



KUTSU

kuulemaan julkista esitelmää, jonka
Teknillisen korkeakoulun
radiotietoliikennetekniikan professori

Jyri Hämäläinen

ja

ohjelmistotuotannon professori

Tomi Männistö

pitävät virkaanastujaisissaan
kesäkuun 3. päivänä 2008 kello 14.15
Teknillisen korkeakoulun
TUAS-talon luentosalissa TU2,
Otaniementie 17, Otaniemi

Otaniemi 2008

Virkaanastujaisesitelmät pidetään kesäkuun 3. päivänä 2008 kello 14.15 Teknillisen korkeakoulun TUAS-talon luentosalissa TU2

professori Jyri Hämäläinen: Radiotietoliikenne: pieniin päin?

professori Tomi Männistö: Todellisuus vaivaa paisuvaa bittitaikinaa

Esitelmiä kuulemaan kutsun kunnioittavasti Teknillisen korkeakoulun opettajat, muun henkilökunnan ja opiskelijat sekä tieteiden harjoittajat, suosijat ja ystävät.

Rehtori Matti Pursula



Jyri Hämäläinen
radiotietoliikennetekniikan professori

Teknillisen korkeakoulun rehtori päätti 11.10.2006, että Sähkö- ja tietoliikennetekniikan osastolle tietoliikennelaboratorion vastuualueelle sijoitetun professorin viran nro 164 opetusala on radiotietoliikennetekniikka. Opetusala täsmennettiin seuraavasti: "radiotietoliikennejärjestelmät, erityisesti radiolinkin mitoitus, verkon suunnittelu ja järjestelmän optimointi".

Virkaa hakivat 20.11.2006 päättyneen määräajan kuluessa FT Jyri Hämäläinen, TkT Jari Iinatti, TkT Jaana Laiho, TkT Kimmo Raivio, PhD Mansoor Shafi, TkT David Soldani, TkT Jarkko Vuori. Hakemuksensa peruuttivat TkT Jari Iinatti ja PhD Mansoor Shafi.

Sähkö- ja tietoliikennetekniikan osaston tieteellinen neuvosto pyysi asiantuntijalausunnot viran hakijoiden kelpoisuudesta ja ansioista seuraavilta: professori Seong-Lyun Kim (School of Electrical and Electronic Engineering, Yonsei University), apulaisprofessori Silvia Ruiz Boqué (Department of Signal Theory and Communications, Technical University of Catalonia) ja professori Adam Wolisz (Faculty of EE and CS, Technical University of Berlin).

Sähkö- ja tietoliikennetekniikan osaston tieteellinen neuvosto teki kokouksessaan 3.9.2007 virkaehdotuksen, jossa se asetti ensimmäiselle ehdokassijalle TkT Jaana Laihon, toiselle ehdokassijalle FT Jyri Hämäläisen ja kolmannelle ehdokassijalle TkT David Soldanin. TkT Jaana Laiho peruutti hakemuksensa 17.10.2007.

Korkeakoulun hallitus nimitti kokouksessaan 22.10.2007 FT Jyri Hämäläisen radiotietoliikennetekniikan professorin virkaan nro 164 viiden vuoden määräajaksi 1.1.2008 lukien.

CURRICULUM VITAE

Name: Jyri Kalervo Hämäläinen

Date of birth: 24.3.1965

Nationality: Finnish

Degrees

- Doctor of Philosophy, Communications, Helsinki University of Technology, 2007
- Doctor of Philosophy, Applied Mathematics, University of Oulu, 1998
- Licentiate of Philosophy, Applied Mathematics, University of Oulu, 1995
- Candidate of Philosophy (=MSc), Mathematics, University of Oulu, 1992
- Grade in teaching, University of Oulu, 1999

Professional appointments

- Professor in Radio Communications Engineering, Helsinki University of Technology, 1.1.2008-
- Adjunct Professor (Docent), University of Oulu, Faculty of Technology, Division of Mathematics, 2006-
- Program Manager, Senior Specialist, Specialist, Nokia Siemens Networks, 1999-2007
- Senior Research Specialist (part-time), Helsinki University of Technology, Signal Processing Laboratory, 2002-2005
- Senior Lecturer, Senior Assistant, Assistant, Lecturer (mathematics and applied mathematics), in University of Oulu, Faculty of Science, Department of Mathematical Sciences, 1995-1999 and in Faculty of Technology, Division of Mathematics, 1990-1995

