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**
  50 published/accepted peer-reviewed scientific articles.
  Keynotes, Colloquium, and other important talks: 6
  Invited presentations (Conferences, workshops, seminars): 60+
  Most important recent <u>invited</u> talks:
    - Chemnitz Symposium on Inverse Problems, Julius-Maximilians-Universität Würzburg, Germany. (2023)
    - Biomedical and Astronomical Signal Processing (BASP) Frontiers conference, Villars-sur-Ollon, Switzerland. (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)
    - Workshop on Deep Learning for Inverse problems, Mathematisches Forschungsinstitut Oberwolfach, Germany. (2021/virtual)
    - 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 in the Research Unit of Mathematical Sciences, Oulu University, with 2 PhD students, 2 postdocs, 1 MSc students and 2 Professors (with emeritus Prof. Valery Serov).

Current   At Research Unit of Mathematical Sciences, University of Oulu, Finland.
1 Postdoc: Santeri Kaupinmäki
3 PhD students: Antti Sällinen (2024), Hanna Pulkkinen (2022), Anssi Manninen (2021)

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.

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

2020 –   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 – 2022   Organiser and founder of research seminar "Computational Mathematics and Statistics", Research Unit of Mathematical Sciences, University of Oulu, Finland.

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

2015 – 2017   Organiser research seminar "Inverse Problems", Department of Mathematics and Statistics, University of Helsinki, 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.

2024   Grant review for Linz Institute of Technology (LIT).

2023   PhD thesis: Jalo Nousiainen, Lappeenranta-Lahti University of Technology LUT, Finland.
      PhD thesis: Margaret Duff, University of Bath, UK.

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

- **EDITORIAL DUTIES**

2024   Special issue editor for "Kuopio Tomography Challenge 2023" for AIMS journal *Applied Mathematics for Modern Challenges*.

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

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

2023   Guest Editor for special issue in Inverse Problems on "Inverse Problems in Civil, Mechanical and Aerospace Engineering".

2021   Guest Editor for special issue for MLSP 2020 in the Journal of Signal Processing Systems (Springer).

- **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)