

Ted Johansson, CURRICULUM VITAE

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In short:

Education: Docent Integrated Circuits and Systems at LiU 2015.
Ph.D. Electronic Devices at LiU, 1998 (industrial Ph.D. student).
M.Sc. EE and Applied Physics (Y-linjen) at LiU, 1985.
Part of the M.Sc. studies at RWTH, Germany.

Profile: Industrial R&D of radio technologies for wireless communication, through own consultant company "dBm RF Research AB" (since 2008), and before that Infineon and Ericsson:

- CMOS PA design for different wireless communication standards
- RFIC design of circuit blocks for cellular communications systems
- Radio architectures (RF) for cellular basestations
- New circuit technologies, vendor contacts
- Concept and long-term strategy planning in the above areas
- Competitor analysis, including circuit reverse engineering

University senior researcher (adjunct professor) at Linköping University, Sweden:

- research in the areas of CMOS PAs, radio electronics, semiconductor technology for radio circuits.
- senior researcher: conferences, committees, evaluations, peer review for journals, etc.
- government/industry funded projects (currently project leader for WLAN-related project with two companies, funded by VINNOVA).
- undergraduate and graduate teaching in the areas of radio frequency circuit and systems design.
- Ph.D. student supervision

In the last years, the university work has taken over most of my work time, currently positions as adjunct professor (+research projects + teaching = 50-70 %) in Integrated Circuits and Systems group at Linköping University. The research work is focused on integrated PA design (CMOS), ultra low-noise LNAs, low-power radio design, and future radio circuit architectures (SDR), all areas with focus on cellular communication.

During 2015, I started to do teaching in courses for undergraduate and Ph.D. level, and in Dec 2015 I became Docent (the second highest grade in the Swedish academic system)

Since 2008, I have also been working through my own company dBm RF Research AB.

During 2008-2011, I was a full-time consultant with Huawei Technologies Sweden AB, Kista: RF-ASIC design for macro basestations, future circuit technologies, future basestation RF architectures (macro to femto), and RF-MEMS for basestations.

Until late 2007, I was with Infineon Technologies Sweden AB, Kista, working on CMOS concept and circuit design for cordless phones, reverse engineering of mobile phone circuits, and EU-related R&D projects, and before that (-2002) Ericsson Microelectronics working on various semiconductor technologies for mobile communications (process and device development).

Over the years, I have been doing BiCMOS and CMOS design work in the following nodes and suppliers: 28 nm bulk (TSMC), 28 nm SOI (STM), 65nm (GF, IFX, STM), 0.13um (IFX), 0.18 um (IBM), 0.25um (Ericsson MIC), 0.35 um (IBM, AMS), 0.5um (Ericsson MIC).

PROFESSIONAL & ACADEMIC BACKGROUND

- Senior Engineer, consultant (full-time 2008-2011, part time now).
- Adjunct professor + research + teaching, Integrated Circuits and Systems group (formerly Electronic Devices), Linköping University, since 2009.
- Before that, I held various specialist (Expert/Principal) and project management positions within microelectronics and telecom industry R&D.
- Concept and design of circuits for cellular basestations.
- New radio architectures for cellular basestations.
- Design of Integrated Power Amplifiers in various bipolar and CMOS technologies for wireless communication standards between 700 and 2800 MHz.
- Development of several IC and discrete technologies for telecommunication purposes, especially RF-power bipolar and LDMOS technologies, and RF-BiCMOS.
- Participation and part-management of funded R&D projects on SiGe and SiGe:C RF-bipolar technologies, CMOS-SOI, including RF-BiCMOS on SOI, and high-frequency modules.
- Many evaluations, committees, and review work in the academic society and for the European Commission.
- Author and coauthor of more than 70 journal and conference peer-reviewed papers. Also numerous texts in magazines and applications notes. Author of chapter about SiGe transistors in book.
- Holder of 40 patents. Finalist 2004 and 2005, Infineon Inventors Award for "Broadest Portfolio".

