02 June, 2025

Curriculum Vitae

PERSONAL INFORMATION

Family name, First name: Hauptmann, Andreas

Researcher unique identifier(s): (ORCID) 0000-0002-3756-8121; (SCOPUS) 56180904900

Date of birth: 26.05.1987

Nationality: German

Web site: www.hauptmann-research.net

• DEGREES

2022 Docentship in the field of Medical Imaging: Image Reconstruction
Research Unit of Medical Imaging, Physics and Technology, Faculty of Medicine, University of Oulu, Finland.

2017 PhD in Applied Mathematics
Department of Mathematics and Statistics, University of Helsinki, Finland.
Thesis: *Advances in D-bar methods for partial boundary data electrical impedance tomography*. Supervisor: Samuli Siltanen

2012 MSc in Mathematics (Passed with distinction)
Department of Mathematics, Technical University of Munich, Germany.
Thesis: *Local computerized tomography and total variation regularization.*

• LANGUAGE SKILLS

German	native speaker	English	C2 – self-assessed
Finnish	A1 – self-assessed	Japanese	A1 – self-assessed

• CURRENT POSITIONS

2021 – 2026 (Primary) Academy Research Fellow,
Research Unit of Mathematical Sciences, University of Oulu, Finland

2022 – 2027 (Secondary) Associate Professor (tenure track) of Computational Mathematics and Inverse Problems, Research Unit of Mathematical Sciences, University of Oulu, Finland

2023 – 2027 Honorary Associate Professor,
Department of Computer Science, University College London, United Kingdom

• PREVIOUS POSITIONS

2019 – 2022 Assistant Professor (tenure track) of Computational Mathematics and Inverse Problems
Research Unit of Mathematical Sciences, University of Oulu, Finland

2019 – 2023 Research Associate, (0.1 FTE)
Department of Computer Science, University College London, United Kingdom

2017 – 2019 Research Associate, (1 FTE)
Department of Computer Science, University College London, United Kingdom

2015 – 2017 Doctoral student, (1 FTE)
Department of Mathematics and Statistics, University of Helsinki, Finland.

2013 – 2014 R&D Scientist, (1 FTE)
Oy Ajat Ltd. (now part of Direct Conversion), Espoo, Finland.
Development of reconstruction and image processing algorithms for dental X-ray imaging

• RECENT FUNDING AND GRANTS

2024 – 2031 Research Council of Finland, member of management group, Flagship of Advanced Mathematics for Sensing, Imaging and Modelling (FAME), (355k€, 2024-2027). Additional institutional support from University of Oulu (132k€).

2024-2028 Finnish Ministry of Education and Culture, partner PI, Doctoral Education Pilot for Mathematics of Sensing, Imaging and Modelling (DREAM), (650k€).

2024 Scholar in Residence funding by Digital Futures, KTH Royal Institute of Technology,

travel funding for 3 month research visit. (81k SEK/~7k€)

2022 Research in Groups, ICMS Edinburgh for a 2 week stay with Simon Arridge, Carola-Bibiane Schönlieb, and Ozan Öktem. (~10k£).

2021 – 2026 Research Council of Finland, PI, Academy Research Fellow (873k€)
Project title: *Accurate Imaging with sound and light (AI-SOL)*

2018 – 2025 Research Council of Finland, Partner PI, Centre of Excellence in Inverse Modelling and Imaging, (803k€). Funding for 2018-2020 inherited, due to retirement.
Additional institutional support from University of Oulu (140k€).

2020 – 2022 Research Council of Finland, Partner PI, Tandem Forest Values II (119k€).
Project title: *Sawing Optimization via Deep Learning and Multi-instrument Imaging*

- **RESEARCH OUTPUT**

54 published/accepted peer-reviewed scientific articles.
Keynotes, Colloquium, and other important talks: 7
Invited presentations (Conferences, workshops, seminars): 60+
Most important recent invited talks:

- Biomedical and Astronomical Signal Processing (BASP) Frontiers conference, Villars-sur-Ollon, Switzerland. (2025)
- Workshop on Deep Learning for PDE-based Inverse Problems, Mathematisches Forschungsinstitut Oberwolfach, Germany. (2024)
- Chemnitz Symposium on Inverse Problems, Julius-Maximilians-Universität Würzburg, Germany. (2023)
- ISMRM Workshop on Data Sampling & Image Reconstruction, Sedona, USA. (2023)
- Mathematics of Deep Learning workshop: Deep learning and inverse problems, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom. (2021)
- American Association of Physicists in Medicine (AAPM) Annual Meeting 2019, San Antonio, Texas, USA. (2019)

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

I am group leader of the computational mathematics and inverse problems group at the Research Unit of Mathematical Sciences, Oulu University, with a total of 6 PhD students, 2 postdocs, and 2 Professors.

