

Curriculum Vitae / Ville Kolehmainen

Personal details and date of CV

- Kolehmainen
- Ville Petteri
- ORCID: <https://orcid.org/0000-0002-5621-795X>, Research ID: [K-1963-2012](https://orcid.org/0000-0002-5621-795X)
- Date of CV: 30 August 2024

Degrees

- Docent, title of docent: *Inverse problems in medicine*. University of Kuopio, Finland. October 2004
- Ph.D. University of Kuopio, Finland. Major subject: Medical physics. June 2001.
- M.Sc. University of Kuopio, Finland. Major subject: Medical physics. February 1997.

Current position

- Professor (Computational physics, especially inverse problems). University of Eastern Finland, Kuopio, Finland. January 2016 →. (Vice head of the Department of Technical Physics, 2022 →)

Previous work experience

- Associate Professor (tenure track), University of Eastern Finland, Kuopio. January 2013 – December 2015.
- Researcher, University of Eastern Finland, August 2012 – December 2012.
- Academy Research Fellow, Academy of Finland. August 2007 – July 2012
- Post-doctoral researcher, University of Kuopio. May 2001 – August 2006.
- Assistant (PhD student), University of Kuopio, January 1997 – April 2001.

Research funding

- Academy of Finland. 2003-2005. 100000€. "*Statistical inversion in 3D X-ray imaging*". Postdoctoral research project. role: PI
- Academy of Finland. 2003-2005. 104600€. "*Statistical inversion methods for 3D medical imaging*". Postdoctoral research project. role: PI
- PaloDex Group Oy/National Technology Agency of Finland (TEKES). 2005-2007. 493000€. "*Three-dimensional dental imaging with limited data*". Collaboration project with industry. role: PI
- Academy of Finland, 2007-2010. 186000€. "*Statistical inversion methods for three-dimensional medical imaging*". Academy Research Fellow / appropriation for research costs. role: PI
- Academy of Finland, 2010-2012. 172140€. "*Statistical inversion methods for three-dimensional medical imaging*". Academy Research Fellow / Research post. role: PI
- Academy of Finland, 2010-2012, 104000€. "*Statistical inversion methods for three-dimensional medical imaging*". Academy Research Fellow / appropriation for research costs. role: PI
- Jane ja Aatos Erkon säätiö. 2017-2019. 400000€. "*Stroke classification and monitoring using Electrical Impedance Tomography*". One of the PIs of a consortium project with University of Helsinki (Prof. Samuli Siltanen) and Tampere University of Technology (Prof. Jari Hyttinen). Total consortium budget 950000€.
- Academy of Finland, Centre of Excellence Program 2018-2025. "Centre of Excellence of Inverse Modelling and Imaging". Share of the consortium funding 118000€ for 2018-2020. role: One of the PIs in a consortium.
- Jane ja Aatos Erkon säätiö. 2021-2023. 387000€ "*Electrical Impedance Tomography – a novel method for improved diagnostics of stroke*". PI of consortium project with University of Helsinki (Prof. Samuli Siltanen), Aalto University (Prof. Nuutti Hyvönen), Helsinki University Hospital (Dr.

Nina Forss) and Tampere University of Technology (Prof. Jari Hyttinen). Total consortium budget 1328000€.

- European Space Agency (ESA). Post-Process Correction of satellite data products with New machine learning based approach. 2020-2021. 70000€. Consortium project with Finnish Meteorological Institute (Dr. Antti Lipponen). Total budget 150000€. role: One of the PIs in a consortium.
- Academy of Finland, Centre of Excellence Program 2018-2025. "Centre of Excellence of Inverse Modelling and Imaging". Share of the consortium funding 135000€ for 2021-2022. One of the PIs in a consortium
- European Space Agency (ESA). Novel computational methods for reliable satellite-based air quality data. 2022-2023. 75000€. Consortium project with Finnish Meteorological Institute (Dr. Antti Lipponen). Total budget 150000€. role: One of the PIs in a consortium.
- Academy of Finland, Centre of Excellence Program 2018-2025. "Centre of Excellence of Inverse Modelling and Imaging". Share of the consortium funding 200505 € for 2023-2025. One of the PIs in a consortium
- Tandem Industry Academia (TIA) Post Doc. Deep learning-based image reconstruction for low-dose cone beam computed tomography. 2024-2025. 170000€.
- Academy of Finland. Proof of concept funding. Electrical impedance tomography – a novel method for improved diagnostics of stroke. 2024-2025. 232000€.

Research output (details in list of publications)

- Publications: Journal articles (publication class A1) **104**, book chapters (A3) **5**, conference papers (A4) **36**.
- Patents: **4**
- Invention disclosures (share of worked further 100%): **2**

Research supervision and leadership experience

Ph.D.-theses completed: 13 (principal supervisor in 6)

PhD theses in preparation: 8 (principal supervisor in 2)

MSc thesis completed: 10

Supervision of Post Doc researchers: 5

Merits in teaching

Extensive teaching experience since 1997 in various courses and duties at the University of Kuopio and University of Eastern Finland. Currently responsible teacher and lecturer in 3 courses; Inverse Problems (MSc & PhD level), Statistical Inverse Problems (MSc & PhD level) and systems of differential equations (BSc level). Lecturer in 5 international summer schools.

Other Academic merits

- Vice head of the Department of Technical Physics, University of Eastern Finland. 1.1.2023 →
- One of the PIs in the Academy of Finland Centre of Excellence in Inverse Modelling and Imaging (2018-2025)
- One of the PIs in the Academy of Finland Flagship programme Advanced Mathematics for Sensing, Imaging and Modelling (FAME)
- *Examiner in defence of Ph.D. theses:* 5 (1 in Finland, 4 overseas)
- *Pre-examiner of Ph.D. theses:* 8 (7 in Finland, 1 overseas)
- Director of Board in the University of Eastern Finland SCITECO doctoral program (2020-2023).
- Vice Director of Board in the University of Eastern Finland LUMETO doctoral program (2023 →)

- *Reviewer/Funding applications:* Austrian Science Fund (FWF), European Cooperation in Science and Technology (COST), The Swedish Foundation for Strategic Research, Dutch Research Council, Marsden Fund (Royal Society of New Zealand)
- *Membership in international steering committees:* Member of managing committee, COST-MP1207 Enhanced X-ray Tomographic Reconstruction: Experiment, Modeling, and Algorithms
- *Membership in Editorial Boards:* Inverse Problems in Science & Engineering (2010-2012). International Journal for Uncertainty Quantification. Journal of Imaging.
- *Reviewer/Peer reviewed journals:* Reviewer in >25 journal series
- *Reviewer/Books:* Springer series in Applied Mathematical Sciences
- *Invited talks (all expenses paid by summoner):* 20