

DR. YRJÖ NEUVO



Carrier summary

In Yrjö Neuvo's career, theory and practice have been intertwined. He has been a lifelong evangelist of the digital revolution. He received his Ph.D. degree from Cornell University in 1974 and had a 19 years academic career as a professor of signal processing at Tampere University of Technology, as a National Research Professor, and as visiting professor at University of California, Santa Barbara. His most cited paper: "Vector Median Filters" has received 1577 citations.

From 1993 - 2005, he was Chief Technology Officer and member of the Group Executive Board of Nokia, during the phenomenal growth of the mobile phone market. After retiring from Nokia, Yrjö had a pivotal role in the formation of Aalto University, as a member of the preparation committee established by the Finnish Government. As a Professor and Research Director at Aalto he has led Aalto-wide major research programs.

He has been chairperson and member of numerous international and Finnish working groups and committees on research and technology policies. He has been chairperson of major international scientific conferences. He has been advancing conditions for basic and applied research, graduate education as well as industry-academia cooperation. All the time he has shown an exceptional interest and devotion to popularize science and technology. He has been giving numerous invited talks for widely varying audiences both in Finland and abroad.

He is Life Fellow of IEEE, Member of Academia Europeae, the Swedish Academy of Technical Sciences, two Finnish Academies and holds four honorary doctorates. Asteroid 1938 DN carries his name Neuvo.

His own experience of working both in industry and academia triggered his interest to find novel ways to increase doctors' employment in the industry. This resulted in starting the full academic year long Bit Bang Courses for doctoral students and creation of the national PoDoCo program, a matchmaking program between young doctors and companies.

CURRICULUM VITAE

Yrjö Aunus Olavi Neuvo was born in Turku, Finland, on 21 July 1943. He is married to Tuula Margareta (née Halsas) and they have three children (Niilo, Marja and Pekka). He earned his Master of Science (Eng.) degree in 1968 and Licentiate of Technology degree in 1971 from the Helsinki University of Technology, and his Ph.D. (EE) degree in 1974 from Cornell University, Ithaca, NY.

Dr. Neuvo has been active in both the industry and academia. Currently he is active in international and domestic research and innovation policy related topics. Professor Neuvo is Research Director at Helsinki University of Technology.

He was the chairman of ARTEMIS Technology Platform since 2004. This led to the creation of the ARTEMIS Joint Undertaking which he led until the end of 2007. He has been Member of the Governing Board of the European Institute of Innovation and Technology, another major research and innovation initiative, and also Member of its Executive Committee.

He has been Board Member of Metso and Vaisala corporations. By being Board member of three high-tech start-up companies he has been promoting entrepreneurship among young engineers. He has been Executive Vice President and CTO of Nokia Corporation responsible for product development and technologies of mobile phones. He was a member of the Group Executive Board of Nokia during 1993-2005.

During his university career he gained international academic recognition as professor of signal processing at Tampere University of Technology. During his leadership time the research tradition of Signal Processing at Tampere University of Technology was created resulting in a series of national Centre of Excellence nominations. He was National Research Professor at Academy of Finland and visiting professor at University of California, Santa Barbara. He has published over 400 scientific articles. He has educated 30 Ph.D.'s and numerous Licentiate of technology and Diploma Engineer (M.SC.) degrees. He has organized more than 30 continuing education courses and published over 400 scientific and technical articles. He is holder of several patents.

After retiring from Nokia he has again started teaching doctoral students with the aim of bringing his learnings from the international business world to the academia. He has created the post graduate multidisciplinary course "Bit Bang" which is now being offered for the third time to selected students of the Aalto University.

He is and has been member of numerous international and Finnish working groups and committees on research and technology policies. He has been advancing conditions for basic and applied research, graduate education as well as industry-academia cooperation. All the time he has shown an exceptional interest and devotion to popularize science and technology. He has been giving numerous invited talks for widely varying audiences both in Finland and abroad. He is Fellow of IEEE, Member of Academia Europaea, the Swedish Academy of Technical Sciences, two Finnish Academies and holds four honorary doctorates. Asteroid 1938 DN carries his name Neuvo.

