CURRICULUM VITAE

PERSONAL DATA

Name	**Seppo J. Ovaska**
Age	60s
Place of birth	Orimattila, Finland
Country of citizenship	Finland
Family	Wife and two adult sons
Language skills	Finnish/NATIVE, English/FLUENT, Swedish/FAIR, and German/FAIR

CONTACT AND AUTHOR INFORMATION

E-mail	seppo.ovaska@aalto.fi
Cell phone	+358 50 5639147
Postal address	Aalto University, School of Electrical Engineering, P.O. Box 15500, 00076 Aalto, Finland
Visiting address	Maarintie 8, TUAS Building, Room 2569, Espoo, Finland
Social media	I DO NOT USE ANY SOCIAL MEDIA ACCOUNTS
ORCID	http://orcid.org/0000-0003-0158-7803
ResearcherID	http://www.researcherid.com/rid/G-2380-2013

HIGHER EDUCATION

- *Doctor of Science in Technology*, Information Technology, Tampere University of Technology ("TUT"), 1989
- *Licentiate of Science in Technology*, Information Technology, Helsinki University of Technology ("HUT"), 1987
- *Master of Science in Technology*, Electrical Engineering, TUT, 1980

ACADEMIC EXPERIENCE (26+ years; 1 year in US)

- *Full Professor* of Industrial Electronics, Aalto University ("Aalto" – formerly Helsinki University of Technology, HUT), School of Electrical Engineering, Department of Electrical Engineering and Automation, August 1996→
- *Senior Scientist*, Academy of Finland, August 2002 – July 2003 and August 2008 – July 2009
- *Visiting Professor* of Electrical and Computer Engineering, Utah State University ("USU"), Department of Electrical and Computer Engineering, USA, June 2006 – June 2007 (12-MONTH CONTRACT WITH 100% USU FUNDING)
- *Department Vice Head*, Department of Electrical and Communications Engineering, HUT, August 1996 – December 2001
- *Interim Full Professor* of Signal Processing in Communications, HUT, Department of Electrical and Communications Engineering, August 1995 – July 1996
- *Full Professor* of Electronics, Lappeenranta University of Technology ("LUT"), Department of Information Technology, January 1995 – July 1996
- *Associate Professor* of Electronics, LUT, Department of Information Technology, August 1993 – December 1994
- *Interim Associate Professor* of Electronics, LUT, Department of Information Technology, August 1992 – July 1993

INDUSTRIAL EXPERIENCE (13+ years; 15 months in US) _____

- *Project Manager and Member of Steering Group*, KONE Elevators, Research Center, January 1989 – August 1992
- *Research and Development Manager*, Nokia Research Center, DSP Group, May 1988 – January 1989
- *Researcher*, KONE Elevators, Research Center, January 1986 – May 1988
- *Department Manager*, KONE Elevators, Research Center, September 1984 – December 1985
- *Project Leader*, Armor Elevator Company, Engineering Department, USA, May 1983 – August 1984
- *Software/Hardware Engineer*, KONE Corporation, Elevator R&D Department, May 1980 – May 1983
- *R&D Intern*, KONE Corporation, Elevator R&D Department, June–August 1978 and June 1979 – April 1980

NOTABLE UNIVERSITY SERVICE _____

- *Member*, Research Ethics Committee, Aalto, 2018→
- *Research Integrity Adviser*, Aalto, 2017→
- *Member*, Tenure-Track Committee, School of Electrical Engineering, Aalto, 2011→
- *Head*, Institute of Intelligent Power Electronics, Aalto, 2010→
- *Member*, Dean Search Committee, School of Electrical Engineering, Aalto, 2015
- *Coordinator*, scientific and educational cooperation between the Department of Computer Science and Systems Engineering (Muroran Institute of Technology, Japan) and the Faculty of Electronics, Communications, and Automation (HUT/Aalto), 2001–2011
- *Honors Contract Advisor*, USU, 2007 (THE HONORS PROGRAM CREATES A COMMUNITY OF DYNAMIC, AMBITIOUS, AND CREATIVE STUDENTS WHO WANT NOT SIMPLY TO EARN A DEGREE AT USU BUT ALSO TO CREATE A LIFE-CHANGING EXPERIENCE FOR THEMSELVES)
- *Head*, Power Electronics Laboratory, HUT, Department of Electrical and Communications Engineering, 1997–2001
- *Docent* in Signal Processing Methods and Industrial Applications, HUT, Department of Electrical Engineering, 1992–1996
- *Head*, Electronics Laboratory, LUT, Department of Information Technology, 1992–1995

ACADEMIC AND INDUSTRIAL LEADERSHIP _____

Department Vice Head, HUT, Department of Electrical and Communications Engineering, Espoo, Finland, 1996–2001
- Co-administration (*ad hoc*) of a major academic department
- Coordinated the evaluation of the M.Sc. (Tech.) study program by Finnish Higher Education Evaluation Council

Project Manager and Member of Steering Group, KONE Elevators, Research Center, Hyvinkää, Finland, 1989–1992
- Coordinator of two joint-venture R&D projects
- Foreign partners: Hitachi Elevator Division (Japan) and Montgomery Elevator Company (USA)

Research and Development Manager, Nokia Research Center, Tampere, Finland, 1988–1989
- Founded and supervised a digital signal processing group
- Opened R&D collaboration with Nokia's international business units

Department Manager, KONE Elevators, Research Center, Hyvinkää, Finland, 1984–1985
- Managed a well-established department developing elevator control hardware and software
- R&D coordination with KONE's global subsidiaries

Project Leader, Armor Elevator Company, Engineering Department, Louisville, KY, 1983–1984
- Founded and supervised a software development team
- R&D coordinator between Armor Elevator and its parent company KONE Corporation

RESEARCH EXPERTISE _____

- Green computing in arctic environment (2014→)
- Fusion of soft computing and hard computing (1999→)
- Soft computing and computational intelligence (1994→)
- Predictive and adaptive filtering (1990→)
- Industrial electronics and control instrumentation (1980→)

HIGHLIGHTS OF SECURED RESEARCH FUNDING _____

Artificial Life Extensions to Evolutionary Computation, EFFORT: PI, Academy of Finland, Information Processing Sciences, 2008–2009, Decision 124,721 (Senior Scientist), **€120,010**

> *Artificial Life ("A-Life") is used for enhancing evolutionary optimization methods, where the genetic analogies and corresponding operators are no longer unaccompanied in the primary role. The purpose of this project was to investigate the use of A-Life at the population level for developing adaptive extensions to evolutionary algorithms and, hence, accelerating problem solving.*
>
> As an example of results, see the journal article number **89** in the **PUBLICATION RECORD**.

Artificial Immune Systems and Applications: A Soft Computing Approach, EFFORT: PI, Academy of Finland, Information Processing Sciences, 2006–2008, Decision 214,144, **€262,500**

> *Artificial Immune Systems ("AIS") are motivated by the natural immune principles. In this project, we merged neural networks with the Negative Selection Algorithm, proposed a Fuzzy Growing and Pruning Artificial Immune Network model, as well as developed an effective fusion of genetic algorithms and AIS optimization methods.*
>
> As an example of results, see the journal article number **78** in the **PUBLICATION RECORD**.