Working experience

- 2008: Professor in Helsinki University of Technology
- 1999-2007: Various research and manager activities in Nokia Siemens Networks
 - Systems research on GSM/EDGE, WCDMA, HSDPA and LTE
 - Technology investigations and scouting related to WiMAX, mesh networks, cognitive radios
 - Leader of spearhead projects in LTE standardization and long term research, related topics: Cellular network topology extensions, new spectrum technologies, mesh networks.
 - Steering of Nokia/NSN internal and external research projects funded by Nokia Siemens Networks.
 - Leader of the Quality Evaluation Group (QEG) of EU WINNER II (Wireless World Initiative New Radio) project. The QEG implements proactive quality assurance within the project as an independent body.

- 1990-95: Division of Mathematics, University of Oulu. Teaching and research activities that lead to Licentiate of Philosophy degree.
- 1995-1999: Department of Mathematical Sciences, University of Oulu. Teaching and research that lead to Doctor of Philosophy degree in Applied Mathematics. Supervision of MSc and Licentiate students.
- Research work on academic forums have been concentrating on
 - Radio resource management
 - Physical layer scheduling, control structures in wireless systems
 - Link level performance and physical layer procedures
 - Multi-antenna processing
 - Network topology extensions
 - Radio relays, local area systems
 - Channel modelling
 - Geometrical models, polarization
 - Mathematics
 - Stability and convergence analysis for numerical solutions of pseudodifferential operators, theory of function spaces in general, anisotropic Sobolev spaces.

Teaching

- Courses: Cellular Network Planning and Optimization, Numerical Analysis, Initial and Boundary Value Problems, Optimization I, Optimization II, Complex Analysis, Numerical Methods, Statistics for Engineers, Basic Methods of Mathematics I, Basic Methods of Mathematics II, Analysis I, Analysis II, Linear Algebra, Differential Equations I, Differential Equations II.
- Supplementary courses for high school teachers, Nokia internal education.
- Theses supervision/co-supervision: 2 Licentiate theses, round 10 Master's theses, 1 PhD thesis pre-examination.

Other

- Wide experience in cellular/broadband wireless radio access systems: GSM/EDGE, WCDMA, HSPA, WiMAX, LTE, complementary access systems.
- Practical knowledge on systems and devices.
- Theoretical knowledge on wireless communications and strong mathematical toolbox.
- Practical leading experience and manager training from industry.
- 10 year experience on teaching in university and some experience on teaching in secondary and upper secondary school.

LIST OF PUBLICATIONS

Articles in refereed international scientific journals and conferences

- J. Leinonen, J. Hämäläinen, M. Juntti: "Outage Capacity Analysis of Downlink OFDMA Resource Allocation with Limited Feedback", accepted to *IEEE Information Theory Workshop*, 2008.
- J. Leinonen, J. Hämäläinen, M. Juntti: "Performance Analysis of Downlink OFDMA Frequency Scheduling with Limited Feedback", accepted to *IEEE International Conference on Communications*, 2008.
- A. A. Dowhuszko, G. Corral-Briones, J. Hämäläinen, R. Wichman: "Design and Analysis of Practical Quantization for Opportunistic Beamforming", accepted to *IEEE International Conference on Communications*, 2008.
- T. Riihonen, R. Wichman, J. Hämäläinen, A. Hottinen: "Analysis of subcarrier pairing in a cellular OFDMA relay link", *International ITG Workshop on Smart Antennas*, February 2008.
- F. Gregorio, S. Werner, J. Hämäläinen, R. Wichman and J. Cousseau: "BEP Analysis of OSTBC-OFDM Systems with Broadband PA and Imperfect Memory Compensation", *IEEE Communications letters*, Vol. 11, No. 10, October 2007.
- G. Corral-Briones, A. A. Dowhuszko, J. Hämäläinen, R. Wichman: "Achievable Sum-Rate Analysis of Practical Multiuser scheduling Schemes with Limited Feedback", *IEEE International Conference on Communications*, 2007.
- G. Corral-Briones, A. A. Dowhuszko, J. Hämäläinen, R. Wichman: "Outage Probability Analysis of Practical Multiuser Scheduling Schemes with Limited Feedback", *IEEE Vehicular Technology Conference*, Spring 2007.
- J. Hämäläinen, S. Savolainen, R. Wichman, K. Ruotsalainen, J. Ylitalo: "On Solution of Scatter Density in Geometry-Based Channel Models", *IEEE Transactions on Wireless Communications*, Vol.6, No.3, March 2007.
- T. Riihonen, R. Wichman, J. Hämäläinen: "Delay Spread and its Effect on Bandwidth in Gaussian Parallel Relay Networks", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, 2006.
- K. Tenhonen, J. Hämäläinen, R. Wichman, K. Horneman: "On the Effect of Maximum SNR Scheduling to CDMA Uplink Capacity", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, 2006.
- J. Hämäläinen, R. Wichman: "Capacities of Physical Layer Scheduling Strategies on a Shared Link", *Wireless Personal Communications*, vol. 39 no. 1, October 2006, pp. 115-134.
- J. Hämäläinen, R. Wichman: "The Effect of On-off Scheduling to the Required Transmit Power in Systems with Fast Power Control", *Wireless Personal Communications*, vol. 35, no. 4, December 2005, pp. 337-352.