For the university related activities: <http://people.isy.liu.se/eks/ted/>

List of publications and patents: http://people.isy.liu.se/eks/ted/CV_TedJohansson_publicationsandpatents.pdf

Professional experience

- 2016-2018 Work in Vinnova-funded project (partners: Catena Wireless Electronics AB, Sweden Connectivity AB, Linköping University) regarding a new PA architecture for increased efficiency for WLAN.
- 2015- Teaching (in addition to Adj Prof) at Linköping University
- undergraduate course in Radio Electronics (TSEK02), RFIC design (TSEK03), Transceiver Design (TSEK38), VSLI design (TSEK06)
- graduate courses
- 2011-2012 Work in Vinnova-funded project (partners: Uppsala University, Nanoradio, Samsung AB, ComHeat AB) regarding use of EDMOS device in 65 nm foundry CMOS. Design of test structures, PA demonstrators for WLAN and cellular, PA measurements, modeling.
- 2009- **Owner, consulting company "dBm RF Research AB"** (www.dbmrf.se)
- 2009- **Linköping University**, Sweden, Department of Electrical Engineering, Division of Integrated Circuits and Systems (formerly Electronic Devices).
Adjunct Professor (20%): Integrated Power Amplifier Design, LNA, low-power radio design, future integrated radio architectures.
- 2008-2011 **Huawei Technologies Sweden AB**, Senior research engineer (consultant), RF-ASIC and IRF Radio groups.
- Concept and design of integrated power amplifier for various telecom applications in basestations and terminals for 3G and 4G applications.
 - R&D on Low-Noise Amplifiers for basestations in silicon technologies.
 - R&D on RF radio architecture for future integrated basestation circuits.
 - RF and IF component technologies for basestations, also including filters and RF-MEMS.
 - Long-term strategy work in the fields above, including university cooperation work.
- 2005-09 **Owner, consulting company "Ted Johansson Halvledarkonsult"** (enskild firma)
- 2002-07 **Infineon Technologies Nordic AB**
2002-2004: *Principal* position in Fore-Front Innovations and Concept Engineering groups.
- Technology Strategist, RF-bipolar, RF-BiCMOS and RF-CMOS technology.
 - Reverse Engineering and Process Assessments.
 - Participation and part-management of funded EU project

- CMOS-SOI, including RF-BiCMOS on SOI, RF passives etc.
- Process adaptations of LDMOS-IC and smart-power processes to 0.25 um BiCMOS fabrication line.

2005- : *Senior Concept Engineer*

- Concept and Design of integrated CMOS power amplifiers for business area Connectivity (cordless/DECT, WLAN, Bluetooth etc.): 0.13 um CMOS amplifier (class AB) for DECT, 65 nm WLAN-PA (class AB), 130 nm switched PA for ISM and DECT (class E).
- Participation in EU Medea+ funded project HIMISSION, headed by Ericsson AB. PA design with Chalmers Technical University, and CMOS process foundry services for the project.
- Reverse Engineering, Process Assessments, Cost Engineering.

1999– 2002

Ericsson Microelectronics AB

Expert position at RF-IC Product Line.

- Development of 0.25 um RF-BiCMOS platform.
- Development of integrated PAs for DECT and GSM.
- Participation in and part-management of funded EU projects on SiGe and SiGe:C RF-bipolar technology

1995 - 1998

Ericsson Components AB

Process engineer and project leader for process and product development at RF-Power Product Line.

- Development of bipolar RF-power technologies.
- Participation in and part-management of funded EU projects on SiGe technology for RF-power.

1989 – 1995

Ericsson Components AB

Process engineer and project leader for process and product development, Process and Device Technology Group.

- Development of bipolar RF-power technologies for base stations.
- Development of low-voltage MOS RF power transistors for handheld applications.

(NB. All Ericsson and Infineon employments were at the same location – name, owner, and focus of the company changed.)

1985 - 1989

**Swedish Institute of Microwave Technology/
Microelectronics**

Research Engineer. Applied research in the areas of silicon MOS processing and devices.

1981-1982

National Defense Research Institute (“FOA3”, Linköping, now FOI).

12 months internship at a department that studied radiation effects on semiconductors.

Degrees

2015	Docent, University of Linköping, Sweden.
1998	Ph.D., Electronic Devices, Department of Physics and Measurement Technology, University of Linköping, Sweden.
1993	Licentiate of Engineering, Electronic Devices, Department of Physics and Measurement Technology, University of Linköping, Sweden.
1985	Master of Science, Applied Physics and Electric Engineering, University of Linköping, Sweden. (1983-84: part of studies and Master Thesis at RWTH, Aachen, Germany.)