Linguistic Information Feedback-Based Dynamical Fuzzy Systems with Applications, EFFORT: PI, Academy of Finland, Information Processing Sciences, 2003–2006, Decision 201,353, **€150,000**

> *Classical fuzzy systems have the lack of internal dynamics and adaptation capabilities. In this project, we studied our recently proposed Linguistic-Information-Feedback-based Dynamical Fuzzy System. Its underlying characteristics, structure extensions, learning algorithms, and implementation alternatives were analyzed thoroughly and further developed.*
>
> As an example of results, see the journal article number **74** in the **PUBLICATION RECORD**.

Fusion of Soft Computing and Hard Computing Methods, EFFORT: PI, Academy of Finland, Information Processing Sciences, 2002–2003, Decision 80,100 (Senior Scientist), **€97,920**; and 2003, Decision 203,436 (Expenses), **€9,150**

> *Soft Computing ("SC") is a collection of methodologies, which aims to exploit tolerance for imprecision, uncertainty, and partial truth. It differs from Hard Computing ("HC") in the sense that, unlike HC, it is strongly based on intuition or subjectivity. The purpose of this project was to investigate the characteristics, implementations, and applications of the fusion of various SC and HC methods.*
>
> As an example of results, see the journal article number **73** in the **PUBLICATION RECORD**.

Soft Computing Methods for Control and Diagnostics with Applications in Electric Drives, EFFORT: PI, Academy of Finland, Electrical Engineering and Electronics, 1999–2000, Decision 63,148, **€72,300**

> *In this project, we studied the problems of fusing fuzzy logic and neural-network technologies, and setting up a Fuzzy-Neural-Network-based control system. In addition, we developed fault-diagnostics methods for control applications. Electric drive systems provided a case environment for evaluating the applicability of our new control methods and diagnostics techniques.*
>
> As an example of results, see the journal article number **52** in the **PUBLICATION RECORD**.

LATEST COLLABORATION WITH INTERNATIONAL SCHOLARS (joint publications) _____

- Prof. M. Frivaldský, *University of Žilina*, Žilina, Slovakia, 2018
- Prof. B. Sick, *University of Kassel*, Kassel, Germany, 2016
- R. E. Dragseth, *UiT The Arctic University of Norwa*y, Tromsø, Norway, 2016
- Dr. M. J. Barnes, *CERN – European Organization for Nuclear Research*, Geneva, Switzerland, 2013
- Prof. Z. Peroutka, *University of West Bohemia*, Pilsen, Czech Republic, 2012
- Dr. D. A. Shilane, *Stanford University*, Stanford, CA, 2012

RESEARCH VISITS TO FOREIGN UNIVERSITIES (14+ months; DE, JP, NO, US) _____

- *University of Passau*, Faculty of Computer Science and Mathematics, Passau, Germany, March–June 2015 (3 months)
- *UiT The Arctic University of Norway*, Department of Computer Science, Tromsø, Norway, April–July 2014 (3 months)
- *University of Vermont*, School of Engineering, Burlington, VT, May–June 2013 (2 weeks)
- *North Carolina State University*, Department of Mechanical and Aerospace Engineering, Raleigh, NC, September 2012 (1 week)
- *Virginia Tech*, The Bradley Department of Electrical and Computer Engineering, Blacksburg, VA, August 2012 (1 week)
- *University of Passau*, Faculty of Informatics and Mathematics, Passau, Germany, October 2009 (1 week)
- *University of Passau*, Faculty of Informatics and Mathematics, Passau, Germany, October 2008 (1 week)
- *University of Passau*, Faculty of Mathematics and Computer Science, Passau, Germany, July 2005 (1 month)

- *Utah State University*, Department of Electrical and Computer Engineering, Logan, UT, June 2004 (1 month)
- *Utah State University*, Department of Electrical and Computer Engineering, Logan, UT, June–July 2003 (1 month)
- *Muroran Institute of Technology*, Department of Computer Science and Systems Engineering, Muroran, Japan, April 2003 (1 week)
- *Utah State University*, Department of Electrical and Computer Engineering, Logan, UT, June 2002 (1 month)
- *Virginia Tech*, The Bradley Department of Electrical and Computer Engineering, Blacksburg, VA, June–July 2001 (1 month)
- *Virginia Tech*, The Bradley Department of Electrical and Computer Engineering, Blacksburg, VA, June 2000 (1 month)
- *Muroran Institute of Technology*, Department of Computer Science and Systems Engineering, Muroran, Japan, July 1999 (1 month)

INVITED PRESENTATIONS AND SEMINARS IN FOREIGN UNIVERSITIES

- *University of Passau*, Faculty of Computer Science and Mathematics, Passau, Germany, April 2015, "Sustainable and energy efficient data centers: Challenges, experiences and opportunities," HOST: Prof. H. de Meer
- *UiT The Arctic University of Norway*, Department of Computer Science, Tromsø, Norway, June 2014, "Arctic green computing," HOST: Prof. T. Brox-Larsen
- *UiT The Arctic University of Norway*, Department of Computer Science, Tromsø, Norway, May 2014, "Envisioning the future of embedded real-time systems," HOST: Prof. J. M. Bjørndalen
- *University of Vermont*, School of Engineering, Burlington, VT, June 2013, "Temporal switching between related goals in multi-objective design optimization," HOST: Prof. J. L. Frolik
- *North Carolina State University*, Department of Mechanical and Aerospace Engineering, Raleigh, NC, September 2012, "Periodical goal switching in multi-objective design optimization," HOST: Prof. G. D. Buckner
- *Virginia Tech*, The Bradley Department of Electrical and Computer Engineering, Blacksburg, VA, August 2012, "Multiplicative general parameter adaptive filters," HOST: Prof. A. A. ("Louis") Beex
- *Utah State University*, Center for Self-Organizing and Intelligent Systems, Logan, UT, September 2006, "Fusion of soft computing and hard computing: Applications and research opportunities," HOST: Prof. Y. Q. Chen
- *Brigham Young University*, Computer Science Department, Provo, UT, June 2004, "Fusion of soft computing and hard computing," HOST: Prof. D. Ventura
- *Utah State University*, Department of Electrical and Computer Engineering, Logan, UT, June 2004, "Polynomial predictive filtering in control instrumentation," HOST: Prof. T. Bose
- *University of Vermont*, Department of Electrical and Computer Engineering, Burlington, VT, October 2003, "Research overview," HOST: Prof. J.-G. Beliveau
- *Utah State University*, Department of Electrical and Computer Engineering, Logan, UT, July 2003, "Computationally intelligent hybrid systems: The fusion of soft computing and hard computing," HOST: Prof. T. Bose
- *Muroran Institute of Technology*, Satellite Venture Business Laboratory, Muroran, Japan, April 2003, "R&D in intelligent hybrid technologies: Fusion of soft computing and hard computing," HOST: Prof. T. Uozumi
- *Muroran Institute of Technology*, Department of Computer Science and Systems Engineering, Muroran, Japan, April 2003, "Fusion of soft computing and hard computing with applications," HOST: Prof. Y. Dote
- *Kushiro National College of Technology*, Department of Information Engineering, Kushiro, Japan, April 2003, "Fusion of soft computing and hard computing," HOST: Prof. A. Kamiya
- *Utah State University*, Department of Electrical and Computer Engineering, Logan, UT, June 2002, "Adaptive tuning of fixed FIR filters using general parameters," HOST: Prof. T. Bose
- *North Carolina State University*, Department of Electrical and Computer Engineering, Raleigh, NC, July 2001, "Nonlinear modeling and fault detection using fuzzy-neural network," HOST: Prof. M.-Y. Chow
- *Virginia Tech*, The Bradley Department of Electrical and Computer Engineering, Blacksburg, VA, June 2001, "General parameter-based adaptive extension to FIR filters," HOST: Prof. W. T. Baumann
- *Virginia Tech*, The Bradley Department of Electrical and Computer Engineering, Blacksburg, VA, June 2000, "Radial basis function network with general parameter extension," HOST: Prof. H. F. VanLandingham
- *Muroran Institute of Technology*, Department of Computer Science and Systems Engineering, Muroran, Japan, July 1999, "Soft computing in computational intelligence for signal processing," HOST: Prof. Y. Dote