G. Corral-Briones, A. A. Dowhuszko, J. Hämäläinen, R. Wichman: "Achievable Data Rates for Two Transmit Antenna Broadcast Channels with WCDMA HSDPA Feedback Information", *IEEE International Conference on Communications*, May 2005.

J. Hämäläinen, J. P. Nuutinen, R. Wichman, J. Ylitalo, T. Jämsä: "Analysis and Measurements for Indoor Polarization MIMO in 5.25 GHz Band", *IEEE Vehicular Technology Conference*, May 2005.

G. Corral-Briones, A. A. Dowhuszko, J. Hämäläinen, R. Wichman: "Downlink Multiuser Scheduling Algorithm with FDD WCDMA Closed-Loop Feedback Information", *IEEE Vehicular Technology Conference*, May 2005.

J. Hämäläinen, S. Savolainen, R. Wichman, K. Ruotsalainen, J. Ylitalo: "Integral Equation Formulation for Scatter Density Problem", *IEE Electronics Letters*, Vol. 41, No. 2, January 2005, pp. 82-83.

E. Tiirola, J. Hämäläinen, K. Pajukoski, J. Ylitalo: "Performance Analysis for some Practical High Data Rate Extensions of UTRA FDD Uplink", *IEEE Vehicular Technology Conference*, September 2004.

J. Hämäläinen, R. Wichman: "Performance of Multiuser Diversity in the Presence of Feedback Errors", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, September 2004.

J. Hämäläinen, K. Pajukoski, E. Tiirola, R. Wichman, J. Ylitalo: "MIMO Performance in UTRA FDD Uplink", *IEEE International Symposium of Spread Spectrum Techniques and Applications*, September 2004.

J. Hämäläinen, K. Pajukoski, E. Tiirola, R. Wichman, J. Ylitalo: "On the Performance of Multiuser MIMO in UTRA FDD Uplink", *EURASIP Journal on Wireless Communications and Networking, Special Issue on Multiuser MIMO Networks*, Vol. 2, 2004, pp. 297-308.

J. Anttila, J. Hämäläinen, J. Saranen: "On the Linear Spline Collocation for Pseudodifferential Equations on the Torus", *Proceedings of the Estonian Academy of Sciences, Physics, Mathematics*, Vol. 53, No. 3, pp. 139-147, September 2004.

J. Anttila, J. Hämäläinen, J. Saranen: "Spline Collocation for Pseudodifferential Equations on the Torus with Non-Uniform Meshes", *International Journal on Pure and Applied Mathematics*, Vol. 17, No. 1, 2004, pp. 103-117.

J. Hämäläinen, R. Wichman: "Quantization of Channel Quality Indicator in Maximum SNR Scheduling", *Nordic Radio Symposium*, August 2004.

J. Hämäläinen, R. Wichman: "On the Correlations Between Dual-Polarized Base Station Antennas", *IEEE Global Telecommunications Conference*, November 2003.

J. Hämäläinen, R. Wichman: "Performance of Transmit Time Selection Diversity in Multipath Fading Channels", *The 6th International Symposium on Wireless Personal Multimedia Communications*, October 2003.

J. Hämäläinen, R. Wichman: "On the Site Selection Diversity Transmission", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, September 2003.

J. Hämäläinen, R. Wichman: "Bit Error Probabilities in a Two-Rate Communication System", *IEEE International Conference on Communications*, May 2003.

