1. Full name and contact information

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2. Date and place of birth

1968. Vehkalahti, Finland

3. Current assignments

Senior lecturer in Forest information systems (1/2022–). UH, Dept of Forest Sciences.

Adjunct Professor (Docent) (4/2008–) in applied photogrammetry. U of Eastern Finland (UEF), Faculty of Sciences and Forestry

4A. Earlier assignments

University lecturer in Forest information systems (1/2011–12/2021). UH, Dept of Forest Sciences. On leave of absence 9/2011-8/2016

Academy Research Fellow (9/2011–8/2016). University of Helsinki (UH), Department of Forest Sciences

2009–2011	Postdoctoral researcher, part-time, UEF.
2004–2011	Postdoctoral researcher, Dept of Forest Resource Management, UH (Academy of Finland 3-yr Post Doc contract & other Foundations)
2001–2004	Project researcher, Dept of Forest Resource Management, UH
1995–2001	Teaching assistant in Forest Inventory and Management Planning, Dept of Forest Resource Management, UH
1993–1995	Amanuensis, Hyytiälä Forest Station, Faculty of Agriculture and Forestry, UH
1991–1992	Research assistant, Dept of Forest Mensuration and Management, UH
1990–1991	Mapper, Finnmap Oy.
1989–1990	Research assistant, Forest Growth and Yield, Finnish Forest Research Institute

4B. Short term (invited) teaching assignments

2016	UH, MARV206, Forest Inventory and Management Project
2016,18,19	UH, RS101 Basic course in Remote Sensing
2012,20,24	UEF, Advanced remote sensing course
2011-12	UH, Object-oriented programming, MARV216.
2010	Evo Forest School, Photogrammetry and LiDAR. for forest professionals
2010,12,18,19,21,23	UH, Advanced remote sensing course
2012,18,20,22	UEF, Advanced remote sensing course
2009,10,12,15,19,21	UH, Skogsbruk runt om Östersjön -kurs
2009	UEF, NOVA PhD-course in 3D remote sensing of forests
2008	UH, Cross-Border-University course in forestry
2007–15	UH, MARV1/FOR110B and MARV4 courses in Forest mensuration and inventory
2006	UH, Field course in tree ecophysiology
2006	UH, PhD course MINV12 in 3D remote sensing of forests
2000–03, 05	UH, GIS12 and Y196B courses in Advanced Remote Sensing and GIS
1997, 99, 2001	HUT, course Maa20.335 in Forest evaluation
1996-2000	UH, courses MARV3 and MARV4 in Forest management planning
1991–95	UH, Field courses in silviculture, peatland ecology and forestry, forest pathology and entomology, and forest mensuration. 10 weeks each year.
1991–2005	Shorter 1–5 day field courses/visits. Forest mensuration, botany, site type classification and forest management planning. UPM-Kymmene, HUT, UH.

5. Education & language skills

2004 Dr. Sc with distinction. UH, Faculty of Agriculture and Forestry
Individual tree measurements by means of digital aerial photogrammetry

2002 Lic. Sc. UH, Faculty of Agriculture and Forestry
3-D matching of tree tops using digitized panchromatic aerial photographs

1993 MSc. UH, Faculty of Agriculture and Forestry
Forest growth study in the vicinity of a petrochemical complex

1987– Undergraduate in electrical engineering, HUT
Studies in mathematics, computer science, geoinformatics, and photogrammetry

Finnish	Native speaker;	Swedish	Excellent command, lecturing
English	Near native	French	Basic skills

6. Distinctions

2019 Teaching achievement of the year.
UH, Faculty of Agriculture and Forestry, 1000€.

2015 Outstanding Reviewer, Canadian Science Publishing

2008 Hansa LuftBild Award
For practically focused research.
German Society of Photogrammetry and Remote Sensing, 1500€.

2004 Yrjö Ilvessalo Award
For the PhD thesis.
Finnish Society of Forest Science, 4000 €

1995 Medal of Honor
For teaching merits
Forestry students' association at UH

1993 A. G. Blomqvist Award
For the M.Sc. thesis
UH, Faculty of Agriculture and Forestry, 4000 FIM.

7. Grants and projects

Since 2001, I have acquired domestic financing for my research activities and since 2008 the funding has enabled engaging research assistants. Below are listed all major projects.

"Biogeochemical and biophysical feedbacks from forest harvesting to climate change", Academy of Finland, WP2 in Prof. Jaana Bäck's project. 2019. 1.7M€ in total.

"Simuloitu metsä on puoliksi mitattu – Hyytiälän kaukokartoituskentän päivitysmittaukset". 2013. Metsämiesten säätiö. 20.000€.

"Free and timestamped photons - Radiometrically quantitative remote sensing". 2011–2016. Academy of Finland Research Fellow - grant. ~600.000€.

"Social Forest Inventory". With VTT, StoraEnso, MosaicMill, and SimoSol. 2010–2011. TEKES 50.000€ (400.000€ total).

"Solving the tree species identification with airborne laser scanning and invariant directional reflectance signatures in radiometrically calibrated images." 2009–2011. UH Research Funds 120.000€

"ADS40 in Finnish Forests". With UEF, FGI, and Leica Geosystems. Leading a consortium testing the radiometrically calibrated pushbroom sensor in Finland.