- *Virginia Tech*, The Bradley Department of Electrical and Computer Engineering, Blacksburg, VA, April 1999, "Predictive signal processing in control instrumentation," HOST: Prof. H. F. VanLandingham
- *University of Louisville*, Department of Electrical and Computer Engineering, Louisville, KY, March 1999, "Application of neural networks and fuzzy logic in the power control of mobile phones," HOST: Prof. J. M. Zurada
- *University of California*, Department of Electrical and Computer Engineering, Santa Barbara, CA, October 1998, "Polynomial predictive lowpass filters and differentiators," HOST: Prof. S. K. Mitra

HOSTED VISITING SCHOLARS

- Prof. A. Kamiya, Department of Information Engineering, *Kushiro National College of Technology*, Kushiro, Japan, August–September 2010 (2 months)
- Prof. J. I. Timmis, Department of Computer Science and Department of Electronics, *University of York*, York, UK, November–December 2008 (1 month)
- Dr. B. Sick, Faculty of Mathematics and Computer Science, *University of Passau*, Passau, Germany, April 2006 (2 weeks)
- Prof. Y. Dote, Department of Computer Science and Systems Engineering, *Muroran Institute of Technology*, Muroran, Japan, September–December 2000 (4 months)
- Prof. B.-M. Han, Department of Electrical Engineering, *Myongji University*, Kyunggi-do, Korea, June 1999 (1 month)

POST-DOCTORAL RESEARCHERS ADVISED

- Dr. K. Kostov, RESEARCH TOPIC: Power electronics in photovoltaic systems, 2010–2011
  CURRENT POSITION: Associate Professor, *University of Southern Denmark*, Sønderborg, Denmark
- Dr. X. Z. Gao, RESEARCH TOPIC: Soft computing in control, fault diagnosis, and optimization, 1999–2011
  CURRENT POSITION: Professor, *University of Eastern Finland*, Kuopio, Finland
- Dr. X. Wang, RESEARCH TOPIC: Nature-inspired optimization methods, 2009–2010
- Dr. J. Martikainen, RESEARCH TOPIC: Evolutionary computation, 2007
- Dr. J. M. A. Tanskanen, RESEARCH TOPIC: Predictive signal processing in communications, 2001
- Dr. J. Q. Zhang, RESEARCH TOPIC: Signal processing in instrumentation and measurement, 1998
  CURRENT POSITION: Professor, *Fudan University*, Shanghai, China
- Dr. X. M. Gao, RESEARCH TOPIC: Neural networks in signal processing, 1994–1997

SERVICE FOR IEEE SOCIETY

- *Member*, Industrial Applications Technical Committee, IEEE Systems, Man, and Cybernetics Society, 1998–2014
- *Chair*, Industrial Applications Technical Committee, IEEE Systems, Man, and Cybernetics Society, 2005–2006
- *Member*, Technical Activity Advisory Committee, IEEE Systems, Man, and Cybernetics Society, 2005–2006
- *Project Leader*, "Develop new and revitalize existing technical committees to provide society products and services," IEEE Systems, Man, and Cybernetics Society, 2005–2006
- *Elected Member*, Board of Governors, IEEE Systems, Man, and Cybernetics Society, 2001–2003
- *Coordinating Chair* of Technical Committees (Systems), IEEE Systems, Man, and Cybernetics Society, 2000–2003

ASSOCIATE/GUEST EDITOR FOR IEEE JOURNALS

REGULAR JOURNAL ISSUES

- *Associate Editor*, *IEEE Transactions on Systems, Man, and Cybernetics—Part C: Applications and Reviews*, 2004–2008
- *Associate Editor*, *IEEE Transactions on Neural Networks*, 2005–2006
- *Associate Editor*, *IEEE Transactions on Industrial Electronics*, 1999–2004
- *Associate Editor*, *IEEE Transactions on Instrumentation and Measurement*, 1996–1998

SPECIAL JOURNAL ISSUES/SECTION

- *Guest Editor*, Special Issue "Fusion of Soft Computing and Hard Computing in Industrial Applications," *IEEE Transactions on Systems, Man, and Cybernetics—Part C: Applications and Reviews*, May 2002
- *Guest Editor*, Special Issue "Industrial Innovations Using Soft Computing," *Proceedings of the IEEE*, September 2001

- *Guest Editor*, Special Section "Predictive and Delayless Methods in Control Instrumentation," *IEEE Transactions on Industrial Electronics*, October 1999

REVIEWER OF BOOK PROPOSALS

- TOPIC: Computational Intelligence, Cambridge University Press, Cambridge, UK, 2017
- TOPIC: Machine Learning, John Wiley & Sons, Hoboken, NJ, 2016
- TOPIC: Instrumentation and Measurement, John Wiley & Sons, Chichester, UK, 1999

LEADERSHIP ROLE IN IEEE MEETINGS

- *Chair*, Awards Committee, IEEE Conference on Soft Computing in Industrial Applications, Muroran, Japan, 2008
- *Chair*, Awards Committee, IEEE Three-Rivers Workshop on Soft Computing in Industrial Applications, Passau, Germany, 2007
- *Founding General Co-Chair* (with Dr. T. Bose), IEEE Mountain Workshop on Adaptive and Learning Systems, Logan, UT, 2006
- *General Co-Chair* (with Dr. Y. Dote and Dr. A. Abraham), 4th IEEE International Workshop on Soft Computing as Transdisciplinary Science and Technology, Muroran, Japan, 2005
- *Chair*, Awards Committee, IEEE Mid-Summer Workshop on Soft Computing in Industrial Applications, Espoo, Finland, 2005
- *International Co-Chair* (with W. H. Land, Jr. and Dr. H. Lewis III), IEEE International Workshop on Soft Computing in Industrial Applications, Binghamton, NY, 2003
- *International Co-Chair* (with Dr. H. F. VanLandingham and Dr. Y. Dote), IEEE Mountain Workshop on Soft Computing in Industrial Applications, Blacksburg, VA, 2001
- *Founding General Chair*, IEEE Midnight-Sun Workshop on Soft Computing Methods in Industrial Applications, Kuusamo, Finland, 1999
- *Founding General Chair*, IEEE Nordic Workshop on Power and Industrial Electronics, Espoo, Finland, 1998
- *Finance Chair*, IEEE Nordic Signal Processing Symposium, Espoo, Finland, 1996