- J. Hämäläinen, R. Wichman, T. Kähkönen, J. Hulkkonen, T. Korpi, M. Säily: "On the Performance of GERAN Transmit Diversity Schemes when Employing Dual-Polarized Antennas", *IEEE Vehicular Technology Conference*, Korea, April 2003.
- J. Hulkkonen, T. Kähkönen, J. Hämäläinen, T. Korpi, M. Säily: "Capacity Gain from Transmit Diversity Methods in Limited Bandwidth GERAN Networks", *IEEE Vehicular Technology Conference*, Korea, April 2003.
- J. Hämäläinen, R. Wichman: "Combining Multiuser Diversity and WCDMA Transmit Diversity Modes", *IEEE Nordic Signal Processing Symposium*, October 2002.
- J. Hämäläinen, R. Wichman: "Asymptotic Bit Error Probabilities of some Closed-Loop Transmit Diversity Schemes", *IEEE Global Telecommunications Conference*, November 2002.
- J. Hämäläinen, R. Wichman: "Performance Analysis of Closed-Loop Transmit Diversity in the Presence of Feedback Errors", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, September 2002.
- J. Hämäläinen, O. Piirainen, R. Wichman: "On the SNR Gain of Polarization Matching", *Finnish Wireless Communications Workshop*, May 2002.
- J. Hämäläinen, R. Wichman: "On Optimality of Closed-Loop Transmit Diversity", *Finnish Wireless Communications Workshop*, May 2002.
- J. Hämäläinen, R. Wichman, "On the Performance of FDD WCDMA Closed-Loop Transmit Diversity Modes in Nakagami and Ricean Fading Channels", *IEEE International Symposium of Spread Spectrum Techniques and Applications*, September 2-5, 2002, Prague, Czech Republic
- J. Hämäläinen, R. Wichman, "Closed-Loop Transmit Diversity for FDD WCDMA in Fading Channels", *Second Finnish Wireless Communications Workshop*, Tampere, Finland, October 2001
- J. Hämäläinen, R. Wichman, "The Effect of Feedback Delay to the Closed-Loop Transmit Diversity in FDD WCDMA", *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, San Diego, California, September 30-October 3, 2001
- R. Wichman, J. Hämäläinen, "Transmit Diversity Weight Generation for Wireless FDD Systems with Feedback", *IEEE and EURASIP Workshop on Nonlinear Signal and Image Processing*, Baltimore, Maryland, USA, June 3-6, 2001
- J. Hämäläinen, R. Wichman, "Feedback Schemes for FDD WCDMA Systems in Multipath Environments", *IEEE Vehicular Technology Conference*, Rhodes, Greece, May 6-9, 2001
- J. Hämäläinen, R. Wichman, "Multiple Antenna Transmission Utilizing Side Information for WCDMA Systems", *The 5th CDMA International Conference and Exhibition*, Seoul, Korea, November 2000
- J. Hämäläinen, R. Wichman, "Closed-Loop Transmit Diversity for FDD WCDMA Systems", *34th Asilomar Conference on Signals, Systems and Computers*, October 2000
- J. Hämäläinen, J. Saranen, S. Savolainen: "Quadrature methods for some boundary integral equations of parabolic type", in *C.A.Brebbia and H.Power (ed.) Boundary*

Elements XXI, International Series on Advances in Boundary Elements Vol. 6., pp.169-182, WIT Press, Southampton, Boston, 1999.

J. Hämäläinen, J. Saranen: "A Collocation Method for the Single Layer Heat Equation of the First kind", in *Integral Methods in Science and Engineering, Volume two: Approximation Methods* eds. C. Constanda, J. Saranen and S. Seikkala), Addison Wesley Longman Limited, 1997.

Monographs published

J. Hämäläinen: "Performance Analysis of Multi-antenna and Multi-user Methods for 3G and Beyond", *Helsinki University of Technology, Signal Processing Laboratory, Report 58*, 2007 (PhD thesis).

J. Hämäläinen: "Spline Collocation for the Single Layer Heat Equation", *Annales Academiae Scientiarum Fennicae, Series A I. Mathematica 113*, 1998 (PhD thesis in national journal).

Articles in refereed scientific edited volumes

J. Hämäläinen, R. Wichman, M. Kuusela, E. Tiirola, K. Pajukoski: "Multiuser MIMO for UTRA FDD," in *MIMO Technology for Wireless Communications*, G. Tsoulos (Ed.), CRC Press.

