edition of the book “Bayesian Data Analysis” (Gelman, Carlin, Stern, Dunson, Vehtari and Rubin, 2013) recognizing the influential contribution to genuine application of Bayesian Statistics and of its wide impact on the Bayesian community and on many other disciplines.

## Other key academic merits

*Opponent, pre-examiner, or committee member for doctoral dissertations:*

- Opponent or external examiner for 9 doctoral theses in UK, Norway, Denmark and Finland
- Pre-examiner for 9 doctoral theses in France and Finland
- Dissertation committee member for 3 doctoral theses in USA

*Expert evaluator for tenure track positions:*

- 2017, For a tenure track position in IT University of Copenhagen

*Peer review of funding applications:*

- 2024 European Research Council Consolidator Grant
- 2024 Natural Sciences and Engineering Research Council of Canada Discovery Grant

- 2018–2020 Member of The Royal Soc. Newton Int. Fellowships Committee: Physical Sciences
- 2013 Reviewer for Natural Sciences and Engineering Research Council of Canada, 2013

*Memberships in scientific communities:*

- 2025– Member of Stan governing body
- 2019– Coordinator of research program *Agile probabilistic AI* in Finnish Center for Artificial Intelligence (FCAI)
- 2020– Fellow of European Laboratory for Learning and Intelligent Systems (ellis.eu)
- 2000–2014 Board member of Pattern Recognition Society of Finland

*Memberships in editorial committees and referee for scientific publications:*

- 2015–2019 Associate Editor of *Stat* journal
- Referee for 50+ scientific publications

*Administrative responsibilities:*

- 2019–, Head of Data Sciences BSc programme, Aalto University, Finland
- 2019–, Member of School of Science education management team, Aalto University
- 2015–2019, Chair of Operational information technology steering group, Aalto University
- 2015–2019, Chair of Computer Science department's Information technology steering group,
- 2015–2017, Member of Research Ethics Committee, Aalto University
- 2014–2017, Member of Aalto Science Institute steering group
- 2015–2019, Deputy Member of Degree Programme Committee for Master's Programme in Life Science Technologies, Aalto University

*Invited talks:*

- 24 invited talks in USA, Italy, France, Estonia, India, UK, Denmark, Sweden, Finland, and online
- 3 times invited panelist in Canada, Spain, and Finland

*Organizing scientific conferences:*

- General chair of StanCon 2018 Helsinki, Finland (270 participants)
- Organizing committee member: StanCon 2019 Cambridge, UK (250 part.), 2026 Uppsala, Sweden
- Co-organizer of Gaussian Process Approx. Works., Copenhagen, Denmark (50 part.)
- Senior program committee member: NeurIPS 2014, 2018 (2500 and 8000 part.), AISTATS 2012, 2014, 2016, 2020 (500 part. each year)
- Scientific committee member: BayesComp 2020
- Local organization committee member: BayesComp 2023
- Other tasks such as invited session organizer, reviewer, invited panelist and session chair in several international conferences

**Scientific and societal impact**

- With the group and collaborators developed several model checking, comparison and selection methods, inference diagnostic methods, and approximate inference methods that are implemented in open access scientific software used widely in research and companies.
- Part of development teams of several open source scientific software packages (*Stan*, *loo*, *projpred*, *posterior*, *priorsense*, *ArviZ*) with more than 500K users.
- Developer of Bayesian workflow to improve reliability and reproducibility of science.
- Co-authored three books (*Bayesian data analysis*, 3rd ed, *Regression and Other Stories*, *Active Statistics*), that are available both commercially in print (with tens of thousands copies sold) and as open access online.
- All teaching material and a lot of case study examples online as open access.