PANEL AND TRACK/SESSION ORGANIZER FOR IEEE MEETINGS

- *Panel Discussion* "Computer-Based Intelligence, Where Is It Going?" IEEE Mountain Workshop on Adaptive and Learning Systems, Logan, UT, 2006
- *Panel Discussion* "Fusion of Soft Computing and Hard Computing," IEEE Mid-Summer Workshop on Soft Computing in Industrial Applications, Espoo, Finland, 2005
- *Invited Track* "Fusion of Soft Computing and Hard Computing," IEEE Systems, Man, and Cybernetics Conference, Washington, DC, 2003
- *Invited Session* "Industrial Applications of Soft Computing," IEEE Systems, Man, and Cybernetics Conference, Tucson, AZ, 2001
- *Panel Discussion* "Fusion of Soft Computing and Hard Computing in Industrial Applications," IEEE Mountain Workshop on Soft Computing in Industrial Applications, Blacksburg, VA, 2001
- *Invited Session* "Fusion of Soft Computing and Hard Computing," IEEE Systems, Man, and Cybernetics Conference, Nashville, TN, 2000
- *Invited Track* "Fusion of Soft Computing and Hard Computing," IEEE Systems, Man, and Cybernetics Conference, Tokyo, Japan, 1999
- *Panel Discussion* "Soft Computing Methods in Industrial Applications," IEEE Midnight-Sun Workshop on Soft Computing Methods in Industrial Applications, Kuusamo, Finland, 1999
- *Invited Session* "Soft Computing Methods for Advanced Control," IEEE Systems, Man, and Cybernetics Conference, San Diego, CA, 1998
- *Panel Discussion* "Future Trends in Electric Drives," IEEE Nordic Workshop on Power and Industrial Electronics, Espoo, Finland, 1998

- *Special Session* "Displacement, Velocity, and Acceleration Measurements," IEEE Instrumentation and Measurement Technology Conference, St. Paul, MN, 1998
- *Special Session* "Predictive Signal Processing," IEEE Instrumentation and Measurement Technology Conference, Ottawa, Canada, 1997

CONTRIBUTIONS FOR INTERNATIONAL CONFERENCE COMMITTEES

- *Member*, 40+ program committees, technical committees, and technical program committees

INVITED SPEAKER/PANELIST IN INTERNATIONAL CONFERENCES

- *Invited speaker*, "Fusion of Soft Computing and Hard Computing: Applications and Research Opportunities," IEEE World Congress on Computational Intelligence (International Joint Conference on Neural Networks), Vancouver, Canada, 2006

  INVITED BY Dr. D. B. Fogel, Plenary Chair of WCCI 2006
- *Invited panelist*, "Challenges in Bioinformatics," International Conference on Computer Science and Its Applications, San Diego, CA, 2003

  INVITED BY Dr. P. P. Dey, Program Chair of ICCSA 2003

INSTRUCTOR OF HALF-DAY TUTORIALS IN IEEE CONFERENCES

- *Sustainable and Energy Efficient Data Centers: Challenges, Experiences and Opportunities*, IEEE SoutheastCon, Norfolk, VA, 2016
- *R&D in Intelligent Hybrid Technologies: Fusion of Soft Computing and Hard Computing*, IEEE International Conference on Systems, Man, and Cybernetics, Washington, DC, 2003
- *Soft Filtering: An Emerging Digital Signal Processing Technique*, IEEE SoutheastCon, Lexington, KY, 1999

TEACHING AND COURSE DEVELOPMENT EXPERIENCE (1 year in US)

COURSES AT AALTO UNIVERSITY

- *Embedded Systems Development* (ELEC-E8408); spring 2016–2019
- *Introduction to Digital Systems and Design* (ELEC-C7410); only the lectures in "Embedded Systems"; fall 2018
- *Embedded Real-Time Systems* (ELEC-E8001); fall 2015–2018
- *Special Topics in Industrial Electronics II* (ELEC-L8403); spring 2016–2018
- *Special Topics in Industrial Electronics I* (ELEC-L8402); fall 2015–2017
- *Project Course in Embedded Systems* (S-81.3210); spring 2008–2015
- *Special Course in Industrial Electronics II* (S-81.4210); spring 2006, 2008, 2010–2015
- *Embedded Microprocessor Systems* (S-81.2200); fall 2005, 2007–2014
- *Real-Time Systems Design* (S-81.3200); fall 2005, 2007, 2009–2014
- *Special Course in Industrial Electronics I* (S-81.4200); fall 2005, 2007, 2009, 2011–2014

COURSES AT UTAH STATE UNIVERSITY

- *Microcomputer Systems Programming* (ECE 3720); spring 2007
- *Microcomputer Hardware and Software* (ECE 3710); fall 2006
- *Special Topics in Electrical Engineering: Computationally Intelligent Hybrid Systems* (ECE 5930/6930); summer 2006

COURSES AT HELSINKI UNIVERSITY OF TECHNOLOGY

- *Control Electronics of Electric Drives* (S-81.250); spring 2000–2005
- *Software Engineering for Electric Drives* (S-81.260); spring 2000–2002, 2004-2005
- *Signal Processing and Soft Computing in Industrial Electronics* (S-81.270); fall 2001, 2003–2004
- *Special Course in Industrial Electronics* (S-81.220); fall 1996–2001, 2003–2004
- *Signal Processing Methods in Industrial Electronics* (S-81.210); fall 1996–2000
- *Signal Processors in Industrial Electronics* (S-81.230); spring 1997–1999

- *Input/Output Techniques in Industrial Electronics* (S-81.240); spring 1997–1999
- *Signal Processing in Communications II* (S-38.212); spring 1996
- *Signal Processors in Communications* (S-38.213); spring 1996
- *ATM and Multimedia Seminar* (S-38.201); fall 1995 – spring 1996
- *Basics of Telecommunications Technology* (S-38.118); fall 1995
- *Signal Processing in Communications I* (S-38.211); fall 1995

COURSES AT LAPPEENRANTA UNIVERSITY OF TECHNOLOGY

- *Digital Signal Processing II* (1835); spring 1995
- *Microprocessors* (1820); spring 1993–1995
- *Digital Signal Processing* (1830); fall 1993–1994
- *Computer Architectures* (1725); spring 1993, fall 1993–1994
- *Basic Electronics* (1800); spring 1993–1994
- *Digital Electronics* (1810); fall 1992–1993
- *Assembly Language Programming* (1701); fall 1992–1993

SUPERVISED DOCTOR OF SCIENCE IN TECHNOLOGY, D.SC. (TECH.), DISSERTATIONS

- A. Hentunen, "Electrical and thermal characterization of large lithium-ion batteries for non-road mobile machinery applications," Aalto, 2016
  OPPONENT: Prof. C. Mi, *San Diego State University*, San Diego, CA
- J. Holma, "A pulse power modulator with extremely flat-top output pulses for the compact linear collider at CERN," Aalto, 2015
  OPPONENT: Dr. C. P. Burkhart, *SLAC National Accelerator Laboratory*, Menlo Park, CA
- M. Liukkonen, "Methodologies for development of series-hybrid powertrains to non-road mobile machineries," Aalto, 2013
  OPPONENT: Prof. F. Wang, *University of Tennessee*, Knoxville, TN
- X. Wang, "Hybrid nature-inspired computation methods for optimization," HUT, 2009
  OPPONENT: Prof. M. J. Embrechts, *Rensselaer Polytechnic Institute*, Troy, NY
- J. Martikainen, "Methods for improving reliability of evolutionary computation algorithms and accelerating problem solving," HUT, 2006
  OPPONENT: Prof. J. I. Timmis, *University of York*, York, UK
- J. M. A. Tanskanen, "Polynomial predictive filters: Implementation and applications," HUT, 2000
  OPPONENT: Prof. H. F. VanLandingham, *Virginia Tech*, Blacksburg, VA
- X. Z. Gao, "Soft computing methods for control and instrumentation," HUT, 1999
  OPPONENTS: Prof. H. Takagi, *Kyushu Institute of Design*, Fukuoka, Japan, and Prof. H. F. VanLandingham, *Virginia Tech*, Blacksburg, VA
- S. Väliviita, "Predictive filtering methods for motor drive instrumentation," HUT, 1998
  OPPONENTS: Prof. B. K. Bose, *University of Tennessee*, Knoxville, TN, and Prof. Y. Dote, *Muroran Institute of Technology*, Muroran, Japan
- P. T. Harju, "Advances in polynomial predictive filtering: Theory, design, and applications," HUT, 1997
  OPPONENTS: Prof. M. Gabbouj and Dr. P. Händel, *Tampere University of Technology*, Tampere, Finland
  Graduated at the record age of 23

