

# CV for Prof. Dr.h.c. Prof.h.c. Hannu Tenhunen

## A. Personal Facts:

- Name: Hannu Tenhunen, Born: in Joroinen, Finland, 16.4.1957
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## B. Professional preparation

- Helsinki University of Technology, Finland, M.Sc. in Electrical Engineering with majors in Electron Physics and Computer Engineering, minors in Solid State Physics, Theoretical Physics, and Mathematics, 1976-1982,
- Cornell University, Ithaca, NY, USA. Ph.D., Major in Electrical Engineering and minor in Applied Physics with focus on microelectronics and micro fabrications, 1983-1985.
- Tampere University of Technology, Department of Electronics and Department of Signal Processing, acting associate professor, 1985-87

## C. Appointments

- Professor (fulmakt professor, chair professor), Kungl Tekniska Högskolan/Royal Institute of Technology, Stockholm, Sweden, 1992 forward.
- Director of Education, European Institute of Innovation and Technology, EIT ICTlabs 2010-2012
- Director of Turku Centre of Computer Science, Åbo Akademi University, Turku, Finland, 2006-2010.
- Dean, School of Information Technology, KTH, 2001-2005
- Adjunct Professor, Chinese University of Hong Kong, China, 2006-
- Honorary professor, Fudan University, Shanghai, China, 2005?
- Honorary professor, Beijing Jiatong University, Beijing, China, 2003?
- Invited professor of nanoelectronics, University of Turku, Finland, 2006-2010.
- Professor Invite', Institute National Polytechnique de Grenoble (INPG), 2005-2006
- Dean, School of Information Technology, Royal Institute of Technology, 2001-2005
- Invited visiting professor, Cornell University, Ithaca, NY, 1998
- Head of Laboratory, Digital Signal Processing Laboratory, Tampere University of Technology, 1988-1990
- Coordinator of National Microelectronics Program of Finland 1987-1991.
- Associate professor and acting professor, Tampere University of Technology, 1987-1991.

## D. Tutoring experience

Number of PhD's graduated (please note whether you were main or assistant supervisor),  
Licentiate graduates and PhD students in progress

- 39 PhD graduates (as **main** supervisor)
- 10 professors tutored from post-docs in my laboratory
- From my PhD students 9 have reached professor/associate professor status
- Positions of trust in doctoral training:

- Director of Education, European Institute of Innovation and Technology, EIT ICTlabs, 2010-2012
- Director of TUCS Graduate School, 2006-2010
- Dean, School of Information Technology, Royal Institute of Technology (KTH), 2001-2005
- Director, Sino-Swedish Campus in Shanghai, 2004-2008
- Director or co-director of SSF doctoral schools

#### **E. Supervised and defended Ph.D Theses.**

- Jouni Isoaho, "DSP System Development and Optimization with FPGAs", 1994, Professor, University of Turku
- Jari Nurmi, "Application Specific Digital Signal Processors: Architecture and Transferable Layout Design", 1994, Professor, Tampere University of Technology
- Teppo Karema, "Oversampling A/D and D/A Converters Using One-Bit Sigma-Delta Modulation Techniques", 1994, Director of Technology (CTO), VLSI Solutions Inc
- Tawfiq Lazraq, "Design Techniques and Structures for ATM Switches", 1995, senior expert, Ericsson AB
- Bengt Jonsson, "Switched-Current Circuits: From Building Blocks to Mixed Analog-Digital Systems", 1999, senior expert, Ericsson AB
- Bengt Oelmann, "Asynchronous and Mixed Synchronous/Asynchronous Design Techniques for Low Power", 2000, Professor, Mitthögskolan, Sundsvall, Sweden
- Henrik Olson, "Algorithm-to-Architecture Refinement for Digital baseband Radio Receiver" 2000, technical expert, Ericsson AB
- Peeter Ellervee, "High-Level Synthesis of Control and Memory Intensive Applications", 2000, professor, Tallinn Technical University
- Matias O'Nils, "Soecification, synthesis and validation of HW/SW interfaces", 1999, Professor, Mitthögskolan(Sunsvall).
- Kalle Tammemäe, 1999 (joint student with TTU, defence in TTU), rector (president) IT-College, and adjunct professor at Tallinn Technical University, Tallinn, Estonia. Currently vice-president of Tallinn Technical University.
- Yonghong Gao, "Architecture and Implementation of Comb Filters and Digital Modulators for Oversampling A/D and D/A Converters", 2001, managing director, ZTE Communication, Kista
- Li-Rong Zheng, "Design and Analysis and Integration of Mixed-Signal Systems for Signal and Power Integrity" 2001, professor, KTH, Dean at fudan University, Shanghai
- Imed ben Dahou, "Low Power Design Techniques for Deep Submicron technology with Application to Wireless Transceiver Design", 2002, Associate Professor in Saudi-Arabia,
- Andreas Gothenberg, "Analysis and Design of Low Oversampling Sigma-Delta Modulators for RF Front-Ends", 2002. Managing director of STINT, Swedish foundation for International Cooperation in Research and Higher Education.
- Li Li, "Noise analysis for RF mixers", 2004. Associate professor, Harbin University, China, currently senior engineer Catena Wireless AB
- Li Bingxin, "Design of sigma-delta modulators for wireless receivers", 2003, post-doctoral fellow, Tokyo University, Japan. Currently at Hi Silicon (Huawei) AB, Kista, Sweden
- Dinesh Pamunuwa, "Modelling and Analysis of Interconnects for Deep Submicron System-on-Chip", 2003, Senior Lecture (associate professor), University of

