

Personal details

Fullname (Year of birth, Nationality): Lähivaara, Timo Olavi (1982, Finland)
ORCID: <https://orcid.org/0000-0003-0719-1973>
Website: venda.uef.fi/~lahivaar
Marital status, Children (Year of birth): married, Leo (2012), Elias (2013), and Aaro (2020)
Language skills: Native language: Finnish
Auxiliary languages: English (fluent)

Degrees

PhD (Physics), *Discontinuous Galerkin method for time-domain wave problems*, Department of Physics and Mathematics, University of Eastern Finland (UEF), Kuopio, Finland, 22.12.2010
MSc (Physics), *Numerical methods for acoustical problems in time domain*, Department of Physics, University of Kuopio, Kuopio, Finland, 12.5.2005
Title of Docent, *Wave dominated forward and inverse problems*, Faculty of Information Technology, University of Jyväskylä, Jyväskylä, Finland, 2017
Adjunct Senior Fellow, Department of Civil and Natural Resources Engineering, University of Canterbury, New Zealand, 2015

Current employment

Research director, University of Eastern Finland, Department of Technical Physics, Computational Physics and Inverse Problems Research Group, 1.11.2023 -
Kuava Ltd, *Modeling specialist*, 15.9.2018 - (part-time)

Previous work experience

University of Eastern Finland, Department of Technical Physics, Computational Physics and Inverse Problems Research Group, *Senior researcher*, 1.12.2015 - 31.10.2023
Rocsole Ltd, *Senior Technology Manager*, 1.2.2017 - 31.5.2018 (part-time)
University of Eastern Finland, Department of Applied Physics, Inverse Problems Research Group, *Postdoctoral researcher*, 1.1.2011 - 30.11.2015
Istituto di Matematica Applicata e Tecnologie Informatiche, Pavia, Italy, *Visiting researcher*, 1.3.2011 - 30.6.2011
University of Eastern Finland, Department of Applied Physics, Inverse Problems Research Group, *PhD student*, 1.5.2005 - 31.12.2010
Finnish Defence Forces Technical Research Centre, *Military service: Researcher*, 8.3.2010 - 10.12.2010
Kuava Ltd, *Modeling specialist*, 1.5.2009 - 31.12.2009

Personal research funding and grants

Jane and Aatos Erkko foundation, Consortium project with Geological Survey of Finland, 500000 eur, 1.1.2023 - 31.12.2026
Academy Project funding for early-career researchers, Academy of Finland, 750000 eur, 1.9.2019 - 29.2.2024
COST Action *Designs for Noise Reducing Materials and Structures (DENORMS) CA15125* Short Term Scientific Missions, a total of 5000 eur, 2016 -
Postdoctoral Researcher, Academy of Finland, 340000 eur, 1.9.2012 - 15.11.2015

HPC-Europa2 project, Research visit to Istituto di Matematica Applicata e Tecnologie Informatiche (Pavia, Italy), 6000 eur, 2011

Foundation based funding for PhD studies (2008 - 2009) and mobility (2008 -), a total of 30000 eur

Research output

Peer-reviewed articles: 80, conference papers: 28, non-refereed scientific articles: 15

Publication(s) intended for professional communities:	4	Published video(s) on YouTube:	1
Publication(s) intended for the general public:	1	Submitted manuscripts:	5
Published software package(s):	1		

Ilmanvaihtokanavien puhdistustarpeen arviointi akustisten mittauksen avulla, Invention disclosure, University of Eastern Finland, 2016

Research supervision and leadership experience

A UEF Co-PI within the FAME (Flagship of Advanced Mathematics for Sensing, Imaging, and Modelling) program, funded by the Research Council of Finland for the period 1.1.2024 - 31.12.2032

The PI in the research project, Jane and Aatos Erkko foundation, 1.1.2023 - 31.12.2026

Study advisor for postgraduate students (UEF), Computational physics, 2020 -

The PI in the research project, Academy of Finland, 1.9.2019 - 29.2.2024

Primary supervisor in the European Marie-Sklodowska-Curie Innovative Training Network *Smart Tomographic Sensors for Advanced Industrial Process Control (TOMOCON)*, 2017 - 2021

A management committee member in a COST Action *Designs for Noise Reducing Materials and Structures (DENORMS) CA15125*, 2016 - 2020

The PI in the postdoctoral researcher project, Academy of Finland, 1.9.2012 - 15.11.2015

The PI in the IT Center for Science: Grand Challenge project *New approaches for estimating ground-water resources*, 2012

