

1. FULL NAME AND CONTACT INFORMATION

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2. DATE AND PLACE OF BIRTH

May 13, 1968. Vehkalahti, Finland

3. CURRENT ASSIGNMENTS

- * Academy Research Fellow (9/2011-8/2016). University of Helsinki (UH), Dept of Forest Sciences
- * Adjunct Professor (4/2008-). University of Eastern Finland (UEF in Joensuu), Faculty of Sciences and Forestry
- * University lecturer in Forest information systems (1/2011-). U of Helsinki, Dept of Forest Sciences. On leave of absence.

4. EARLIER ASSIGNMENTS

2009-2011 Postdoctoral researcher, part-time, UEF.
2004-2010 Postdoctoral researcher, Dept of Forest Resource Management, UH

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 TEACHING ASSIGNMENTS

- * 2009-10, 12,15 UH, Skogsbruk runt om Östersjön -kurs
- * 2007-11, 13-15 UH, MARV1 and MARV4 courses in Forest mensuration and inventory
- * 2000-03, 05, 15 UH, GIS12 and Y196B in Advanced Remote Sensing and GIS
- * 2012 UEF, Advanced Remote Sensing course
- * 2012 UH, Object-oriented Programming, MARV216.

* 2010 Evo Forest School, Photogrammetry and LiDAR –course for forest professionals
- * 2010 UEF, Advanced Remote Sensing course
- * 2009 UEF, NOVA PhD-course in 3D remote sensing of forests
- * 2008 UH, Cross-Border-University course in forestry
- * 2006 UH, Field course in tree ecophysiology
- * 2006 UH, PhD course MINV12 in 3D Remote Sensing of Forests

* 1997, 99, 01 HUT, Maa20.335* in Forest evaluation
- * 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 AND 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 M.Sc. 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, and photogrammetry

Finnish Native speaker

Swedish Excellent command

English Near native

French Basic skills

6. DISTINCTIONS

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 an outstanding study or series of research..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. FUNDING 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.

* "Simuloitu metsä on puoliksi mitattu–Hyttiälän 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 120.000€

* "ADS40 in Finnish Forests". With UEF, FGI, and Leica Geosystems. 20.000€. 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 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 post-doc position, 150.000 €. With Arbonaut Ltd

* "3D positioning of trees in digital aerial images". 2002-2003. Ministry of Agriculture and Forestry 57.000 €. With Professor Timo Tokola

* "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 funding during 1996-2009, a total of ~180,000 € was requested from forest companies, Metsähallitus,

universities, foundations, remote sensing companies, and research institutes, and invested in the maintenance of a remote sensing test site in Hyytiälä, which I started in 1996/97.

- Aerial image acquisitions: 1997, 2002, 04, 06, 07, 08, 09, 10, 12, 13, 15 + time series 1946-

- Laser scanning campaigns: 2004, 06, 07, 08, 2010, 11a, 11b, 12, 13a, 13b, 15

- Field measurement campaigns on permanent plots: 1996, 1997, 2000, 02, 03, 2005-2015

- Time-travelling in Hyytiälä forests 1946-2004. www-site. 2006.

8. OTHER SCIENTIFIC ACTIVITY

Memberships

* Finnish Society of Forest Science, member 2004-

* Taksattoriklubi (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

Peer reviewer and expert activity 2005- (N=73)

* Remote Sensing of Environment x 13

* International Journal of Remote Sensing x 12

* ISPRS Journal of Photogrammetry and Remote Sensing x 9

* IEEE Transactions on Geoscience and Remote Sensing x 5

* Canadian Journal of Remote Sensing x 4

* Photogrammetric Journal of Finland x 3

* IEEE Geoscience and Remote Sensing Letters x 2

* Photogrammetric Record x 2

* Remote Sensing x 2

* IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing x 1

* Journal of Applied Remote Sensing x 1

* Scandinavian Journal of Forest Research x 4

* Forest Ecology and Management x 2

* European Journal of Forest Research x 2

* Metsätalouden aikakauskirja x 1

* Canadian Journal of Forest Research x 1

* Forestry Chronicle x 1

* Forestry x 1

* Forestry Studies x 1

* Area x 1

* Environmental Monitoring and Assessment x 1

* Biomass and Bioenergy x 1

* Biotropica x 1

* Computers and Electronics in Agriculture x 1

* Agricultural and Forest Meteorology x 1

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

* ISPRS Laserscanning 2007 Workshop, Member of the Scientific Board

* Research program of 12 MSEK 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.

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

* Project Proposal Evaluator for

- National Science Foundation, 10/2009
- Israel Science Foundation, 2/2014

* Advisory Committee member, HyperBio project. Norwegian Research Council. 11/2015-

* Natural Sciences and Engineering Research Council of Canada, grant reviewer, 11/2015.

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, UJoensuu

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

2009-2010... Felix Rohrbach, MSc, ETH Zurich, Switzerland

Publications

Since 2004, I have been an author in

* 29 International peer-reviewed scientific journal articles (first author in 15)

* 4 International peer-reviewed conference articles (2)

* 2 Finnish peer-reviewed scientific journal articles (1)

* 3 Monographs

* 10 Articles in conferences, lacking review (6)

The peer-reviewed articles list 47 co-authors (Switzerland, Norway, Germany, Finland), of which 29 have been MSc- or PhD-students (Switzerland, Norway, Finland) at the time of writing.

Since 2005 I have annually participated in 1(-2) international conferences giving poster or oral presentation. I would travel more if the research I do would save lives. 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.

9. TEACHING MATERIAL

Teaching material and computer programs, 1991 (short version of the teaching portfolio)-

* Course instructions and web-pages for forest ecophysiology, botany and silviculture; forest mensuration, forest inventory, forest management planning, ecological planning; optical 3D remote sensing, and object-oriented programming.

* Computer labs for image analyses, photogrammetry, basics of surveying, and statistical modeling, and forest inventory calculations, using Fortran-77/90, C/c++, Matlab (5-), R and Excel for numerical analyses; Maple for symbolic math; Python and Basic languages for simulations, visualization as well as for extending GIS-software.

* Prepared computer programs for courses, including

* A complete open source digital photogrammetric workstation with support for frame and linesensor images, discrete and waveform LiDAR, raster and TIN 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 (bundle adjustment and camera self-calibration, with a simulator option)

* Trilateration & triangulation software for field mapping and error analyses of weighted LS adjustment (regression) of

point, distance and angular observations. Used at courses at UH.

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

* Various programs for course in forestry, incl.

- stem bucking brute-force optimizer
- forest inventory simulator at forest compartment level, error propagation
- taper-curve based stem bucking and volume calculation
- interface to MELA-forest calculation system for ecological planning

The courses that I have taught (at HUT, UH, UEF) 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 has been either in English, Finnish, or Swedish and it has been accessible through the internet (later intranets) since about 1997.