C. Johnson, A. Wacker, J. Ylitalo and J. Hämäläinen: "Coverage and Capacity Enhancement Methods," in *Radio Network Planning and Optimization for UMTS*, Second Edition, J. Laiho, A. Wacker and T. Novosad (Eds.), John Wiley & Sons Ltd., 2006.

J. Hämäläinen, R. Wichman and T. Korhonen: "Multi-channel Adaptive Beam-forming," in *Adaptive Antenna Arrays*, S. Chandran (Ed.), Springer Verlag, 2004.

Other scientific publications

J. Ylitalo, J. P. Nuutinen, J. Hämäläinen, T. Jämsä, M. Hämäläinen: "Multi-Dimensional Wideband Radio Channel Characterization for 2-6 GHz Band", *Wireless World Research Forum*, WWRF11 Meeting in Oslo, June 2004.

J. Anttila, J. Hämäläinen and J. Saranen: "Spline Collocation for Pseudodifferential Equations". *Preprint, University of Oulu* 2003, 18 pages.

J. Hämäläinen, J. Saranen, S. Savolainen: "Collocation and Quadrature Methods for some BIE'S of Parabolic Type: Discretizations and Numerical Experiments". *Preprint, University of Oulu* 1999, 20 pages.

Granted patents

Remark. Patents and applications form 'families'. Only one member from each family is mentioned. US patents are preferred since the given information can be easily verified from US patent office pages.

J. Hämäläinen, K. Niemelä, R. Wichman: "Transceiver Method in a Radio System and a Radio System", US Patent No 7257424, August 2007.

J. Hämäläinen, J. Hulkkonen, T. Korpi, T. Kähkönen, M. Säily: "Antenna down-tilting", US Patent No. 7242362, July 2007.

J. Hämäläinen, R. Wichman: "Communication System and Method Using Transmit Diversity", US Patent No. 7224943, May 2007.

J. Hämäläinen, R. Wichman: "Transmission Diversity with Two Cross-Polarized Antenna Arrays", US Patent No. 7136627, November 2006.

J. Hämäläinen, R. Wichman: "Apparatus, and Associated Method, for Space-Time Encoding, and Decoding, Data at a Selected Code Rate", US Patent No. 6999472, February 2006.

K. Kuchi, J. Hämäläinen: "Space-Time Code for Multiple Antenna Transmission", US Patent No. 6542556, April 2003.

Patent applications

Currently the number is in between 35 and 45.



Tomi Männistö
ohjelmistotuotannon professori

Teknillisen korkeakoulun rehtori päätti 23.11.2005, että tietotekniikan osastolle ohjelmistoliiketoiminnan ja -tuotannon vastuualueelle sijoitetun professorin viran nro 10297 ala on ohjelmistotuotanto ja opetusalan täsmennys "ohjelmistoprosessit, arkkitehtuurit".

Virkaa hakivat 12.2.2006 päättyneen hakuajan kuluessa FT Jarmo Ahonen, TkT Jyrki Kontio, FT Lea Kutvonen, FT Timo Käkölä, DI Casper Lassenius ja TkT Tomi Männistö.

Informaatiotekniikan osastoryhmän tieteellinen neuvosto pyysi asiantuntijalausunnot hakijoiden kelpoisuudesta ja ansioista PhD Alistair Cockburnilta, professori Ilkka Haikalalta ja professori Philippe Kruchtenilta.

Informaatiotekniikan osastoryhmän tieteellinen neuvosto teki kokouksessaan 22.5.2007 virkaehdotuksen, jossa se asetti ensimmäiselle ehdokassijalle TkT Tomi Männistön, toiselle ehdokassijalle TkT Jyrki Kontion ja kolmannelle ehdokassijalle FT Jarmo Ahosen.

Korkeakoulun hallitus nimitti kokouksessaan 10.12.2007 TkT Tomi Männistön ohjelmistotuotannon professorin virkaan nro 10297 viiden vuoden määräajaksi 1.1.2008 lukien.

CURRICULUM VITAE

Name: Tomi Matti Männistö

Date of Birth: October 3, 1964, Tampere, Finland

Wife: Satu Männistö, PhD, Adjunct professor (Nutritional epidemiology).