SUPERVISED LICENTIATE OF SCIENCE IN TECHNOLOGY, LIC.SC. (TECH.), THESES

- J. Holma, "Pulse power modulator development for CERN's compact linear collider," Aalto, 2014
- T. Malkamäki, "Towards sustainable and energy-efficient data centers: A Finnish viewpoint," Aalto 2013
- M. Liukkonen, "Adopting a multi-stage modeling approach to series-hybrid powertrain design," Aalto 2012
- A. Hentunen, "Electrical modeling of large lithium-ion batteries for use in dynamic simulations of electric vehicles," Aalto, 2012
- J. Martikainen, "Developing evolutionary algorithms for time-constrained optimization," HUT, 2006

- S. Uusitupa, "The usage of the telenetworks and their value added services in substituting physical transportation," HUT, 1996

SUPERVISED MASTER OF SCIENCE IN TECHNOLOGY, M.SC. (TECH.), THESES _____

- M. Linnamaa, "Acoustic sensors in biomedical applications," Aalto, 2018
- T. Kukkonen, "Automatic tester for small lithium batteries," Aalto, 2018
- H. Olkkonen, "Improvement of standardized work instructions used in manufacturing industry," Aalto, 2018
- H. Vento, "Production test optimization for low-voltage AC drives," Aalto, 2017
- S. Tikkala, "Data management in future automotive market," Aalto, 2017
- A. Yrjölä, "Earned value management in electrical system projects: A case study," Aalto, 2017
- A. Härö, "Best practices in high-volume sensing and diagnostics for elevators," Aalto 2017
- J. Alander, "Applying lean principles to order-to-delivery process for spare parts with embedded software," Aalto, 2016
- M. Häkkinen, "Control electronics for a liquid dispenser," Aalto, 2016
- M. Nylund, "Construction of an Azipod propulsion simulator," Aalto, 2016
- M. Lumio, "Applicability of CMOS digital isolators in variable-frequency drives," Aalto, 2016
- J. Nordfors, "Designing a wireless sensor system for elevator condition monitoring," Aalto, 2016
- A. Paavilainen, "Controlling a luminaire system via Ethernet." Aalto, 2016
- J. Ulvinen, "Double-conversion uninterruptible power supplies as energy storages in the low-voltage grid," Aalto, 2016
- H. Järveläinen, "Backfeed uninterruptible power supply," Aalto, 2015
- K. Fant, "Ramp-up of printed circuit board assemblies and box-builds," Aalto, 2015
- J. Sahlstedt, "Analysis of IGBT failure due to gate driver malfunction," Aalto, 2014
- A. Sjöberg, "Supercapacitor implementation on an uninterruptible power supply," Aalto, 2014
- A. Mäkinen, "The effect of transformers on the characteristics of a UPS device," Aalto, 2014
- J. Huotari, "Applicability of electrical wind-turbine simulation models for modeling of solar inverters," Aalto, 2013
- D. Trinh, "Street light ballast in low voltage direct current distribution network," Aalto, 2013
- E. Ainola, "Firmware uploading station for the use in mass production of variable-frequency drives," Aalto, 2013
- F. Nicolino, "Adaptive current reference generator for active power filters," Politecnico di Torino, Italy, 2013
- P. Laine, "The effect of electricity distribution automation on greenhouse gas emissions in developing countries," Aalto, 2013
- T. Mannermaa, "Development of safety-critical machine control system software," Aalto, 2013
- M. R. B. Bhuiyen, "Condition monitoring of electric motors using vibrations as fault indicators," Aalto, 2012
- P. Kahelin, "Variable frequency drive diagnostics based on the dc-link voltage measurement," Aalto, 2012
- M. Hiltunen, "Implementing machine vision to automated system testing robot for embedded system," Aalto, 2012
- J. Saikkonen, "Field piloting and production testing of serial manufactured crane component," Aalto, 2012
- T. Paasonen, "Methods for improving the maintainability of application software," Aalto, 2012
- E. Nummijoki, "Automatic test system for type tests of the uninterruptible power supply," Aalto, 2012
- P. Erixon, "Reliability estimation of a frequency converter's printed circuit board assemblies based on accelerated test method," Aalto, 2012
- J. Jocklin, "Maintenance of software platform of a machine control system," Aalto, 2011
- M. Rodas, "Improving the management of a multi-project environment in an R&D organization," Aalto, 2011
- J.-P. Kittilä, "Using gate transformers to control IGBT," Aalto, 2011
- T. Niskala, "Implementation of a wireless powering system for a notebook computer," Aalto, 2011
- L. Syväranta, "A tool for solar plant optimization," Aalto, 2011
- D. Sanz Morales, "Maximum power point tracking algorithms for photovoltaic applications," Aalto, 2010
- R. García Bravo, "Noise-source impedance of switch-mode power supplies," Aalto, 2010
- S. Häkli, "A simulation tool for control design of an island mode inverter," Aalto, 2010
- N. B. A. Rahman, "Inverter topologies for photovoltaic systems," Aalto, 2010