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Degrees

1968 Master of Science (Eng.), Helsinki University of Technology, Finland
1971 Licentiate of Technology, Helsinki University of Technology, Finland
1974 Ph.D. (EE), Cornell University, Ithaca, NY, USA

Positions

2006 - 2020 Professor, Research Director, Helsinki University of Technology and Aalto University
2006 - 2009 Nokia Corporation, Technology Advisor
2006 - 2011 Metso Corporation, Member of the Board of Directors
2006 - 2010 Scientific Advisory Board of Technical Research Centre of Finland, Chairman
2004 - 2005 Nokia Corporation, Senior Vice President
1993 - 2005 Member of the Nokia Group Executive Board
1999 - 2003 Nokia Mobile Phones, Executive Vice President, CTO of Nokia Corporation
1994 - 1999 Nokia Mobile Phones, Senior Vice President, Product Creation
1993 - 1994 Nokia Group, Senior Vice President, Technology
1989 - 2019 Vaisala Oy, Board member, Vice Chairman since 1994
1984 - 1993 Academy of Finland, National Research Professor
1981 - 1982 University of California, Santa Barbara, Visiting Professor, Signal Processing
1979 - 1980 Academy of Finland, Senior Research Scholar, Digital Signal Processing
1976 - 1992 Tampere University of Technology, Professor of electrical engineering
1975 - 1976 Helsinki University of Technology, Department of Technical Physics, Acting Professor
1974 - 1975 Academy of Finland, Research Associate
1971 - 1973 Cornell University, Ithaca, N.Y., Research Assistant

Honors

- Honorary Doctor of Medicine at Tampere University, 1992
- Honorary Doctor of Technology at Tampere University of Technology 1997
- Honorary Doctor of Science in Technology at Helsinki University of Technology 2005
- Honorary Doctor of Technology Åbo Akademi 2007
- Member of the Honorary Board of Helsinki University of Technology Student Union (TKY:n kunniavaltuuskunnan jäsen) 2003
- Student Union of Tampere University of Technology, Honorary "teekkari" 2005
- Honor Society Phi Kappa Phi 1974
- IEEE Fellow 1989, Life Fellow 2009
- Planet 1938 DN discovered by Academician Yrjö Väisälä in 1938 named Neuvo in honor of Yrjö Neuvo, 1991
- Academiae Europae, Member 1989-
- Royal Swedish Academy of Technical Sciences, Foreign Member 1992-
- The Finnish Academy of Science and Letters, Member 1993-
- IEEE Technical Achievement Award 2002
- EURASIP Group Technical Achievement Award 2002
- Finnish Electrical and Electronics Industry Association Annual Prize in 1988 for contributions to the advancement of information technology
- Nokia Annual Prize in 1989 for contributions to engineering education
- Tekniikka & Talous" -magazine prize in 1990 for Innovation of the Year
- IEEE Circuits and Systems Society, Distinguished Lecturer, 1991-92
- "Pirkanmaa"-prize, Council of Tampere Region 1997
- CASS Golden Jubilee Medal, IEEE Circuits and Systems Society 1999
- Espoo medal 1999
- Honorary member of The Engineering Society of Tampere 2002
- The Finnish Society of Electronics Engineers, Honorary Member 2003
- Cornell University, Ithaca NY, Member of Council 2006-2010
- The Finnish Association of Graduate Engineers (TEK), Honorary Member 2006

Most Cited Scientific Papers

- J. Astola, P. Haavisto, Y. Neuvo: Vector Median Filters. 1990 Proceedings of the IEEE. (1577)
- T. Sun, Y. Neuvo: Detail-Preserving Median Based Filters. 1994 Pattern Recognition Letters. (1023)
- Y. Neuvo, R. Yang, M. Gabbouj: Weighted Median Filters: a tutorial. 1996 IEEE Transactions on Circuits and Systems. (889)

Some Societies and Foundations

- IEEE (Institute of Electrical and Electronics Engineers, USA), Student Member 1970, Member 1974, Senior Member 1982, Fellow 1989, Life Fellow 2009
- Society of Electronics Engineers in Finland 1978-
- European Association of Signal Processing (EURASIP) 1979-
- Member of the Digital Signal Processing Technical Committee of the IEEE Circuits and Systems Society 1987-1993, Chairperson 1991-1992
- Finnish Academy of Technical Sciences 1981-, Member of the Board 1989-92
- The Engineering Society in Finland STS, Member of the Council 1990-92
- Ulla Tuominen Foundation, Chairman of the Board 1990-99
- Nokia OYJ Foundation, Board Member 1995-2010
- Representative of Confederation of Finnish Industries EK at Finnish Science Centre Foundation (Heureka) 1998-
- Millennium Prize Foundation and Technology Academy Finland, Board member 2003 –
- The Foundation of Technology (TES), Vice Chairman 2004-2005, Chairman 2006 - 2010
- Finnish Institute in Japan, Member of the Supervisory Board 2005-2006
- Member of IEEE Edison Medal Committee 2006 - 2010, Chairman 2009 - 2010