Supervised and advised doctoral dissertations and other academic theses

- Ph.D. thesis supervisor at LiU:
 - M. F. U. Haque (with Prof. Dake Liu): co supervisor 2013-2015, main supervisor 2015-2017, dissertation 2017-02-23.
 - M. T. Pasha (with Prof. Mark Vesterbacka), co supervisor 2014-2015, main supervisor 201x-2018, dissertation planned for 2018-11.
- Ph.D. review committee:
 - Juan Cardenas, KTH (1998)
 - Julius Hållstedt, KTH (2007)
 - Liang Rong, KTH (2013)
 - Mustafa Özen, CTH (2014)
 - Klas Eriksson, CTH (2015)
 - Yu Yan, CTH (2015)
 - Maryam Olyaei, KTH (2015)
 - Tobias Tired, LTH (2016)
 - Sebastian Gustafsson, CTH (2018)
- Ph.D. thesis international expert reviewer:
 - Arshad, NED University of Engineering & Technology, Pakistan, 2017.
- Supported and co-mentored several Ph.D. students, resulting in common publications, at KTH, LiU, UU, CTH, HiG (all Sweden), and CIS, Stanford University (USA).
- Supervisor and/or examiner of at least 25 Master Thesis students connected to LiU, KTH, UU and HiG.

Scientific expert positions

- Peer reviewer for Journals:
 - o Analog Integrated Circuits & Signal Processing (ALOG)
 - o IEEE Electron Device Letters (EDL)
 - o IEEE Transactions on Circuits and Systems (TCAS-I)
 - o IEEE Transactions on Circuits and Systems (TCAS-II)
 - o IEEE Transactions on Microwave Theory and Techniques (TMTT)
 - o IEEE Sensors Journal (JSEN)
 - o IET Circuits, Devices and Systems (CDS)
 - o International Journal of Electronics (IJE)
 - o International Journal of Infrared, Millimeter, and Terahertz Waves (IJIM)
 - o Journal of Electronic Testing (JETT)
 - o Microelectronics Reliability (MR)
 - o Recent advances in Electrical and Electronics Engineering
- Peer reviewer for Conferences:
 - o NORCAS 15
- Evaluator, external expert of funding applications, Academy of Finland (2012, two different calls).
- Evaluator, Electric Engineering education in Sweden. Swedish National Agency for Higher Education (Högskoleverket, UK-ämbetet), (2012-2013).
- Evaluator, external expert research programs, Swedish Foundation for Strategic Research (SSF) (2014).
- Evaluator, external expert funding applications, Austrian Science Fund (FWF) (2015).
- Evaluator, external expert, Adjunct Professor, Halmstad University (2015).
- Evaluator, expert, Space 2016, Horizon2020, European Commission (2016).
- Organizing committee for national scientific conference SSoCC (2010-2015).

Invited talks

- IECC 2017 (Karachi, Pakistan), Keynote talk: "The 28 nm CMOS Power Amplifier".
- 2018-02-27, "Power-efficient CMOS power amplifiers"

Professional organizations

- IEEE Member 1990, Senior Member 1996.
 - Member EDS, SSC and MTTs societies.
 - Vice chair Swedish IEEE EDS chapter 2000-2012.
 - Chair Swedish IEEE SSCS/CAS joint chapter 2012-2014, vice chair 2015-
- Member SER (Svenska Elektro- och Dataingenjörers Riksförening) since 2011, board member 2015-2016.
- Member EuMA (European Microwave Association) since 2014.

R & D Administration

- 2005 – 2008 EU Medea+
Infineon project leader for HIMISSION, headed by Ericsson AB.
- 1997 – 2001 Foundation for Strategic Research (SSF), Sweden.
Coordinator for research program “HF-BIP” (Swedish universities).

Miscellaneous

Languages: Swedish – native, English – perfect, German – very good.

Excellent knowledge of RF-IC design tools Cadence (Virtuoso, Spectre, Assura, Calibre), ADS, GoldenGate and related tools for RF-IC circuit design and manufacturing.

Knowledge of MATLAB for technical computing.

Excellent knowledge on admin level for Linux systems and design tool Cadence, ADS and GoldenGate.

Some knowledge of RF design tools Microwave Office (NI/AWR), HFSS (Ansys), and SystemVue (Keysight).

I am generally very good with computers and fixing problems – Windows, Mac, and Linux.