

GUNNAR KARLSSON

POSITIONS

Professor (tenured), from March 1998

School of Electrical Engineering, KTH Royal Institute Technology, 10044 Stockholm, Sweden, gk@kth.se, tel. +46 8 7904257.

- Chairman of the Department for Network and System Engineering from January 1, 2017. Formerly, director and founder of the Laboratory for Communication Networks from 2000 to 2016. Member of school steering committee.
- Research on quality of service, wireless local area networks, network architecture, delay-tolerant communication; router architecture and lookup of IP addresses. Papers with more than 6400 citations in total and an h-index of 32 (source: Google Scholar)
- Teaching: introductory queuing theory, computer architecture and computer networks. Summer school on Internet of Things for EIT Digital 2014-2015.
- Responsible for network-based and online education at our school; active in public debate in Sweden; member of university steering committee for MOOCs and edX membership (2016-); member of administrative board for technology-enhanced learning (2013-2016).
- Member of two presidential commissions on IT education and research within KTH, and former member of appointment committee. Wrote recommendations for renewal of the Electrical Engineering program.
- Public service and outreach regarding digitalisation and the future of work; public discussion on the radio and television fee for computers (2013-2014), future of higher education, life-long learning and digitalization (ongoing).
- Obtained financing from Ericsson, Telia, Nokia, Vinnova, SSF, VR, EU, and the Wallenberg foundation.
- Member of the faculty board of the university from September of 2000 until April 2003.
- Guest professor at the Computer Engineering and Networks Laboratory, ETH Zurich, Switzerland, from August 2005 until July 2006.
- Winner of KTH Pedagogic Prize 2015.

Researcher, full-time from February 1992 to February 1998

Computer and Network Architectures Laboratory, Swedish Institute of Computer Science (SICS).

- Project leader during the establishment of the Stockholm Gigabit Network testbed (1992-1994).
- Contract research for Ericsson Telecom, Telia, and Hewlett-Packard Bristol Research Laboratory.
- Docent at the Department of Teleinformatics, KTH (1993-1998)

Visiting professor, full-time from November 1996 to April 1997

Department of Communication Systems, EPFL, Switzerland.

- First as holder of the EPFL CLUSTER chair.
- Taught a graduate seminar in the international master's program.
- Conducted research of adaptive error-control coding for packet-loss recovery.

Visiting professor, full-time from June to December 1997

Department of Computer Science and Engineering, Helsinki University of Technology (now part of Aalto University), Finland.

- Taught two graduate seminars.
- Conducted research on fast address lookup for the Internet Protocol (with S. Nilsson). The LC-Trie is included in Linux and the IEEE J-SAC paper has more than 500 citations (source: Google Scholar)

Research Staff Member, full-time from January 1989 to January 1992

IBM Zurich Research Laboratory, Switzerland.

- Research on high-speed data switching systems (the PRIZMA chip).

EDUCATION

Berkeley Institutes on Higher Education: The Clark Kerr Institute, from June 13 to 19, 2010

Center For Studies In Higher Education, University of California at Berkeley, USA.

- Topics: Essential characteristics of major research universities in the United States, with particular emphasis on the University of California; the nature of higher education in California and the California Master Plan for Higher Education; internal governance; faculty participation in governance, tenure, admissions; accomplishing change, and starting new campuses.

Executive Program in Infra-Service Management, 2005

KTH Executive School, Sweden.

- Topics: Business logic, industrial dynamics, business strategy, change management, sustainable performance, and international business.

Doctor of Philosophy, from August 1984 to January 1989

Department of Electrical Engineering, Columbia University, USA.

- Thesis: *Subband coding for packet video*. Advisor. Prof. Martin Vetterli.
- Research on layered video coding and multidimensional filter banks. Early proponent of subband coding and video communication for packet-switched networks. Co-author of first paper on modelling of video traffic in IEEE Trans. Comm. with more than 600 citations (Source Google Scholar)
- Scholarships from the Wallenberg, Blanceflor Boncompagni-Ludovisi née Bildt, and O & E Ericsson foundations.
- Summer intern at Bell Communications Research (now Telcordia Technologies) 1985 and 1986.

Master of Science, from August 1979 to October 1983

School of Electrical Engineering, Chalmers University of Technology, Sweden.

Fulbright advanced undergraduate scholar, from September 1982 to June 1983

Department of Electrical and Computer Engineering, University of Massachusetts, USA.

MISCELLANEOUS INFORMATION

Former students

Tekn. dr. Georgios Koudouridis. Thesis: *Radio Resource Allocation and Utilization in Multiple Radio Access Networks*, April 2016. Opponent: Prof. Frank Fitzek, TU Dresden, Germany. Now working at Huawei, Sweden.

Tekn. dr. Sylvia Todorova Kouyoumdjieva. Thesis: *System Design for Opportunistic Networks*, December 2015. Opponent: Dr Andrea Passarella, CNR Pisa, Italy. Now working at KTH, Sweden.

Tekn. dr. Ólafur Ragnar Helgason. Thesis: *Opportunistic content Distribution*, June 2011. Opponent: Prof. Mostafa Ammar, Georgia Institute of Technology, USA. Now working at OZ Inc. Iceland.

Tekn. dr. Vladimir Vukadinović. Thesis: *Mobility and Opportunistic Resource Allocation in Wireless Multimedia Networks*, May 2010. Opponent: Prof. Nitin Vaidya, University of Illinois at Urbana-Champaign, USA. Now working at Nokia Networks, Wroclaw, Poland.

Tekn. dr. Ian Marsh. Thesis: *Quality Aspects of Internet Telephony*, June 2009. Opponent: Prof. Henning Schulzrinne, Columbia University, USA. Working at SICS, Sweden.

