Personal details and date of CV

Name: Sampsa Tapio Pursiainen,
ORCID: 0000-0002-9131-9070,
Date of CV: June 4th, 2025,
Date of Birth: 27/04/1978,
Place of Birth: Espoo, Finland,
Nationality: Finnish,
Language Skills: Finnish (Mother tongue), English (Fluent), Swedish,
Affiliation: Mathematics Research Center, Tampere University (TAU),
Address: Korkeakoulunkatu 1, 33720 Tampere, Finland,
Email: sampsa.pursiainen@tuni.fi,
Web: LinkedIn Profile, Research Group Page

Degrees

- 2009: PhD (Eng.), Institute of Mathematics, Helsinki University of Technology, Finland.
- 2003: Master of Science, Institute of Mathematics, Helsinki University of Technology, Finland.
- 2015–Present: Docent (Adjunct Professor), Applied Mathematics, Department of Mathematics and Systems Analysis, Aalto University, Finland.

Current employment

- 2022–Present: Professor (Applied Mathematics), Mathematics, TAU, Finland

Previous work experience

- 2019–2022: Associate Professor (Tenure Track), Mathematics, TAU, Finland.
- 2015–2018: Assistant Professor (Tenure Track), Department of Mathematics, Tampere University of Technology (TUT), Finland.
- 2012–2015: Postdoctoral Researcher, Research Council of Finland, Department of Mathematics and Systems Analysis, Aalto University, Finland.
- 2012: Postdoctoral Researcher, Department of Mathematics, TUT, Finland.
- 2011–2012: Postdoctoral Researcher, Department of Mathematics and Systems Analysis, Aalto University, Finland.

Research funding and grants

- 2011–2024: Total personal project funding received from RCF: EUR 2.139.149 (12 accepted projects).
- 2024–2031: PI, Team Leader, the Research Council of Finland Flagship of Advanced Mathematics for Sensing, Imaging and Modelling, FAME (RCF, 359185).
- 2024–2027: PI in the Ministry of Education and Culture, Finland, Doctoral Education Pilot for Mathematics of Sensing, Imaging and Modelling (VN/3137/2024-OKM-6).
- 2024–2026: PI in RCF project, Exploratory Study for Radar Tomography of Dimorphos–the Asteroid Moon of 65803 Didymos (359198).
- 2023–2024: PI in RCF researcher exchange project, Non-invasively reconstructing and inhibiting activity in focal epilepsy (DAAD/RCF, 354976).
- 2021–2023: PI in RCF (Era PerMed JTC2020) Project, Personalised diagnosis and treatment for refractory focal paediatric and adult epilepsy, PerEpi (RCF, 344712).
- 2021–2023: PI in RCF ICT2023 Project, FETD-Based Tomographic Full-Wave Radar Imaging of Small Solar System Body Interiors (RCF, 336151).
- 2021–2026: PI in TAU Imaging Platform, Part of PROFI6 Profiling Funding by RCF.
- 2020–2022: PI in RCF researcher exchange project, Reconstructing Somatosensory Network

Connectivity with Advanced Bayesian Imaging and Finite Element Computations (DAAD/RCF, 334465).
- 2018–2025: PI, Team Leader, RCF Centre of Excellence in Modelling and Imaging (312341, 336792, 326590).
- 2018–2020: PI in RCF researcher exchange project, Advancing Finite Element Computations for Reconstructing and Manipulating the Human Somatosensory Cortex (DAAD/RCF, 317165).
- 2016–2018: RCF Key Project (305055), Department of Mathematics, TUT.
- 2012–2015: Postdoctoral Researcher, Combining finite element and Bayesian techniques in EEG and MEG imaging of the brain (RCF, 257288).
- 2018–2024: Funding admitted to supervised researchers exceeds EUR 200,000 from various Finnish Foundations.

Research output

- 63 peer-reviewed scientific journal publications, >1136 citations, h-index 18, i10-index 32.
- Fields of Research: Applied Mathematics, Biomedical Engineering, Medical Imaging, Neuroscience, Inverse Problems, Imaging Sciences, Planetary Science, Astrophysics.
- Significant methods published as open-source code projects on GitHub, for example:
  - Zeffiro Interface, a tool for modeling and inverting electromagnetic fields in the brain.
- Data repositories under providers like Zenodo.

