

Curriculum Vitae of Nuutti Hyvönen

Contact information

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Personal information

Born November 19, 1977 in Kuopio, Finland. Married to Merja Oja since January 2007.

Language skills

Finnish (mother tongue), English (excellent), Swedish (basic)

Education

Doctor of Science in Technology	June 2004
Department of Engineering Physics and Mathematics, Helsinki University of Technology	
Master of Science in Technology	December 2000
Department of Engineering Physics and Mathematics, Helsinki University of Technology	

Professional experience

Full Professor	1.7.2017 onwards
Dept. of Mathematics and Systems Analysis	
Head of Department since September 2018	
Associate Professor (tenured)	1.12.2012–30.6.2017
Dept. of Mathematics and Systems Analysis	
Head of the Inverse Problems Research Group	
Researcher/Academy Research Fellow	1.1.2010–30.11.2012
Dept. of Mathematics and Systems Analysis	
Head of the Inverse Problems Research Group	
Visiting scholar	1.1.2008–21.12.2008
Department of Mathematics	
Host: Prof. John Sylvester	
Postdoctoral researcher	1.9.2005–31.12.2009
Institute of Mathematics	
Postdoctoral research funded by the Academy of Finland and Tekes	

Publication record

Author of 73 published or accepted articles in peer-reviewed international scientific journals on applied or computational mathematics or related application fields, including *Mathematics of Computation*, *Numerische Mathematik*, *SIAM Journal on Numerical Analysis*, *SIAM Journal on Applied Mathematics*, *SIAM Journal on Scientific Computing*, *SIAM Journal on Mathematical Analysis*, *SIAM Journal on Imaging Sciences*, *Mathematical Models and Methods in Applied Sciences*, *Inverse Problems*, and *Inverse Problems and Imaging*. See <http://users.aalto.fi/nhyvonen/> for more information.

Funding ID

Flagship of Advanced Mathematics for Sensing, Imaging and Modelling, Academy of Finland, January 2024 – April 2028. Role: One of the five Principal Investigators at Aalto University. Funding: 1 275 000 EUR for Aalto University.

Electrical impedance tomography – a novel method for improved diagnostics of stroke, Academy of Finland, January 2024 – December 2025. Role: Principal Investigator of the Aalto University Team. Funding: 83 776 EUR.

New frontiers in Bayesian optimal design for applied inverse problems, Academy of Finland, September 2022 – August 2026. Role: Leader of the consortium and one of the two Principal Investigators. Funding: 449 587 EUR of the total funding of 889 894 EUR.

Electrical impedance tomography – a novel method for improved diagnostics of stroke, Jane and Aatos Erkko Foundation. January 2021 – December 2023. Role: Principal Investigator of the Aalto University team. Funding: Aalto’s share is 242 871 EUR of the total funding 1 328 000 EUR.

Centre of Excellence of Inverse Modelling and Imaging, Academy of Finland, January 2018 – December 2025. Role: One of the Principal Investigators. Funding from the Academy of Finland: 750 290 EUR. Funding from Aalto University: 700 000 EUR shared with the other Aalto PI Antti Hannukainen.

Uncertainty quantification in electrical impedance tomography, Academy of Finland, September 2013 – August 2017. Role: Principal Investigator. Funding: 457 423 EUR.

Starting grant of a tenured Associate Professor, Aalto University, 2013 – 2015. Funding: 150 000 EUR.

Fine-tuning of a realistic measurement model in electrical impedance tomography, Academy of Finland and Deutsche Forschungsgemeinschaft, January 2011 – December 2013. Role: Finnish Principal Investigator. German Principal Investigator: Prof. Andreas Rieder, Karlsruhe Institute of Technology. Funding of the Finnish team: 205 730 EUR.

Inverse problems with incomplete data, Academy of Finland, Academy Research Fellow, August 2010 – November 2012. Funding: 189 230 EUR. Note: the salary for the first 16 months out of the originally granted 60 months — the rest was declined due to a permanent professorship.

Inverse problems with incomplete data, Academy of Finland, research costs of Academy Research Fellow, August 2010 – July 2013. Funding: 216 789 EUR. Role: Principal Investigator.

Diffuse tomography: theory and algorithms, Academy of Finland, January 2007 – December 2009 (postdoctoral project). Role: Principal Investigator. Funding: 180 000 EUR.

Main scientific responsibilities and commissions of trust

Vice Director of the Flagship of Advanced Mathematics for Sensing, Imaging and Modelling (January 2024 onwards).

Member of the board of the Centre of Excellence in Inverse Modelling and Imaging (January 2018 onwards).

Member of the board of the Centre of Excellence in Inverse Problems Research (2009 – 2017).

Member of the board of the Finnish Inverse Problems Society (December 2011 – January 2022).

Advisory Editor for Mathematical Methods in the Applied Sciences (August 2018 – February 2024).