Current supervision: At Research Unit of Mathematical Sciences, University of Oulu, Finland.
1 Postdoc: Santeri Kaupinmäki
5 PhD students: Emile Vaysse (2025), Bradley Kearn (2025), Antti Sällinen (2024), Hanna Pulkkinen (2022), Anssi Manninen (2021)

Co-supervisor: Simo Heikkinen (2025/UEF), Adeiza Anumah (2025/UH), Mansoure Giahi Sabour (2025/UO)

2024 MSc Antti Sällinen, MSc Vili Pelttari

2023 PhD Arttu Arjas, MSc Iina Leppänen

2018 2 MSc students: Won Tek Hong, Bartlomiej Dybisz
Department of Computer Science, University College London, United Kingdom

- **RECENT TEACHING ACTIVITIES**

Current Lecturer of regular courses: “Introduction to Inverse Problems”, “Computational Inverse problems”, “Mathematics of Imaging and Vision”, and “Principles of Deep Learning”. Research Unit of Mathematical Sciences, University of Oulu, Finland.

2025 Lecturer at international Ph.D. Summer School “Mathematics and Machine Learning for Image Analysis”, University of Bologna, Italy.

2023 Organiser and lecturer of Autumn School “Solving Inverse Problems with Deep Learning”, Jesus College, Cambridge, UK.

2021 Lecturer in a collaborative short course on “Computed tomography - from basic research to medical and industrial applications”, Research Unit of Medical Imaging, Physics and Technology in the Faculty of Medicine, University of Oulu.

- **AWARDS**

2022 (3rd prize) Best Paper Award of IEEE Finland Jt. Chapter SP/CAS years 2020-22: A. Hauptmann, J. Adler, S. Arridge and O. Öktem, "Multi-Scale Learned Iterative Reconstruction." *IEEE Transactions on Computational Imaging*.

2019 Editor's pick for paper: A. Hauptmann et al., "Real-time cardiovascular MR with spatio-temporal artifact suppression using deep learning-proof of concept in congenital heart disease." *Magnetic Resonance in Medicine*.

2017 Finnish Inverse Prize (Dissertation Prize), Finnish Inverse Problems Society, Finland.

- **ORGANISATION OF SCIENTIFIC MEETINGS**

2024 Chair of organisation committee, 30th Inverse Days, Oulu, Finland.

2024 Scientific organisation committee, Finland-Japan Workshop in Industrial and Applied Mathematics, Helsinki, Finland.

2020 Program chair, 30th IEEE International Workshop on Machine Learning for Signal Processing (MLSP 2020), Aalto university, Espoo, Finland. (Virtual)

2015 Member of local organisation committee, Applied Inverse Problems 2015, University of Helsinki, Finland.

- **IMPORTANT INSTITUTIONAL RESPONSIBILITIES**

2024 – Member of Management group, FAME – Flagship of Advanced Mathematics for Sensing, Imaging and Modelling.

2024 – 2027 Responsible coordinator at University of Oulu for Doctoral Education Pilot for Mathematics of Sensing, Imaging and Modelling (DREAM).

2024 Recruitment committee (chair), tenure track position in applied mathematics, Research Unit of Mathematical Sciences, University of Oulu, Finland.

2022 – PhD follow-up group: Hui Zhang (chair), University of Oulu, Finland.

2020 – 2022 PhD committee member, Billy Herzberg, Department of Mathematical and Statistical Sciences, Marquette University, USA.

2020 Recruitment committee, HiDyn Tenure track position, Research Unit of mathematical Sciences, University of Oulu, Finland.

- **REVIEWING ACTIVITIES**

I have performed over 100 peer-reviews, most frequently for: IEEE Transactions on Medical Imaging, IEEE Transactions on Computational Imaging, Inverse Problems.

2025 PhD thesis: Maximilian Kiss, Leiden University, Netherlands.
PhD thesis: Romain Vo, École des Mines Paris, France.

2024 Grant review for Linz Institute of Technology (LIT) and Czech Science Foundation.

2023 PhD thesis: Jalo Nousiainen, Lappeenranta-Lahti University of Technology LUT, Finland.
PhD thesis: Margaret Duff, University of Bath, UK.
Tenure evaluation: Dominik Jüstel, Helmholtz Zentrum München, Germany.

2022 PhD thesis: Maximilian Schmidt, University of Bremen, Germany.
PhD thesis: Billy Herzberg, Marquette University, USA.

- **EDITORIAL DUTIES**

2025 – Editorial Board Member, Associate Editor, *SIAM Journal on Imaging Sciences* (SIIMS).

2023 – Editorial Board Member, Associate Editor, *IEEE Transactions on Computational Imaging*.

2023 – Editorial Board Member for AIMS journal *Applied Mathematics for Modern Challenges*.

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

2022 – 2026 Nuorten Tiedeakatemia - Young Academy Finland, elected member (4-year term).

2020 – IEEE, Senior Member;
Member of Signal Processing Society, Engineering in Medicine & Biology Society

2015 – Society for Industrial and Applied Mathematics, Early Career Member

2013 – Finnish Inverse Problems Society, Board Member (since 2021)