Tekn. dr. Jing Fu. Thesis: *On the Design of Next-Generation Routers and IP-Networks*, November 2008. Opponent: Prof. Andrea Bianco, Politecnico di Torina, Italy. Working at Lynx Asset Management, Sweden.

Tekn. dr. Ignacio Más. Thesis: *On Admission Control for IP Networks Based on Probing*, June 2008. Opponent: Prof. Wolfgang Effelsberg, University of Mannheim, Germany. Working as senior expert at Ericsson Research, Kista, Sweden.

Tekn. dr. Markus Hidell. Thesis: *Decentralized Modular Router Architectures*, September 2006. Opponent: Prof. Gísli Hjálmtýsson, Reykjavík University, Iceland. Working as associate professor at KTH ICT, Kista, Sweden.

Tekn. dr. György Dán. Thesis: *Internet Video Transmission*, February 2006. Opponent: Prof. Jean-Yves LeBoudec, EPFL, Switzerland. Working as associate professor at KTH EE/LCN.

Tekn. dr. Henrik Lundqvist. Thesis: *Error and Traffic Control in High-Speed Networks*, November 2005. Opponent: Prof. Shivkumar Kalyanaraman, Rensselaer Polytechnic Institute, USA. Working at Huawei, Sweden.

Tekn. dr. Héctor Velayos Muñoz. Thesis: *Autonomic Wireless Networking*, June 2005. Opponent: Prof. George Polyzos, Athens University of Economics and Business, Greece. Working at Jazztel, Madrid, Spain.

Tekn. dr. Thomas Lindh. Graduated April 2004, Thesis: *Performance Monitoring in Communication Networks*. Opponent: Dr. Henk Uiterwaal, RIPE-NCC, The Netherlands. Working at KTH Syd, Stockholm, Sweden.

Tekn. dr. Eva Fogelström (née Gustafsson). Graduated June 1997. Thesis: *Traffic Dispersion in ATM Networks*. Opponent: Prof. Nicholas F. Maxemchuk, Columbia University, USA. Working at Ericsson AB, Sweden.

Tekn. Lic. Ljubica Pajević. Graduated December 2013. Thesis: *Opportunistic Networking: Mobility Modeling and Content Distribution*. Opponent: Associate Professor Karin Anna Hummel, Johannes Kepler University, Austria.

Tekn. lic. Evgueni Ossipov. Graduated June 2003. Thesis: *A Simplified Guaranteed Service*. Opponent: Prof. Martin Karsten, University of Waterloo, Canada. Working at Luleå University of Technology, Sweden.

Tekn. lic. Eric C. Lin. Graduated March 1996. Thesis: *The Effects of Scheduling Contention on Workstation Traffic*. Opponent: Prof. Per Gunningberg, Uppsala University, Sweden.

Grading committees at thesis defences

Christer Bohm (KTH 1996), Erik Anderlind (KTH 1997), Olov Schélen (Luleå 1998), Ernst Nordström (Uppsala 1998), Olivier Crochat (EPFL 1998), Xavier Garcia Adanez (EPFL 1998), Erland Almström (KTH 1999), Björn Knutsson (Uppsala 2001), Miguel Berg (KTH 2002), Matthias Unbehau (KTH 2002), Bob Melander (Uppsala 2003), Stefan Larsson (KTH 2004), Cristoff Martin (KTH 2005), Guillermo Barranetxea (EPFL 2005), Georgios Parissidis (ETH Zurich 2008), Timo Vahntupa (Tampere UT 2008, opponent), Liang Hu (DTU 2009), Pietro Lungaro (KTH 2010), Karim Sbai (Univ. Nice 2010), Mikael Asplund (LiU 2011), Ermin Kozica (KTH 2011), Moustafa Chenine (KTH, 2013), Rebecca Steinert (KTH 2014), Sascha Trifunovic (ETH Zurich 2015), Bernhard Distl (ETH Zurich 2015), Mohammad Rajiullah (KAU 2015).

Memberships

IEEE, Senior Member; Communication Society.

ACM, Member; Data Communication (SIGCOMM) and Mobile communication (SIGMOBILE) Special Interest Groups.

International Federation for Information Processing (IFIP) TC 6: Communication Systems; Swedish representative from 2010.

Member of editorial boards, guest editorships and technical program committees

- Editorial board of IEEE/ACM Transactions on Networking from 2014
- Senior editor IEEE Journal on Selected Areas in Communication from June 2005.

- Senior editor Elsevier Computer Networks from December 2004 to March 2007.
- Active member of technical program committees for IEEE Infocom, ACM CoNEXT and more.
- Chairing council on education and transformation of work for think-tank *Digital utmaning*, 2016.
- General co-chair of IFIP Networking in Stockholm, Sweden, June 12 to 15, 2017.

Research programs and seminars

Initiator of research program in Queueing theory and teletraffic theory for the Institut Mittag-Leffler, www.mittag-leffler.se; the proposal was accepted and the program held in the fall semester 2004. Served on the program committee for the program (chairman was Prof. Ingemar Kaj, Uppsala University).

Dagstuhl Seminar on *Impact of Human Mobility on Communications: Measurement, Analysis, Modeling, and Simulation*, October 6 to 9, 2010, Germany (with Kevin Almeroth, Cecilia Mascolo and Jörg Ott).

Patents

European Patent EP00492026B1 *Modular buffer memory for packet switched network*, July 26, 1995, with W. Denzel and A. Engbersen (holder: IBM).

Swedish Patent 0000176-8 *Förfarande och anordning för multiplexering av dataflöden*, January 21, 2000.

United States Patent 7,321,558 *Method and apparatus in a computer network*, January 22, 2008.