- T. Lindroth, "Reliability requirements and protection implementations of frequency converters' control interfaces," Aalto, 2010
- A. Lähdesmäki, "Modular design in power electronics," Aalto, 2010
- J. Liukkonen, "Automation of air-water heat pump by programmable logic controller," Aalto, 2010
- V. Nieminen, "Evaluation and experimentation of sub-GHz short-range radio transceivers," HUT, 2009
- O. Myllyniemi, "Updating field-programmable gate array in frequency converter application," HUT, 2009
- M. Kärkkäinen, "Functional safety of an inverter controlled chain host," HUT, 2009
- K. Saksa, "Ballast for LEDs in general lighting," HUT, 2009
- J. Rintamäki, "Automatic testing of machine control unit firmware," HUT, 2008
- M. Hämäläinen, "Simulation environment for a distributed elevator control system," HUT, 2006
- S. Imppu, "Test system for partial discharges of dry-type power transformers," HUT, 2006
- T. Harsunen, "Requirements and solutions for a frequency converter connected to a domestic power-distribution network," HUT, 2005
- X. Wang, "Artificial immune optimization and its application in industrial electronics," HUT, 2005
- J. Kallunki, "Energy consumption analysis for elevator system," HUT, 2004
- F. Donckele, "Adaptive signal processing algorithms for indirect acceleration measurement," INSA de Lyon, France, 2004
- E. Nurmikari, "Drive system diagnostics in paper machines," HUT, 2003
- K. Pokki, "Angular velocity measurement by correlating rough surface images," HUT, 2001
- M. Ruusunen, "A prototype device for rotary angle and angular velocity determination based on surface identities," HUT, 2001
- J. Davidsainen, "The fusing of low resolution encoder and angular speed estimation techniques in induction motor control," HUT, 1998
- J. Manninen, "Integration of the control electronics of a small power frequency converter," HUT, 1998
- P. Vallittu, "Digital control of power supplies—opportunities and constraints," HUT, 1997
- P. Karttunen, "Comparison of direction of arrival and beamforming methods," HUT, 1997
- S. Väliviita, "Reusability and quality of inverter software," HUT, 1996
- J. Kyntöjärvi, "Market research and feasibility analysis of a service creation environment," HUT, 1996
- J. Liikanen, "Improving information flow in a company with groupware based on distributed databases," HUT, 1996
- K. Vuori, "Simulation of preprocessor unit in switching centre," HUT, 1996
- A. Pitkänen, "The management of the configuration parameters in voice messaging system by initialisation file based method," HUT, 1996
- P. T. Harju, "Optimization of magnitude response of polynomial predictive filter system," HUT, 1995
- J. Tanskanen, "Prediction of received signal power in CDMA cellular systems," HUT, 1995
- J. Ranta, "Adaptive recursive linear smoothed Newton predictors for polynomial extrapolation," HUT, 1992

INTERNATIONAL EVALUATOR ASSIGNMENTS (BE, GB, US)

RETENTION, TENURE, AND PROMOTION REVIEWS

- Second arm's-length evaluation of Dr. M. J. Embrechts' qualifications for promotion to Full Professor, Department of Industrial and Systems Engineering, *Rensselaer Polytechnic Institute*, Troy, NY, 2012
- Arm's-length evaluation of Dr. M. J. Embrechts' qualifications for promotion to Full Professor, Department of Industrial and Systems Engineering, *Rensselaer Polytechnic Institute*, Troy, NY, 2011
- Arm's-length evaluation of Dr. G. D. Buckner's qualifications for promotion to Full Professor, Department of Mechanical and Aerospace Engineering, *North Carolina State University*, Raleigh, NC, 2009
- Arm's-length evaluation of Dr. D. Ventura's qualifications for tenure and promotion to Associate Professor, Computer Science Department, *Brigham Young University*, Provo, UT, 2006
- Arm's-length evaluation of Dr. J. L. Frolik's progress as Assistant Professor, Department of Electrical and Computer Engineering, *University of Vermont*, Burlington, VT, 2005

- Arm's-length evaluation of Dr. G. D. Buckner's qualifications for tenure and promotion to Associate Professor, Department of Mechanical and Aerospace Engineering, *North Carolina State University*, Raleigh, NC, 2003
- Arm's-length evaluation of Dr. R. Roy's qualifications for promotion to Senior Lecturer, Department of Enterprise Integration, *Cranfield University*, Bedford, UK, 2001

RESEARCH PROPOSAL REVIEWS
- Member of a proposal review panel, FIELD: Intelligent Systems, INVITED BY Dr. V. Halloin, *The Fund for Scientific Research* ("F.R.S.–FNRS"), Brussels, Belgium, 2018
- Member of a proposal review panel, FIELD: Intelligent Systems, INVITED BY Dr. V. Halloin, *The Fund for Scientific Research* ("F.R.S.–FNRS"), Brussels, Belgium, 2017
- Member of a proposal review panel, FIELD: Intelligent Systems, INVITED BY Dr. M. Renauld, *The Fund for Scientific Research* ("F.R.S.–FNRS"), Brussels, Belgium, 2013
- Member of a proposal review panel, FIELD: Computational Intelligence and Learning, INVITED BY Dr. P. J. Werbos, *National Science Foundation* ("NSF"), Arlington, VA, 2005

SHORT COURSES TAKEN

- *Design and Implementation of Pedagogies of Engagement: Strategies from the National Academies Workshop on the Knowledge Economy and Postsecondary Education*, College of Engineering, Utah State University, Logan, UT, 2006
  INSTRUCTOR: Dr. K. A. Smith, *University of Minnesota*, Minneapolis, MN
- *Improving Peer Review: Three Perspectives*, ASEE Annual Conference and Exposition, Salt Lake City, UT, 2004
  INSTRUCTORS: Dr. J. Sharp, *Vanderbilt University*, Nashville, TN, and Dr. B. Olds, *National Science Foundation* ("NSF"), Arlington, VA
- *Software Design Using MDL and Design Tools*, International Conference on Computer Science and Its Applications, San Diego, CA, 2003
  INSTRUCTOR: Dr. P. P. Dey, *National University*, San Diego, CA
- *Immunological Computation: Algorithms and Applications*, IEEE SMC Conference, San Diego, CA, 1998
  INSTRUCTOR: Dr. D. Dasgupta, *University of Memphis*, Memphis, TN
- *Interactive Evolutionary Computation*, IEEE SMC Conference, San Diego, CA, 1998
  INSTRUCTOR: Dr. H. Takagi, *Kyushu Institute of Design*, Fukuoka, Japan
- *Theory, Applications, and Current Trends in Neurocomputing*, IEEE SMC Conference, Orlando, FL, 1997
  INSTRUCTOR: Dr. M. Georgiopoulos, *University of Central Florida*, Orlando, FL
- *R&D in Intelligent Technologies: Fusion of NN, FS, GA, Chaos, and Human*, IEEE SMC Conference, Orlando, FL, 1997
  INSTRUCTOR: Dr. H. Takagi, *Kyushu Institute of Design*, Fukuoka, Japan

NOTEWORTHY RECOGNITIONS

- *Knight First Class of the Order of the White Rose of Finland*, PRESIDENT OF THE REPUBLIC OF FINLAND, 2018
- *Most Active SMC Technical Committee Award*, IEEE SYSTEMS, MAN, AND CYBERNETICS SOCIETY, 2006
  CITATION: "For being recognized as the Most Active SMC Technical Committee for the organization of SMCia/99, SMCia/01, SMCia/03, SMCia/05, SMCals/06, and SMCia/07"
- *Outstanding Service Award*, IEEE INDUSTRIAL ELECTRONICS SOCIETY, 2005
  CITATION: "In appreciation for the outstanding service to the Industrial Electronics Society as the Associate Editor of the IEEE Transactions on Industrial Electronics"
- *Outstanding Contribution Award*, IEEE SYSTEMS, MAN, AND CYBERNETICS SOCIETY, 2002
  CITATION: "For organizing the SMC industrial application workshops"
- *Outstanding Contribution Award*, IEEE SYSTEMS, MAN, AND CYBERNETICS SOCIETY, 2000
  CITATION: "For the organization and development of conferences in soft computing that have provided a vehicle for research collaboration"
- *Armor–KONE Connection Award*, ARMOR ELEVATOR COMPANY (American subsidiary of KONE Corporation), 1985
  CITATION: "For providing outstanding support in achieving our objectives"

BIOGRAPHICAL BACKGROUND _____

Seppo J. Ovaska earned his D.Sc. (Tech.) degree in signal processing from Tampere University of Technology in 1989, under the supervision of Professor Yrjö Neuvo. He is a Professor in the School of Electrical Engineering at Aalto University. He served two terms as a Senior Scientist of the Academy of Finland. In 2006–2007, he was a Visiting Professor of Electrical and Computer Engineering at Utah State University. His research expertise includes computational intelligence, green computing, and industrial electronics. He has published more than 100 articles in peer-reviewed journals. And his Scopus® h-index is 27.