Peradeniya, Sri Lanka. senior reader at University of Lancaster, UK and currently Senior Reader at University of Bristol, 2013

- Steffen Albrecht, "Sigma-Delta Techniques for Multi-Band Multi-Standard Radio", 2005. Strategy Director, Philips Lightning, Shanghai
- Xinzhong Duo, "System-on-Package Solutions for Multi-Band Multi-Standard Radio", 2005. Technical manager, Semiconductor Manufacture International Corp (SMIC), Shanghai
- Meigen Shen, "Concurrent Chip-Package Design for Radio and Mixed-Signal Systems", 2005. Xanadu Wireless Corp, Netherlands. Currently director of Fudan Innovation Center at Wuxi, China
- Maxim Teslenko, "All around Logic Synthesis", 2008, senior expert Ericsson AB
- Adam Strak, "Timing Uncertainty in Sigma-Delta Analog-to-Digital Converters", 2006, Infineon Semiconductors
- Roshan Weerasekera, "System Interconnection design trade-offs in 3-D integrated circuits", 2008, Senior Scientist at A-STAR, Singapore, 2013
- Majid Baghaei-Nejad, Impulse radio ultrawideband for wireless sensing and identification, 2008, Associate Professor, Dean, Sabzevar University, Iran
- Ethiopia Nigussie, "Exploration and Design of High-Performance Variation Tolerant On-Chip Interconnects", 2010, University teacher, University of Turku
- Sampo Tuuna, "Modeling and Analysis of Noise and Interconnects for On-Chip Communication Link Design", 2011
- Masoud Daneshtab, "Exploring Adaptive Implementations of On-Chip Networks", 2011. Post-doc at University of Turku
- Zou Zhuo, "Impulse Radio UWB for the Internet-of-Things – A Study on UHF/UWB Hybrid Solution", 2012. Senior researcher at KTH
- Thomas Canhao Xu. "Hardware/Software Co-Design for Multicore Architectures", September 2012. Post-doc at UTU
- Amir Rahmani, "Exploration and Design of Power-Efficient Networked Many-Core Systems", 2012.
- Liang Guang, "Hierarchical Agent-based Adaptation for Self-Aware Embedded Computing Systems", 2012.
- Alexander Wei Yin, "On Energy Efficient Computing Platforms", 2012.
- Geng Yang, "Biomedical Electronics for Wearable Healthcare Devices", 2013
- Waqar Ahmad, "Core Switching Noise for On-Chip 3D Power Distribution Networks", 2013
- Yasar Amar, "Printed Antennas for Ubiquitous Sensors", 2013
- Liang Rong, "All Digital Polar Transmitter Design for Software Defined Radio Architecture and Low Power Circuit Implementations", 2013
- Moazzam Fareed Niazi, "Modeling and Verification for Platform-Based Design", 2013
- Khalid Latif, "Design Methodology for Scalable and Application independent MPSoC platforms", 2013
- Masoumeh Ebrahimi, "Adaptive Routing Approaches for Networked Many-Core Systems", 2013