Reviewer for the Swedish Foundation for Strategic Research, Austrian Science Fund, the Czech Science Foundation, Canadian Natural Sciences and Engineering Research Council, and German Research Foundation.

Opponent or (pre-)examiner for 13 doctoral and three licentiate theses.

Evaluator of five docent applications (3 × University of Helsinki, University of Oulu, Tampere University).

Reviewer of about 100 manuscripts for international scientific journals.

Main institutional responsibilities

Head of the Department of Mathematics and Systems Analysis, Aalto University (September 2018 onwards).

Vice Head of the Department of Mathematics and Systems Analysis, Aalto University (January 2017 – September 2018).

Head of the Master’s Programme in Mathematics and Operations Research, Aalto University (2014–2017).

Five times the Chair of a Departmental Tenure Track Recruitment Committee at the Department of Mathematics and Systems Analysis, Aalto University (2014–2015, 2017–2018, 2018, 2020, 2022). Member of four other departmental tenure track recruitment committees at Aalto University.

Six times the Chair of a Departmental Tenure Review Committee at the Department of Mathematics and Systems Analysis, Aalto University (2019, 2020, 2021, 2022, 2023, 2024). Member of five other departmental tenure or full professor review committees at Aalto University.

Member of the Management Team, School of Science, Aalto University (January 2015 onwards).

Member of the Education Management Team, School of Science, Aalto University (January 2015 – December 2022).

Member of the Degree Programme Committee of Engineering Physics and Mathematics/Engineering Physics, Mathematics and Operations Research/Mathematics and Operations Research, School of Science, Aalto University (January 2013 – January 2024). Deputy member (February 2024 onwards).

Member of the Degree Programme Committee of Bachelor's Programme in Science and Technology, School of Science, Aalto University (January 2013 – February 2016 & September 2018 – December 2019). Deputy member (January 2017 – September 2018).

Deputy member of the Academic Affairs Committee, Aalto University (January 2018 – December 2021).

Member of the Academic Committee for Science, School of Science, Aalto University (January 2022 – December 2025).

Deputy member of the Academic Committee for Science, School of Science, Aalto University (January 2014 – December 2021).

Awards and grants

Finnish Inverse Prize, Finnish Inverse Problems Society (FIPS), 2003.

Supervision of thesis projects

Doctoral theses: Lauri Harhanen (2013), Otto Seiskari (2013), Stratos Staboulis (2014), Matti Leinonen (2015), Helle Majander (2016), Lauri Mustonen (2017), Mikael Laaksonen (2018), Valentina Candiani (2021), Topi Kuutela (2023), Juha-Pekka Puska (2024), Pauliina Hirvi (ongoing), Anton Vavilov (ongoing), Markus Hirvensalo (ongoing), Altti Jääskeläinen (ongoing), Aada Hakula (ongoing)

Supervisor and/or advisor for 30 master's theses since 2008.

Teaching experience (Helsinki University of Technology/Aalto University)

Lecturer: Computational (methods in) inverse problems (15 times), Factorization and source support methods for electrical impedance tomography (1), Finite difference methods (3), Computational methods for differential equations (8), Nonlinear Optimization (1), Basic course in mathematics L4 (1, with Juha Kinnunen), Partial Differential Equations (1, with Ioannis Parissis), Lineaarialgebra (1), Matriisilaskenta (7).

Extensive research visits abroad

University of Washington, Department of Mathematics, Seattle, USA, the year 2008. Host: Prof. John Sylvester.

Johannes Gutenberg-Universität Mainz, Institut für Mathematik, Germany, 26.2.–5.4.2007. Host: Prof. Martin Hanke.

Organized conferences, summer schools and special sessions

Finnish Mathematical Days 2024, January 4-5, 2024, Espoo, Finland. Chair of the Scientific Committee & Chair of the Local Organizing Committee.

Mathematics of Electrical Imaging: Modeling, Theory and Implementation, June 12-14, 2023, Toulouse, France. One of the four main organizers together with Jérémie Dardé, Jérémy Heleine, Lisl Weynans.

28th Nordic Congress of Mathematicians, August 18-21, 2022, Espoo, Finland. Chair of the Local Organizing Committee.

24th Inverse Days, December 11–13, 2018, Helsinki, Finland. One of the four main organizers together with Tatiana Bubba, Valentina Candiani and Antti Hannukainen.

Distinguished Lectures on Inverse problems, August 4-8, 2014, Helsinki, Finland. Member of the Scientific Committee.

Summer School on Computational Solution of Inverse Problems (with Samuli Siltanen, Matti Määttä and Terhi Hautala), Helsinki, Finland, June 2010.

13 co-organized special sessions and minisymposia at international conferences.

Talks at international conferences and workshops

24 invited talks, 41 invited talks at special sessions and minisymposia, 10 other talks.