Before embarking on his academic career, Dr. Ovaska developed control systems for high-rise elevators, both in Finland and in the United States. He holds six U.S. patents. For his pioneering contributions on overlay modernization of elevator groups, he received the Armor–KONE Connection Award. See the PNC Tower in Louisville, Kentucky, where the first "overlay," TMS900 MO™, was installed. Today, at Aalto University, he brings his industrial experience and the associated insight to the classroom.

Over the years, Dr. Ovaska has taught courses in a wide variety of areas, but specialized in embedded real-time systems. Representative comments for his classes at Utah State University include: "*Professor seemed to really want to do a good job with the course and make it the best possible. Very helpful and thorough in teaching. He came into labs and talked to everyone even though a TA was there*." His textbook Real-Time Systems Design and Analysis: Tools for the Practitioner (Wiley, 2012) is on the Intel Recommended Reading List for Developers "Books for Embedded Developers – Software." See the Reading List.

Dr. Ovaska has served his profession as an associate and guest editor for several IEEE journals, including a guest-editorship for the top-ranked Proceedings of the IEEE; and he was an elected member of the Board of Governors as well as the coordinating chair of Technical Committees (Systems), IEEE Systems, Man, and Cybernetics (SMC) Society. Moreover, he founded two IEEE SMC workshop series, SMCia and SMCals, and has run these with his colleagues in Asia, Europe, and North America. For his IEEE SMC efforts, he received two Outstanding Contribution Awards and the Most Active SMC Technical Committee Award (as the chair and founding member of the Technical Committee on Industrial Applications).

Dr. Ovaska's travels have taken him to Muroran Institute of Technology, North Carolina State University, the University of Passau, Utah State University, and Virginia Tech. These collaboration visits enhanced his knowledge and insight on various areas of Electrical and Computer Engineering, as well as on Engineering Education and Academic Leadership. And the productive visits led to 15 articles in peer-reviewed journals, two special journal issues, and a research book by Wiley (see Computing Reviews).

In addition, Dr. Ovaska has served the international academic community as an external reviewer for retention, tenure, and/or promotion (arm's-length evaluation) at Brigham Young University, Cranfield University, North Carolina State University, Rensselaer Polytechnic Institute, and the University of Vermont.

See also the Advanced Research Portal and the essay If I Were a Student Again: My Next Choice.
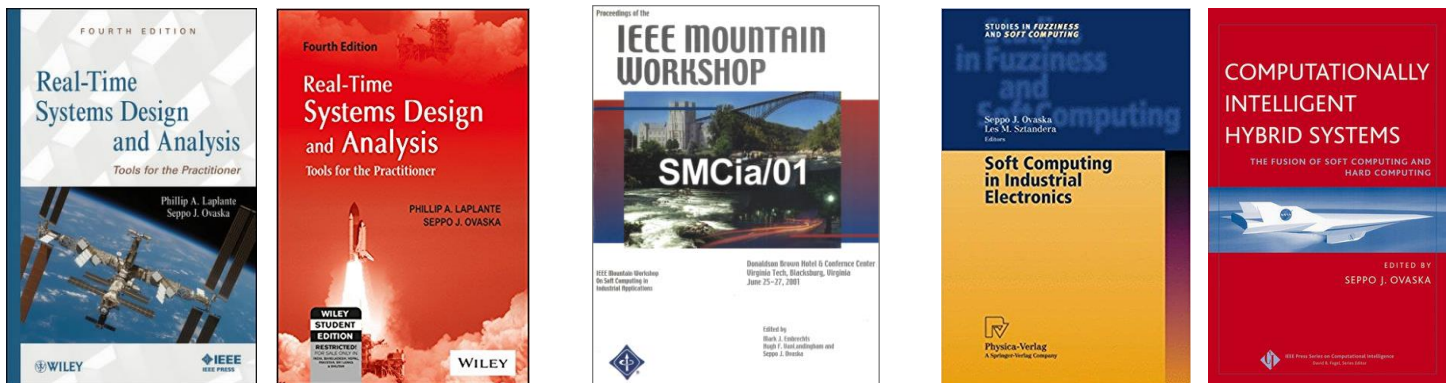
My textbooks (LEFT), research books (RIGHT), and a workshop proceedings (MIDDLE)—see the **Publication Record**.

PUBLICATION RECORD

AUTHORED TEXTBOOK _____

1. P. A. Laplante and **S. J. Ovaska**, *Real-Time Systems Design and Analysis: Tools for the Practitioner*, 4th Edition. Hoboken, NJ: John Wiley & Sons, 2011, 560 p. ISBN 978-0-470-76864-8.

   Paperback student edition published by Wiley India Pvt. Ltd., New Delhi, India, 2013. ISBN 978-81-265-4193-5.
   FOR SALE ONLY IN BANGLADESH, BHUTAN, INDIA, NEPAL, PAKISTAN, AND SRI LANKA.

EDITED RESEARCH BOOKS AND CONFERENCE PROCEEDINGS _____

5. **S. J. Ovaska** (Ed.), *Computationally Intelligent Hybrid Systems: The Fusion of Soft Computing and Hard Computing*. Hoboken, NJ: John Wiley & Sons, 2004, 410 p. ISBN 978-0-4714-7668-9. (FOREWORD by Dr. D. B. Fogel of Natural Selection, Inc., San Diego, CA)
4. **S. J. Ovaska** and L. M. Sztandera (Eds.), *Soft Computing in Industrial Electronics*. Heidelberg, Germany: Physica-Verlag, 2002, 352 p. ISBN 978-3-7908-1477-4. (FOREWORD by Dr. R. E. Saeks of Accurate Automation Corporation, Chattanooga, TN)
3. R. Roy, M. Köppen, **S. Ovaska**, T. Furuhashi, and F. Hoffmann (Eds.), *Soft Computing and Industry – Recent Applications*. London, UK: Springer-Verlag, 2002, 852 p. ISBN 978-1-4471-1101-6.
2. M. J. Embrechts, H. F. VanLandingham, and **S. J. Ovaska** (Eds.), *Proceedings of the 2001 IEEE Mountain Workshop on Soft Computing in Industrial Applications*. Piscataway, NJ: IEEE Press, 2001, 134 p. ISBN 0-7803-7154-2.
1. Y. Suzuki, **S. Ovaska**, T. Furuhashi, R. Roy, and Y. Dote (Eds.), *Soft Computing in Industrial Applications*. London, UK: Springer-Verlag, 2000, 670 p. ISBN 978-1-4471-1155-9.