"Bottleneck and black hole in forest remote sensing: reliable estimation of tree species and seedling stand properties in combined optical LiDAR and multispectral image data". 2008–2010. Suomen Luonnonvarojen Tutkimussäätiö -foundation 120.000€

“3D maasto – Automatic reconstruction of built environment for visualization using aerial and satellite images”. With VTT, HUT, and business partners. 2006. TEKES 16.000 €

“Automated mapping and measurement of trees – 3D image interpretation in surveillance UAV video imagery”. 2005–2006. MATINE 114.000€. With Professor Timo Tokola

“3D analysis of aerial images and laser data for tree measurements“. 2005–2008. Academy of Finland postdoctoral researcher grant 150.000 €. With Arbonaut ltd.

“3D positioning of trees in digital aerial images”. 2002–2003. Ministry of Agriculture and Forestry 57.000 €.

“Forest growth study in the vicinity of Sköldvik oil refinery”. 1991–1992. City of Porvoo, Porvoo municipality, Sipoo municipality and Neste Oy 250.000 FIM. With Professor Simo Poso.

Other direct and indirect (e.g. student labor) funding 1996–2009, a total of ~180,000 € from forest companies, Metsähallitus, universities, foundations, remote sensing companies, and research institutes I have invested in a remote sensing test site in Hyytiälä:

- *Aerial image acquisitions:* 1997, 2002, 04, 06, 07, 08, 09, 10, 12, 13, 15, 16, 18, 20, 23 + time series 1946–
- *Laser scanning campaigns:* 2004, 06, 07, 08, 10, 11a, 11b, 12, 13a, 13b, 15, 16, 18,20, 23
- *Field measurement campaigns:* 1996, 1997, 2000, 02, 03, 2005–2023
- *Time-travelling in Hyytiälä forests 1946–2004,* WWW-site. 2006.

8. Other scientific activity

Memberships

Finnish Society of Forest Science, member 2004–2018, 2022-
Taksaattoriklubi (Association of forest inventory experts), member 1991–
Finnish Forest Research Institute, External researcher, 2006–2009

Administration

UH, Department board, member, 1996–1998, 2007–2009, 2010–2013
UH, Faculty of Agriculture and Forestry, board, member, 2007–2009, 2010–2013
UH, Faculty Strategic Planning Group, member 2007–2009
UH, Hyytiälä Forest Station 100-yr Jubilee, Org. C., member, 2008–2010
UH, Ethical committee - Natural and bioenvironmental sciences, member, 2022-
UH, Ethical committee - Natural and bioenvironmental sciences, chairman, 2023-
UH, Expert council in ethics, member, 2023-
UH, Viikki Arboretum, Representative of the University of Helsinki 2022-

Peer reviewer activity 2005– (× number of reviewed papers)

Remote Sensing of Environment × 48
International Journal of Remote Sensing × 12
ISPRS Journal of Photogrammetry and Remote Sensing × 12
IEEE Transactions on Geoscience and Remote Sensing × 5
Canadian Journal of Remotpe Sensing × 4
Photogrammetric Journal of Finland × 3
IEEE Geoscience and Remote Sensing Letters × 7
Photogrammetric Record × 2
Remote Sensing × 3 (I cannot recommend MDPI journals for ethical reasons)
Remote Sensing applications × 1
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing × 1
Journal of Applied Remote Sensing × 1
PFG × 1
International journal of image and data fusion × 1
International Journal of Applied Earth Observations and Geoinformation × 1
Photogrammetric engineering and remote sensing PERS × 1

Scandinavian Journal of Forest Research × 4
Forest Ecology and Management × 3
European Journal of Forest Research × 2
Forestry × 2
Metsätalouden aikakausikirja × 2
Mires and Peat × 1
Forest × 1 (I cannot recommend reviewing for the MDPI journals for ethical reasons)
Canadian Journal of Forest Research × 2
Forestry Chronicle × 1
Forestry Studies × 1
Area × 1
Environmental Monitoring and Assessment × 1

Biomass and Bioenergy × 1
Biotropica × 1
Computers and Electronics in Agriculture × 1
Agricultural and Forest Meteorology × 5
Wetlands ecology and management × 1
Plos one × 1
Silva Fennica × 3

Expert activity

* PhD committee member: Mikko Kesälä (GIS modeling) (2023-)
Lauri Männistö (Growth and yield) (2023-)

* Opponent of PhD-thesis. Sebastian Briechle.
UAV-BASED HIGH-RESOLUTION REMOTE SENSING AND MACHINE LEARNING FOR RISK MANAGEMENT IN HAZARD AND DISASTER AREAS. University of Twente, Faculty ITC, Department of Earth Observation Science (EOS). August 25, 2021.

* Opponent of PhD-thesis. Tuomas Yrttimaa
Characterizing tree communities in space and time using point clouds. University of Eastern Finland. May 28, 2021.