PhD thesis supervision (as primary supervisor marked with *): Ilmari Smedberg (2024 -), Lyydia Meuronen* (2023 -), Ville Saari (2022 -), Janne Koponen (2020 -), Mahnaz Khalili* (2020 -), Rahul Yadav* (completed 2022), Kenneth Muhumuza* (completed 2020), Matti Niskanen* (completed 2020), Petri Varvia (completed 2018)

MSc thesis supervision: Tatu Martikainen* (2025 -), Valtteri Itkonen* (2024 -), Lyydia Meuronen (completed 2023), Ossi Kajasalo* (completed 2023), Vesa Mäkitalo (completed 2023), Tommi Veiste (completed 2022), Nestori Huuskonen* (completed 2021), Jaan Johansson* (completed 2019), Antti Paaanen* (completed 2019), Heta Orava (completed 2019), Matti Niskanen (completed 2014)

BSc thesis supervision: Mikko Sipola (2024 -), Aleksi Kuivisto* (completed 2024), Henri Taskinen (completed 2022), Olli Utriainen (completed 2023), Vesa Mäkitalo (completed 2021), Panu Kuusela (completed 2020), Heta Orava* (completed 2015), Mika Lindström* (completed 2016), Matti Niskanen (completed 2013)

Teaching experience

Quest lecturer for the course Acoustics and the Physics of Sound at Aalto University (2023, 2024), Short introduction to Finite Element Method (FEM)

Lecturer at 2nd TOMOCON Summer School, TU Delft Science Centre, Delft, Netherlands, 2019

Lecturer (UEF): Physical Acoustics (2012, 2014, 2016, 2020, 2023), Numerical Approximations of Conservation Laws (spring 2025), Modelling I (2011)

Assignments (UEF): Estimation Theory (2015, 2017), Transport Phenomena (2014, 2018), Physical Acoustics (2009, 2020), Mathematical Modeling, online Network Project (2013 -)

Supervision of laboratory works of physics students

Awards and honours

A featured article selection, *A high-order Ultraweak Variational Formulation for electromagnetic waves utilizing curved elements*, IEEE Transactions on Antennas and Propagation, 72(5):4440-4453, 2024

Pineapple science award, 2023, Wenzhou, China, received for the paper *Perceived difficulty of upwind shouting is a misconception explained by convective attenuation effect*

Best paper award, *Full-waveform seismic inversion for estimating aquifer dimensions and hydrologic parameters*, Near Surface Geoscience Conference and Exhibition, Malmö, Sweden, 2017

Other key academic merits

Editor for *Dissertations in Science, Forestry and Technology* at the UEF

Chair of the subgroup “Inverse problems” in a COST Action *Designs for Noise Reducing Materials and Structures (DENORMS) CA15125*

Reviewer over 40 manuscripts in 15 scientific journals

Reviewer of a research project, Estonian Research Council, 2019

A total of 14 invited lectures, the recent three of these:

- Contemporary Challenges in Trefftz Methods, from Theory to Applications, Mexico, 2024
Electromagnetic wave simulation with ultra-weak variational formulation
- Aboagora symposium, Turku, 2023
Studying the Void
- Tianjin University, China, 2021
Microwave tomography

Organizing roles (lead or team member) in the following scientific conferences and workshops:

- Local advisory board member for the conference *Near Surface Geoscience Conference & Exhibition*, Helsinki, 2024, 500 attendees
- Workshop *GEO-FAME - Geophysics Research Collaboration Day*, Institute of Seismology, Helsinki, 2024, 12 attendees
- Conference *Inverse Days*, University of Eastern Finland, 2022, 140 attendees
- Workshop *Deep Learning for Medical and Industrial Imaging - an online networking event*, University of Eastern Finland, 2020, 80 attendees
- Workshop *Bayesian inversion and Neural networks*, KTH Royal Institute of Technology, Stockholm, Sweden, 2019, 40 attendees
- Workshop of COST Action *Designs for Noise Reducing Materials and Structures (DENORMS)*, Kuopio, Finland, 2018, 50 attendees
- Biennial meeting of the Acoustical Society of Finland, Kuopio, Finland, 2015, 150 attendees

Memberships

International Society for Industrial Process Tomography, European Association of Geoscientists & Engineers, Society of Exploration Geophysicists, Acoustical Society of America, Finnish Inverse Problems Society, Acoustical Society of Finland, Finnish Society of Computational Sciences, Finnish Association for Structural Mechanics