Research supervision and leadership experience

- Current primary supervisor of 4 Doctoral Researchers and 2 Postdoctoral Researchers.
- Supervisor of 6 completed PhD Dissertations.
- Primarily supervised doctoral and postdoctoral researchers.
  - 2018–Present: Dr. Alexandra Koulouri, PhD, Postdoctoral Researcher, TAU.
  - 2022–Present: Dr. Maryam Samavaki, PhD, Postdoctoral Researcher, TAU.
  - 2022–Present: Santtu Söderholm, MSc, Doctoral Student, TAU.
  - 2021–Present: Fernando Galaz Prieto, MSc, Doctoral Student, TAU.
  - 2024–Present: Dilshanie Prasikala Wanni Achchi Kankanamge, MSc, Doctoral Student, TAU.
  - 2020–2025: Joonas Lahtinen, MSc, Doctoral Student, TAU.
  - 2021–2024: Yusuf Oluwatoki Yusuf, MSc, Doctoral Student, TAU.
  - 2017–2022: Atena Rezaei, PhD (Eng.), Doctoral Student, TUT.
  - 2016–2020: Mika Takala, MSc, Doctoral Student, TAU.
- Supervised Master's Theses 2015–Present: Dilshanie Prasikala Wanni Achchi Kankanamge, Fernando Galaz Prieto, Lari Kuuppo, Qin He, and > 10 others.
- Grants admitted to supervised students include funding from: Väisälä Foundation, Jenny and Antti Wihuri Foundation, Alfred Kordelin Foundation, Emil Aaltonen Foundation, Finnish Academy of Sciences and Letters, Academy of Finland.
- PI in Finnish Centre of Excellence in Inverse Modelling and Imaging, Research Council of Finland, 2018–2025.
- PI in Finnish Flagship of Advanced Mathematics for Sensing, Imaging, and Modelling, Research Council of Finland, 2024–2031.
- PI in Ministry of Education and Culture, Finland, Doctoral Education Pilot for Mathematics of Sensing, Imaging and Modelling, 2024–2027.
- PI in 3 individual research projects and 1 ERA-NET PerMed project funded by the Research Council of Finland, 2016–2024.

Teaching merits

I have acted as a teacher on university-level mathematics courses since 2001. My recent teaching activity includes the following courses:

- 2023: Lecturer, MATH.APP.730 Inverse Problems, TAU.
- 2024: Lecturer, MATH.APP.460 Numerical Analysis, TAU.
- 2024: Lecturer, MATH.MA.160 Differential and Integral Calculus, TAU.
- 2023: Lecturer, MATH.APP.460 Numerical Analysis, TAU.
- 2023: Lecturer, MATH.APP.730 Inverse Problems, TAU.
- 2023: Lecturer, MATH.MA.160 Differential and Integral Calculus, TAU.
- 2022: Lecturer, MATH.APP.460 Numerical Analysis, TAU.
- 2021: Lecturer, MATH.APP.730 Inverse Problems, TAU.
- 2020: Lecturer, MATH.MA.160 Differential and Integral Calculus, TAU.
- 2020: Lecturer, MAT-01366 Mathematics 3, TAU.
- 2019: Lecturer, MAT-68007 Topics in Mathematics: Math & Modeling Seminar, TAU.

Other key academic merits

- 2024: Pre-Examiner of doctoral dissertation, Candidate: Dr. Tomi Saleva, University of Eastern Finland, Joensuu, Finland.
- 2024: Evaluator of Habilitation Thesis, Candidate: Dr. Johannes Vorwerk, UMIT Tirol, University, Innsbruck, Austria.
- 2023: External member of the doctoral dissertation board for Astrid Dufaure's dissertation, Supervisor: Prof. Christelle Eyraud, Aix-Marseille University, France.
- 2020: Evaluation board member for Dr. Oriane Gassot's doctoral dissertation, Supervisor: Prof. Alain Hérique, Grenoble Alpes University, France.
- 2021: Evaluator for Title of Docent, Candidate: Dr. Martin Simon, LUT University, Finland.
- 2020: Research grant evaluator for Finnish Cultural Foundation's Pirkanmaa Regional Fund.
- 2022–2023: Member of Neurocenter Finland's steering group and activity group.
- 2022–2025: Panel 1 (Mathematics) member in Publication Forum JUFO.
- 2022–Present: Involved in ESA's HERA mission workgroups focusing on radar modeling.
- 2019–Present: External member in the Faculty Board of the Faculty of Engineering and Natural Sciences, TAU.
- 2021: Visiting Professor at Institut Fresnel, Aix-Marseille University, France.
- 2021: Organizer of Inverse Days 2021, an international conference and the annual meeting of the Finnish Inverse Problems Society.
- 2022: Scientific Organizing Committee member for Finnish Mathematical Days 2022.
- 2003–Present: Member, Finnish Inverse Problems Society (FIPS).
- 2015–Present: Member, Finnish Mathematical Society.

Scientific and societal impact

My research impacts both mathematical methods and their applications. I promote open science by publishing in open-access journals and providing preprints when allowed by journal policies. I share significant computing codes and scripts on platforms like GitHub and Zenodo. An example is the Zeffiro Interface (ZI), a tool for modeling and inverting electromagnetic fields in the brain, which is available as both an article and a code package. ZI includes open-source codes and algorithms from various projects. The societal impact of my work is evident in its contributions to space science, exploration, healthcare, and the field of Inverse Problem Mathematics.