

## 1. Full name and date

Nieminen, Miika Tapio  
28 August 2024

## 2. Degrees

*Title of Docent*, field: Medical Imaging Physics, University of Oulu, Faculty of Medicine, 1 March 2007; *Doctor of Philosophy*, University of Kuopio, Finland, major subject: medical physics, 27 Sept 2002; *Master of Science*, University of Kuopio, Finland, major subject: physics, 31 March 1999; *Bachelor of Science*, University of Kuopio, Finland, major subject: medical physics, 15 Apr 1998

## 3. Current employment

*Professor of Medical Physics*, Research Unit of Health Sciences and Technology, University of Oulu, 1 May 2012-present; *Vice-chair*, Research Unit of Health Sciences and Technology, University of Oulu, 2015-present; *Chief Physicist*, Dept. of Diagnostics, Oulu University Hospital, 28 Feb 2007-present

## 4. Previous work experience

*Professor of Medical Technology* (part-time), Dept. of Medical Technology, University of Oulu, 1 Sept 2009-31 Dec 2011; *University Researcher* (part-time), Dept. of Radiology, University of Oulu, 1 Jan 2008-31 Aug 2009; *Hospital Physicist*, Dept. of Diagnostic Radiology, Oulu University Hospital, 1 Jan 2004-28 Feb 2007; *Assistant Physicist*, Dept. of Diagnostic Radiology, Oulu University Hospital, 1 Dec 2002-31 Dec 2003; *Research fellow*, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA, 21 Oct 2002-20 Oct 2003; *Research associate*, Departments of Anatomy and Physics, University of Kuopio 1 Jan 1999-30 Sept 2002

## 5. Research funding and grants

Funding as independent researcher **totaling approx. 7.5M€**, funding received as co-applicant excluded. Most important funding: Business Finland 740500€ (2023-2025), 418000€ (2016-18), 342000€ (2018), 51000€ (2020); University of Oulu Infotech Funding, 330000€ (2018-21); Jane and Aatos Erkko foundation 1718000€ (2016-21); Research Council of Finland 400 000€ (2024-28), 330 000€ (2023-27), 393 000€ (2016-20), 450 000€ (2012-16), 299 000€ (2009-11), 17 000€ (2002-03); Northern Ostrobothnia Hospital District totaling 927000€ (2004-25). European Regional Development Fund 173000€ (2021-22), Technology Industries of Finland Centennial Foundation, 525000€ (2019-21)

## 6. Research output

*International, peer-reviewed, full-length scientific articles*: 162; citations (Scopus, Google Scholar): 5672, 8967; *H-index* (Scopus, Google Scholar): 42, 52

*Methods*: validation and development of several quantitative MRI methods, development of image reconstruction methods for computed tomography, development of AI and machine learning methods for medical image analysis. *Software*: several in-house softwares for quantitative medical imaging analysis.

*Infrastructures:* Teaching and test laboratory for medical imaging, experimental computed tomography environment with photon counting detector, experimental setup for measuring optical characteristics of biological tissues *in vivo*.

*Patents and inventions:* 1) Biopsy needle apparatus, methods of performing sampling therewith and manufacturing thereof (granted patent + two innovation disclosures), 2) Apparatus, method and computer program for processing computed tomography (CT) images (granted patent).

## **7. Research supervision and leadership experience**

Completed supervisions of PhD theses as principal supervisor (14) and as co-supervisor (11). On-going supervision of PhD theses as principal supervisor (8) and as secondary supervisor (6). Supervision of postdoc researchers (15). Leadership. Multidisciplinary leadership training in healthcare (30 credits), University of Oulu, 2017. Independent principal investigator and group leader at Research Unit of Health Sciences and Technology, University of Oulu, 2004-present.

## **8. Teaching merits**

*Responsible teacher*, Radiation and its safe use in medicine (1.5 credits) course, University of Oulu, 2013 – present; *Responsible teacher*, Medical imaging (6 credits) course, University of Oulu, 2012- present; *Responsible organizer*, Research Seminar in Medical imaging, physics and technology, University of Oulu, 2004-present; *Responsible lecturer*, Safe use of radiation (6 credits), Oulu University of Applied Sciences, 2007-20; *Responsible educator for medical physicists*, Oulu University Hospital, 2007-present.