* Member of Editorial Board. RSE, Remote Sensing of Environment. 1/2017-

* Editorial advisory board member. ISPRS Journal of Photogrammetry and Remote Sensing. 3/2016-12/2020

* Advisory Committee member, HyperBio project in the co-use of LiDAR and hyperspectral imaging. Norwegian Research Council. 11/2015-2017

* Project Proposal Evaluator for

National Science Foundation, 10/2009
Israel Science Foundation, 2/2014
Natural Sciences and Engineering Research Council of Canada 12/2015

* UH – 3-year Post-Doc Grants. Evaluator, 8/2009

* Research program in "Digital imaging technology and laser scanning for environmental monitoring and inventory" by the Swedish Environmental Protection Agency, Evaluator in an international group of scientists, 10/2008.

* ISPRS Laserscanning 2007 Workshop, Member of the Scientific Board

* “MEKAME -2004” Evaluation of the candidate remote sensing methods for forest management planning in Finland. TEKES and Ministry of Agr.For. Invited Specialist.

Supervision of academic thesis

I have supervised of 6 completed MSc theses and 2 PhD theses. In addition, I have 'supervised' through co-authorship the PhD theses by Perttu Anttila (UEF, Forestry), Mikko Vastaranta (UH, Forestry), Lauri Korhonen (UEF, Forestry), Hans-Ole Ørka (UMB, Norway, Forestry), Ville Heikkinen (UEF/Computer Science), Lauri Markelin (Aalto/Finnish Geodetic Institute, photogrammetry), and Rosemary Blomley (Karlsruhe Inst. Tech., Germany, Photogrammetry)

2003–2004	Antti Mäkinen, MSc, UH (Antti became PhD in Feb 2010)
2005–2006	Tuukka Tuomola, MSc, UH
2004–2006	Perttu Anttila, PhD, U Joensuu
2008–2010	Liisi Koivisto, MSc, UH
2008–2011	Eduardo La Torre, MSc, UH
2008–2010	Jari Vauhkonen, PhD, UEF
2009–2011	Aarne Hovi, MSc, UH
2012–2015	Aarne Hovi, PhD, UH
2010	Felix Rohrbach, MSc, ETH Zurich, Switzerland
2014	Rosmarie Blomley, PhD, KIT Karlsruhe (PhD defense in 2025)
2017	Laura Pulliainen, BSc, UH
2017	Taneli Vuornos, BSc, UH
2018	Markus Karppinen, BSc, UH
2019	Antti Polvivaara, BSc, UH
2020	Ossi Hämylä MSc, UEF
2020	Markus Karppinen, MSc, UH
2021	Antti Polvivaara, MSc, UH (Antti started PhD studies in 2022)
2021	Riina Karvonen, BSc, UH
2022	Isabella Lievonen, BSc, UH
2022	Ville Seuranen, BSc, UH
2023-24	Isabella Lievonen, MSc, UH

Publications
Since 2004, I have been an author in

44	International refereed scientific journal articles (first author in 22)
4	International refereed conference articles (2)
2	Finnish refereed scientific journal articles (1)
3	Monographs
11	Non-refereed articles in conferences (6)

The peer-reviewed articles list 70+ co-authors (Spain, Switzerland, Norway, Germany, Finland, China, UK, Mexico), of which 30+ have been MSc or PhD students (Switzerland, Norway, Finland, Germany) at the time of writing.

Since 2005 I have annually participated in 1(–2) international conferences giving poster or oral presentation.

In Finland, I have once a year contributed to 1–3 scientific meetings or in conventions for practical professionals, usually in forestry or natural resource management to present results or to give an invited talk.

Teaching material and computer programs, 1991-

I have written course instructions and web-pages in forest ecophysiology, botany and silviculture, forest mapping and inventory, forest management planning, optical 3D remote sensing, and object-oriented programming.

Prepared computer labs for image analyses, photogrammetry, basics of surveying, statistical modeling, and forest inventory calculations using Fortran, C, Matlab, R and Excel; Maple for symbolic math, Python and Basic languages for simulations and visualization as well as for extending GIS-software.

Prepared computer programs for courses, including

* A complete open-source digital photogrammetric workstation (KUVAMITT) with support for frame-sensor and line-sensor images, discrete and waveform LiDAR, raster and TIN surface models. Implemented features include correlation- and feature-based stereo- and multi-image matching, monoplotting, parametric surface fitting, waveform analyses etc.

* Weighted least-squares software for image orientation that implements 3D bundle adjustment and camera self-calibration, with a simulator option

* Trilateration & triangulation software for field mapping of objects utilizing weighted LS adjustment of 2D point, distance and angular observations

* Monte-Carlo Ray-tracing LiDAR simulator for vegetation/built environment

* Various programs for simulation of forest inventory processes: Error propagation in observations and models, computation of forest variables, operations in GIS and spatial statistics, simulation of plant processes, forest management planning, inter alia.

The courses that I have taught have been about remote sensing, photogrammetry, programming, forest inventory, forest evaluation, forest management planning, silviculture, mire ecology and botany and have ranged from introductory to PhD courses. The course material material has been either in English, Finnish, or Swedish and it has been accessible through the internet (later intranets) since about 1997.