Some Journals and Conferences

- IEEE International Symposium on Circuits and Systems, International Publicity Committee, Member 1983-99
- Chairman of the Technical Program Committee of ELKOM-85 the national Electronics Conference and Exhibition, Helsinki 1985
- 1988 IEEE International Symposium on Circuits and Systems, General Chairman, Helsinki 1986-88
- The IEEE International Conference on Communications (ICC 2001), Finland, General Chairman
- The IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, General Chairman 2006
- IEEE Technology Time Machine Symposium – Technologies Beyond 2020, Chairman of the Technical Program Committee, Hong Kong, June 2011.
- Signal Processing, Member of the Editorial Board 1987-2005
- Circuits, Systems, and Signal Processing, Associate Editor 1988-95
- Chairman of Eight Kobe International Symposium of Electronics and Information Sciences, July 1989
- Chairman of Finnish Hungarian Symposium on Information and Cognitive Sciences sponsored by Hungarian Academy of Sciences and Academy of Finland, May 1989
- IEEE Transactions on Circuits and Systems for Video Technology, Associate Editor 1990-99
- IEICE Transactions on Fundamentals of Electronics, Communications and Computer Science, Overseas Advisory Member 1991- 1993
- IEEE Winter Workshop on Nonlinear Digital Signal Processing, 1993, Tampere, Finland, General Chairman
- POWER Conference (The International Conference on Power Requirements for Mobile Computing and Wireless Communications), Member of the Executive Review Board 1996-2001

Research and Technology Policy

Finnish

- Member of the Technology Forecast Group of the Technology Committee set by the Finnish Government, 1979-80
- Scientific advisor for several major Finnish companies (Aspo, Salora, Valmet, Rauma, ABB-Strömberg) 1980-92
- Member of the planning group for national research program on information technology set by the Finnish Ministry of Trade and Industry 1983
- Member of the Governmental Graduate Education Committee set by the Ministry of Education, 1987-1988
- Member of the Basic Research Committee set by the Ministry of Education 1989
- Member of the Technology Program Committee set by the Ministry of Industry and Trade 1989
- Tampere University of Technology, Member of the Advisory Committee 1993-
- Federation of Finnish Electrical and Electronics Industry (SET), Chairman of the Technical Committee 1993-2001
- Ministry of the Interior, Chairman of the Working Group for Centre of Expertise Programme 1994, Chairman of the Governing Board of the Programme since 1994
- Ministry of Education, Member of the Steering Group for Graduate Schools 1995-(2005)
- SITRA, Member of the Steering Group for National Information Society Strategy Renewal 1997-98
- Helsinki University of Technology, Member of the Scientific Advisory Board of the Low Temperature Laboratory 1997-1998
- Helsinki University of Technology, Member of the board of Department of Electrical and Communications Engineering, 1998-(2007)
- Helsinki University of Technology, Member of the Research Council, 2000 - 2005
- National Technology Agency (TEKES), Vice Chairman of the Board 2000- 2005
- Federation of Finnish Electrical and Electronics Industry (SET), Vice Chairman of the Board 2002-2004
- Confederation of Finnish Industries and (EK), Chairman of the Research and Technology Committee 2004-2006
- Ministry of Education: Chairman of Task Force on Engineering Education and Research 2004
- Ministry of Education: Member of the working group "Creativity strategy, inspirational economy" 2004-2005
- Helsinki University of Technology, Member of the Board 2005-2007
- Information Society Council, Chairman of Electronic Commerce and Digital Contents Division 2005-2006
- Helsinki University of Technology, Member of Advisory Board to the University Strategy Group 2005
- VTT Technical Research Centre of Finland, Chairman of Scientific Advisory Board 2009 – 2010
- PMO's Working Group on Sectoral Research, Chairman (Sektoritutkimustyöryhmä) 2006-2007
- Member of the Sailas working group of the "Innovation University" 2007 that proposed creation of the Aalto University
- Chairman of the Strategy Group of Tampere University of Technology 2009

International

- Member of a working group on Nordic Policy on Microelectronics set by NORDFORSK, the Scandinavian Research Council, 1978-79.
- Finnish Council for Nordic Cooperation, Member 1982-89
- Nordic Research Council, Member 1983-91
- Member of the planning group at Luleå University, Sweden, for developing their teaching and research in computer engineering 1983