**F. Post-docs starting in my laboratory after their PhD and who have reached docent or professor level positions:**

- Prof. Doc. Ahmed Hemani (KTH),
- Prof. Doc. Elena Dubrova (KTH),

- Prof. Doc. Axel Jantsch (KTH),
- Prof.Doc. Ana Rusu (KTH),
- Prof. Doc. Li-Rong Zheng (Dean at Fudan University),
- Prof. Adam Postula (Univ. of Brisbane),
- Doc. Assoc.Prof. Juha Plosila (UTU),
- Doc. Adj.Prof Tiberiu Seceleanu (Principal Scientist, ABB Corporate Research and Mälardalen Högskolan).
- Doc. Ass.Prof. Pasi Liljeberg (UTU),
- Prof. Sashi Kumar (Jonköping University)

## **G. Networks in academia and industry**

Most important international and national cooperation partners

### *Academic*

- University of Turku, Finland
- Fudan University, China
- EIT - European Institute of Technology, Hungary.
- Tampere University of Technology, Finland

### *Industrial and research institutes*

- INPG, Grenoble, France
- CEA-LETI, Grenoble, France
- VTT, Helsinki & Oulu, Finland
- Nokia, Finland
- Ericsson, Sweden

## **H. Entrepreneurial achievements**

- Co-holder of 9 international patents on technology based inventions and innovations.
- Share holder and co-founder of high-tech startup companies, Spirea AB and FrameAccess AB.
- Developed a new master program concepts with integrated innovation and entrepreneurial content first for Nordic Minister council flagship program normc Master Program, and later for European Institute of Innovation and Technology
- Developed new PhD program with integrated PhD and MBA, where the MBA focus is on research based innovation and entrepreneurship. EIT adapted this concept.

## **I. Other merits of relevance**

Prizes, awards, invited lectures, etc

- Professor Invite´, Institute National Polytechnique de Grenoble (INPG), 2005-2006
- Invited visiting professor, Cornell University, Ithaca, NY, 1998
- Invited professor, University of Turku 2006-2010
- Honorary professor, Fudan University, Shanghai, China
- Honorary professor, Beijing Jiatong University, Beijing, China
- Docent, Tampere University of Technology 1991, Helsinki University of Technology 1994, and University of Turku 2001
- Doctor honoris causa, Tallinn Technical University, Estonia
- Nokia Fellow, 2005
- Visiting NorFA (Nordisk Forskar akademi) professor, University of Turku, 2002-2005
- Multiple best paper awards (on average one per year) from conferences and journals, multiple best course awards

- Life-time member of Academy of Technical Sciences of Finland, 2008
- Fulbright fellow at Cornell University 1983-1985
- Senior Individual Research Grant holder, Foundation for Strategic Research (SSF) 2005

## **J. Research profile**

His recent **research interest and publications activities** have been in areas:

- Interconnect centric and robust/interference free design of electronic systems, architectures and methods
- Design of embedded and integrated systems towards signal processing, communication, and internet-of-things applications
- Flexible electronic systems and intelligent integration to paper and pulp based substrates and packages
- 3D integration technologies and modelling & design of 3D circuits and systems using through-silicon-via (TSV)
- VLSI applications in personal communication and fundamental design constraints and future paradigms necessary to harvest the technology potential
- Platform based design methods and architectures based network-on-chip architectures
- Embedded dependable systems based on agent controlled autonomic systemic architectures (HW/SW)
- VLSI Design and Circuits, especially towards DSP
- IC Mixed Signal Circuits and Systems including sigma-delta A/D and D/A
- Integrated Heterogeneous Sensible Systems
- Technology policies and educational strategies in area of rapidly evolving ICT technology.

He holds in these areas 2 thesis, 9 international patents in multiple countries, 165 reviewed journal and book publications, 680 reviewed international conference publications, and 175 unreviewed or local conference and workshop publications and presentations (not including all). H-index and number of citations can be found from

Google Scholar: <http://scholar.google.se/citations?user=yD591D4AAAAJ&hl=sv>