Education

- 2000 Doctor of Science in Technology, Helsinki University of Technology (TKK), Department of Computer Science and Engineering.
- 1998 Licentiate of Technology with honours, TKK, Department of Computer Science and Engineering.
- 1990 Master of Science, Tampere University of Technology (TUT), Department of Electrical Engineering.

Work

- 2008–(2012) Professor of Software Engineering, TKK.
- 2005–2007 Professor (pro tem) of Software Engineering, TKK.
- 2004–2005 Professor (pro tem, 50%) of Information Processing Science, TKK.
- 2004–(2009) Adjunct professor (docent) of software and product families and architectures, TKK.
- 2000–2004 Lecturing researcher in software engineering, TKK.
- 2000–2001 Visiting Scientist (for 12 months) at Nokia Research Center, Software Architecture Group, Boston, USA, and Massachusetts Institute of Technology (MIT), Cambridge, USA.
- 2006–(2009) Responsible leader, research project REflex (Tekes).
- 2005–(2008) Responsible leader, research grant "TOSI" (Teknologiateollisuuden 100-vuotissäätiö).
- 2005–2008 Responsible leader, research project subcontracting for Nokia Research Center in ITEA project Trust4All.
- 2005–2007 Responsible leader, research project Svamp with VTT Oulu (Tekes).
- 2005 Responsible leader, research project CORE (Tekes).
- 2004 Responsible leader, industrial research project for Daimler-Chrysler, Germany.
- 2001–2004 Project manager and co-author of the research proposal, research project Sarcous.

- 2000 Co-author and co-coordinator of the combined research proposal for the UTT (New Technology Paradigm) research programme and co-author, research project UTP (New Technology Platform).
- 2000 Researcher and co-author of the research proposal, research project Configurable Software Product Families (Academy of Finland).
- 1991–2000 Researcher, Product Data Management Group, TKK.
- 1988–1991 Software engineer, Procons Ltd.
- 1986–1987 Programmer, Laboratory of Mathematic, TUT, assistant in three programming courses, TUT.

Thesis Supervising

Supervisor for several ongoing PhD theses, one with permission for public defence, supervisor or reviewer for 7 Licentiate theses and supervisor for 30 Master's theses.

Scientific Refereeing

Acted as a reviewer for the following:

- IEEE Software, Special Issue on Software Architecture
- Artificial Intelligence for Engineering Design, Analysis and Manufacturing
- Computer Aided Design
- Data and Knowledge Engineering
- Journal of Computing and Information Science in Engineering
- Science of Computer Programming.
- Software Practice and Experience.
- Journal of Systems and Software
- Transactions on Software Engineering

Scientific Program Committee Memberships

- 2008 The Second International Workshop on Management and Economics of Software Product Lines (MESPUL08).
- 2008 The Second Workshop on Service-Oriented Architecture and Software Product Lines (SOAPL 2008).
- 2008 ECAI 2008 Workshop on Configuration Systems.
- 2008 International Conference on the Quality of Software Architectures (QoSA).
- 2008 Workshop on Variability Modelling of Software-Intensive Systems (VaMoS).
- 2007 International Conference on the Quality of Software Architectures (QoSA).
- 2007 Software and Services Variability Management Workshop (SVM-WS).
- 2007 Workshop on Variability Modelling of Software-Intensive Systems (VaMoS).
- 2006 European Conference of Artificial Intelligence (ECAI) Workshop on Configuration.
- 2006 Software Product Line Conference (SPLC).

- 2006 International Conference on the Quality of Software Architectures (QoSA).
- 2005 Software Product Line Conference (SPLC).
- 2004 The 2nd Groningen workshop on software variability management.
- 2003 Configuration Workshop of International Conference on Artificial Intelligence (IJCAI).

Scientific Organizational Activities and Positions of Trust

- 2006– Member of the Steering Group of Software and Systems Engineering Graduate School (SoSE).
- 2004– Member of IFIP WG 2.10 Software architectures.
- 2008 Co-Chair, ECAI 2008 Workshop on Configuration Systems.
- 2007 Chair, Software and Services Variability Management Workshop (SVM-WS).
- 2005 Member of the Steering Group of Helsinki Graduate School of Computer Science and Engineering (HeCSE).
- 2005 Session Chair in the Software Product Line Conference (SPLC).
- 2005 Tutorial Chair of the Working Conference on Software Architectures (WICSA)
- 2005 Organising Committee member of the Working Conference on Software Architectures (WICSA)
- 2004 Co-chair, workshop on "Software Variability Management for Product Derivation—Towards Tool Support" in Software Product Line Conference (SPLC).
- 2002 Member of the Board of TAI research center of TKK.