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- Research co-operation with University of California, Santa Barbara. Since 1983 this informal co-operation has covered appr. 10 manyears of student and researcher exchange and resulted in numerous publications. Both parties have taken care of the visitor's local expenses.
- Chairman of the Nordic planning group for Nordic Graduate Courses set by the Nordic Research Council, 1984-1990
- Finnish Prime Investigator of NORDIG the Nordic Signal processing CAE project funded by Nordisk Industrifond 1989-91
- Chairman of the Evaluation group set by the Nordic Research Council to evaluate the Nordic Information Technology Program 1990 - 1991
- Nordisk Industrifond, Member of the Council 1991-92
- IEEE Circuits and Systems Society, Digital Signal Processing Technical Committee, Member 1987- , Chairperson 1991-92
- EUREKA 95 (HDTV) Experts Group, Member 1990-, Chairman 1990-91
- EC's Committee for Development of Science and Technology (CODEST), Member 1990-94
- CODEST Mathematics and Information Sciences Panel, Chairman 1992-94
- Member of the SPIE's International Technical Working Group on Optical Signal and Image Processing, 1992-1993
- European Science and Technology Assembly (ESTA), EU, Member of ESTA Bureau 1994-97
- European Commission, Chairman of the Esprit Advisory Group Industrial Impact 1997-1998
- European Commission, Chairman of the European Science and Technology Assembly (ESTA), Working Party C: Academic and Industrial Research Cooperation in Europe 1997
- EU's European Regional Innovation Awards, Jury Member 2003-
- EU's High Level Expert Group on "Maximising the Wider Benefits of Competitive Basic Research Funding at European Level", Member of the Group 2004-2005
- Member of the High Level Expert Group on Future Internet set by DG Infso of the European Commission 2009
- Chairman of the ARTEMIS Technology Platform and Joint Undertaking 2004 - 2007, the major major European progammme on embedded computer systems
- Member of Governing Board and Executive Committee of the European Institute of Innovation and Technology (EIT) 2008 – 2012

Some Patents

- Renfors Markku, Neuvo Yrjö, Mäkinen Jorma, Tenhunen Hannu, Rapeli Juha: "Häiriönvaimennusmenetelmä" A noise reduction technique, April 1990.
- Juhola Janne, Nieminen Ari, Salo Juha, Neuvo Yrjö: "Videosignaalin näyttötaajuuden muunnosmenetelmä", Method for scanning rate conversion of video signals", September 1990.
- Öistämö Kai, Haavisto Petri, Juhola Janne, Nieminen Ari, Neuvo Yrjö: "Menetelmä komponenttimuotoisen videosignaalin käsittelymiseksi", A Method for Component Video Signal Processing, April 1992.
- Kapanen Pekka, Neuvo Yrjö, Järvinen Kari: "Method of speech coding", European patent under an agreement dated 270292, nr 93302099.2-

Some Research Projects

- Prime Investigator, Digital Signal Processing, ongoing basic research funded by the Academy of Finland and Tampere University of Technology (about FIM 1.2 million annually)
- Prime Investigator in the "Our Electrical Brains" project funded by the Academy of Finland (FIM 2.1 million) 1992-1994
- Participant in Race II project "Advanced Multimedia and Image Communication Services" 1992-
- Participant in EUREKA 95 PG 12 project "Non Broadcast Applications of HDTV" 1992-
- Participant in COST 211 TER Image Coding project 1991-
- Prime Finnish Investigator in the ESPIRIT II BRA project "Development of Fundamental Vision Algorithms with Parallel Environments"
- Prime Investigator in the SMARTPOWER project funded by Technology Development Centre of Finland TEKES and industry (FIM 1 million) 1988
- Prime Investigator in the DSP-ASIC (Digital Signal Processing and Application Specific Integrated Circuits) project funded by TEKES and industry (FIM 2 million annually) 1987-89
- Prime Investigator in the project "Processing of Blood Pressure and EEG Signals" funded by the Academy of Finland (FIM 3.0 million) 1986 - 1991
- Prime Investigator in the National Research Program "Applications of Pattern Recognition" funded by TEKES and industry (FIM 5 million annually) 1984 - 1988
- Initiator, organizer and participant in more than 60 industry - university R&D projects employing microprocessor technology, digital signal processing, and digital image processing
- Prime contractor for numerous industry sponsored research projects
- Leader of MIDE (Multidisciplinary Institute of Digitalization and Energy) a 21M€ Programme at Helsinki University of Technology (currently Aalto University) 2007 -2012