## **9. Awards and honors**

*3D-CBCT reconstruction challenge*, 3rd place in, IEEE ICASSP-2024 Signal Processing Grand Challenge, 2023; *Prominent Figure in Finnish Healthcare Award*, Mediuutiset independent healthcare news media, 2023; *Excellence in Translational Science Award*, Orthopaedic Research Society and Journal of Orthopaedic Research, 2022, Y Science competition winner, SLUSH Technology and Startup Event, 2021; *Excellence in Basic Science Award*, Orthopaedic Research Society and Journal of Orthopaedic Research, 2020; *GPU hardware grant*, NVIDIA, USA, 2018; *Fellowship Award*, International Society for Magnetic Resonance in Medicine (ISMRM), 2015; *Carl Wegelius Award*, Radiological Society of Finland, 2012; *Distinguished Reviewer* for Magnetic Resonance in Medicine, the official journal of ISMRM 2010, 2011; *Teacher of the year*, Biomedical Engineering subject association, University of Oulu 2011.

## **10. Other key academic merits**

Opponent of doctoral dissertation (10), Pre-examiner of doctoral dissertation (11), evaluation of scientific competence - title of docent (13), evaluation of scientific competence - title of professor (7).

## **11. Member of international peer evaluation committees of funding applications**

Swedish Research Council (Vetenskapsrådet), Infrastructure call, Sweden (2010)  
Wiener Wissenschafts-, Forschungs- und Technologiefonds, Austria (2007)  
Austrian Science Fund, Austria (2005)

Research Council of Norway 2016-2018, 2022, 2024; The Netherlands Organisation for Health Research and Development 2023, 2017; German Research Foundation, Germany 2023, South-Eastern Norway Regional Health Authority 2021; European Research Council 2017; Israel Science Foundation 2017; Dutch Arthritis Foundation 2012, 2020; Reumafonds Netherlands 2012, 2018; Reseach Council of Sweden Infrastructure call 2010; Wiener Wissenschafts-, Forschungs- und Technologiefonds 2007; Austrian Science Fund 2005, 2011.

## 12. Scientific and societal impact

Positions of trust (selected): *Doctoral Training committee in Health and Biosciences*, Deputy member, University of Oulu, 2018-2019; *Annual Meeting Program Committee member*, International Society for Magnetic Resonance in Medicine (ISMRM), 2017-2020; *Scientific committee member* of the ISMRM Workshop on Advanced Musculoskeletal MRI, Hangzhou, China 2017; *Co-chair*, 9th International Workshop on Osteoarthritis Imaging, Oulu, Finland, 2016; *Scientific program committee member*, 8th International Workshop on Osteoarthritis Imaging, Pacific Grove, CA, USA, 2015; *Member of governing board*, Finnish Society for Medical Physics and Medical Engineering, 2014 - to date; *Member of governing committee*, Nordic Chapter of International Society for Magnetic Resonance in Medicine (ISMRM) 2012-2014; *Scientific program committee member*, 5th International Workshop on Osteoarthritis Imaging, Salzburg, Austria, 2011; *Invited Faculty*, ISMRM Workshop on Advances in Musculoskeletal MRI, San Francisco 2009; *Chairman*, Musculoskeletal study group, International Society for Magnetic Resonance in Medicine (ISMRM) 2008 – 09; *Member of governing board*, Radiological Society of Finland 2004-2006.

Referee for scientific and scholarly journals and organisations: Over 130 reviewed manuscripts for 27 peer-reviewed journals, Reviewer of conference proceedings for 4 scientific organisations.

Invited lectures abroad: *Invited lecture*, International Cartilage Repair Society (ICRS) Focus Meeting: Imaging and Decision Making, Vienna, 2024; *Invited lecture*, Hospital for Special Surgery, New York, USA, 2022 *Invited lecture* at OARSI World Congress on Osteoarthritis, United Kingdom, 2018; *Keynote lecture* at Opening Ceremony of Vienna Center for Engineering in Medicine, Vienna, Austria, 2017; *Invited lecture* at ISMRM Workshop on Advanced Musculoskeletal MRI, Hangzhou, China 2017; *Keynote lecture* at 8th International Workshop on Osteoarthritis Imaging, Pacific Grove, CA, USA, 2015; *Invited lectures* at educational sessions of the Annual Meeting of ISMRM Seattle 2006, Stockholm 2010, Melbourne 2012, Milan 2014; *Two invited lectures* at the International Cartilage Repair Society (ICRS) Imaging Focus Meeting, Vienna 2012; *Invited lecture* at the ISMRM Workshop on Advances in Musculoskeletal MRI, San Francisco, CA 2009; *Keynote lecture* at the Leeds Annual Day Conference, Leeds, United Kingdom 2009.

## 13. Other merits (selected)

*Member*, Advisory Board for Hospital Physicist Training of Finnish Universities, 2011-present; *Member*, National Committee of Medical Physics and Technology, Finnish Academy of Science and Letters, 2018-2022; *Member of governing board*, Finnish Society for Medical Physics and Medical Engineering, 2014-20, *Chairman*, Advisory Board for Hospital Physicist Training of Finnish Universities, 2014-16; *National Member Organization Delegate*, European Federation of Organisations in Medical Physics, 2015-17.