Other Professional Activities

- 2005–2006 In three separate occasions, writing an expert statement for the Espoo Police Department or the Ministry of Education of Finland concerning intellectual property rights of software products.
- 2002– Variantum Ltd., Member of the Board and founder. Variantum is a spin-off company from TKK offering product configuration and product data management solutions and tools.

Pedagogical Education

- 2007 Program on Higher Education Pedagogy (Y00P), 20 ECTS credits, Helsinki University of Technology.
- 2006 "Myself as a teacher—Teaching + Learning + Teaching" (03), Helsinki University of Technology (included in Y00P completed in 2007).

Courses, Lectures and Presentations

Responsible teacher of several courses in software engineering and visiting lecturer in courses including topics, such as software architectures, research methods and product data modelling using the STEP standard at TKK, lecturer in industrial courses and international conferences or workshops.

LIST OF PUBLICATIONS

International Scientific Journals with Referee Practice

Asikainen T and **Männistö T**. Nivel—A metamodeling language with a formal semantics. *Software and Systems Modeling*, (in press).

Asikainen T, **Männistö T** and Soininen T. Kumbang: A Domain Ontology for Modelling Variability in Software Product Families. *Advanced Engineering Informatics*, 21(1):23–40, 2007.

Raatikainen M, Soininen T, **Männistö T** and Mattila A. Characterizing Product Derivation in the Configurable Software Product Family. *Software Process: Improvement and Practice*, 10(1):41–50, 2005.

Männistö T, Peltonen H, Soininen T and Sulonen R. Multiple Abstraction Levels in Modelling Product Structures. *Data & Knowledge Engineering*, Elsevier Science, 36(1):55–78, 2001.

Männistö T, Peltonen H, Martio A and Sulonen R. Modelling Generic Product Structures in STEP. *Computer-Aided Design*, 30(14):1111–1118. 1998.

Soininen T, Tiihonen J, **Männistö T** and Sulonen R. Towards a General Ontology of Configuration. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 12(4):357–372. 1998.

International Compilations and Conference Proceedings with Referee Practice

Raatikainen M, Rautiainen K, Myllärniemi V and **Männistö T**. Integrating Product Family Modeling with Development Management in Agile Methods. *Workshop on Software Development Governance (SDG)*, 2008.

Männistö T, Savolainen J and Myllärniemi V. Teaching Software Architecture Design. *Seventh Working IEEE/IFIP Conference on Software Architecture (WICSA)*, 2008

Raatikainen M, Niemelä E, Myllärniemi V and **Männistö T**. Svamp—An Integrated Approach for Modeling Functional and Quality Variability. *2nd International Workshop on Variability Modelling of Software-intensive Systems (VaMoS)*, 2008.

Kauppinen M, Savolainen J and **Männistö T**. Requirements Engineering as a Driver for Innovations. *Proceedings of the 15th IEEE International Requirements Engineering Conference (RE'07)*, 2007.

Lemmetti J, Raatikainen M, Myllärniemi V and **Männistö T**. Comparison of Software Architecture Design and Extreme Programming. *Work-in-*

Progress Session in IFIP Central and East European Conference on Software Engineering Techniques (CEE-SET), 2007.

Myllärniemi V, Raatikainen M and Männistö T. KumbangTools. Proc. of Software Product Line Conference (SPLC), volume 2, 2007.

Raatikainen M, Myllärniemi V and Männistö T. Comparison of Service and Software Product Family Modeling. Proc. of Workshop on Service Oriented Architectures and Product Lines (SOAPL) at SPLC, 2007.

Myllärniemi V, Raatikainen M and Männistö T. Using a Configurator for Predictable Component Composition. Proc. of EUROMICRO SEEA Conference, 2007.

Savolainen J, Oliver I, Myllärniemi V and Männistö T. Analyzing and Restructuring Product Line Dependencies. Proc. of 31st Annual IEEE International Computer Software and Applications Conference (COMPSAC), 2007.

Koivu H, Raatikainen M, Nieminen M and Männistö T. Kumbang Modeler: A Prototype Tool for Modeling Variability. Proc. of Software and Services Variability Management—Concepts, Models and Tools Workshop, 2007.

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