CHAPTERS IN ENCYCLOPEDIA AND RESEARCH BOOKS _____

10. X. Z. Gao, X. Wang, and **S. J. Ovaska**, "Harmony search methods for multi-modal and constrained optimization," in *Music-Inspired Harmony Search Algorithm*. Z. W. Geem, Ed. Heidelberg, Germany: Springer-Verlag, 2009, pp. 39-51. ISBN: 978-3-642-00184-0.
9. J. Martikainen and **S. J. Ovaska**, "Optimizing multiplicative general parameter finite impulse response filters using evolutionary computation," in *Success in Evolutionary Computation*. A. Yang, Y. Shan, and L. T. Bui, Eds. Heidelberg, Germany: Springer-Verlag, 2008, pp. 327-354. ISBN: 978-3-540-76285-0.
8. X. Z. Gao, **S. J. Ovaska**, and X. Wang, "Negative selection algorithm with applications in motor fault detection," in *Soft Computing Applications in Industry*. B. Prasad, Ed. Heidelberg, Germany: Springer-Verlag, 2008, pp. 93-115. ISBN: 978-3-540-77464-8.
7. **S. J. Ovaska** and B. Sick, "Fusion of soft computing and hard computing: Applications and research opportunities," in *Computational Intelligence: Principles and Practice*. G. Y. Yen and D. B. Fogel, Eds. New York, NY: IEEE Computational Intelligence Society, 2006, pp. 47-72. ISBN 0-9787135-0-8.
6. **S. J. Ovaska**, "Introduction to the fusion of soft computing and hard computing," in *Computationally Intelligent Hybrid Systems: The Fusion of Soft Computing and Hard Computing*. S. J. Ovaska, Ed. Hoboken, NJ: John Wiley & Sons, 2004, pp. 5-30. ISBN 0-471-47668-4.
5. **S. J. Ovaska**, "Predictive filtering methods for power systems applications," in *Computationally Intelligent Hybrid Systems: The Fusion of Soft Computing and Hard Computing*. S. J. Ovaska, Ed. Hoboken, NJ: John Wiley & Sons, 2004, pp. 203-240. ISBN 0-471-47668-4.
4. X. Z. Gao and **S. J. Ovaska**, "Dynamical fuzzy systems with linguistic information feedback," in *Systematic Organization of Information in Fuzzy Systems*. P. Melo-Pinto, H.-N. Teodorescu, and T. Fukuda, Eds. Amsterdam, The Netherlands: IOS Press, 2003, pp. 179-195. ISBN 1-58603-295-X.
3. X. Z. Gao and **S. J. Ovaska**, "Motor fault detection and diagnosis using soft computing," in *Soft Computing in Industrial Electronics*. S. J. Ovaska and L. M. Sztandera, Eds. Heidelberg, Germany: Physica-Verlag, 2002, pp. 3-44. ISBN 3-7908-1477-6.
2. **S. J. Ovaska**, "Acceleration measurement," in *Survey of Instrumentation and Measurement*. S. A. Dyer, Ed. New York, NY: John Wiley & Sons, 2001, pp. 535-546. ISBN 0-471-39484-X.
1. **S. J. Ovaska**, "Acceleration measurement," in *Wiley Encyclopedia of Electrical and Electronics Engineering*. J. G. Webster, Ed. New York, NY: John Wiley & Sons, 1999, vol. 1, pp. 26-37. ISBN 0471-13940-8.

AN EXPERIENTIAL CAREER TRILOGY FOR EE/CPE STUDENTS AND YOUNG PROFESSIONALS _____

3. **S. J. Ovaska**, "Ethics vs. Loyalty: A young professional's case," *IEEE Potentials*, vol. 38, no. 5, September/October 2019, IN PRESS. To be available: https://doi.org/10.1109/MPOT.2018.2816598.

2. **S. J. Ovaska**, "If I were a student again: My next choice," *IEEE Potentials*, vol. 37, no. 3, pp. 41-42, May/June 2018. Available: https://doi.org/10.1109/MPOT.2017.2734941.

1. **S. J. Ovaska**, "Managing your career in a dynamic environment," *IEEE Potentials*, vol. 37, no. 3, pp. 24-26, May/June 2018. Available: https://doi.org/10.1109/MPOT.2017.2764512.

GUEST EDITORIALS IN PEER-REVIEWED JOURNALS (special issue/section) _____

3. **S. J. Ovaska** and H. F. VanLandingham, "Guest editorial: Special issue on fusion of soft computing and hard computing in industrial applications," *IEEE Transactions on Systems, Man, and Cybernetics—Part C: Applications and Reviews*, vol. 32, no. 2, pp. 69-71, May 2002.

2. Y. Dote, **S. J. Ovaska**, T. Furuhashi, and Y. Suzuki, "Scanning the issue: Special issue on industrial innovations using soft computing," *Proceedings of the IEEE*, vol. 89, no. 9, pp. 1239-1241, September 2001.

1. **S. J. Ovaska**, "Guest editorial: Special section on predictive and delayless methods in control instrumentation," *IEEE Transactions on Industrial Electronics*, vol. 46, no. 5, pp. 874-875, October 1999.

PEER-REVIEWED JOURNAL ARTICLES _____

104. D. Fisch, C. Gruhl, E. Kalkowski, B. Sick, and **S. J. Ovaska**, "Towards automation of knowledge understanding: An approach for probabilistic generative classifiers," *Information Sciences*, vol. 370-371, pp. 476-496, November 2016.

103. **S. J. Ovaska**, R. E. Dragseth, and S. A. Hanssen, "Direct-to-chip liquid cooling for reducing power consumption in a subarctic supercomputer centre," *International Journal of High Performance Computing and Networking*, vol. 9, no. 3, pp. 242-249, April 2016, OPEN ACCESS (CC BY 4.0). Available: http://www.inderscienceonline.com/doi/pdf/10.1504/IJHPCN.2016.076269.

102. M. Liukkonen, J. Suomela, and **S. J. Ovaska**, "Design of an energy management scheme for a series-hybrid powertrain in heavy-duty vehicle applications," *International Journal of Powertrains*, vol. 4, no. 1, pp. 53-70, January 2015.

101. X. Z. Gao, X. Wang, **S. J. Ovaska**, and K. Zenger, "A hybrid optimization method based on differential evolution and harmony search," *International Journal of Computational Intelligence and Applications*, vol. 13, no. 1, pp. 1450001-1 – 1450001-23, March 2014.

100. X. Z. Gao, X. Wang, T. Jokinen, **S. J. Ovaska**, A. Arkkio, and K. Zenger, "A hybrid PBIL-based harmony search method," *Neural Computing & Applications*, vol. 21, no. 5, pp. 1071-1083, September 2012.

99. **S. J. Ovaska** and D. A. Shilane, "A discrete optimization problem for benchmarking heuristic algorithms targeted for digital filter design," *International Journal of Computers and Their Applications*, vol. 19, no. 3, pp. 176-186, September 2012.

98. X. Z. Gao, X. Wang, **S. J. Ovaska**, and K. Zenger, "A hybrid optimization method of harmony search and opposition-based Learning," *Engineering Optimization*, vol. 44, no. 8, pp. 895-914, August 2012.

97. X. Z. Gao, X. Wang, T. Jokinen, **S. J. Ovaska**, A. Arkkio, and K. Zenger, "A hybrid optimization method for wind generator design," *International Journal of Innovative Computing, Information and Control*, vol. 8, no. 6, pp. 4347-4373, June 2012.

96. A. Kamiya and **S. J. Ovaska**, "Developments of dual higher education in Finland and technical college education in Japan," *Journal of JSEE*, vol. 59, no. 2, pp. 34-40, March 2011.

95. D. Fisch, B. Kühbeck, B. Sick, and **S. J. Ovaska**, "So near and yet so far: New insight into properties of some well-known classifier paradigms," *Information Sciences*, vol. 180, no. 18, pp. 3381-3401, 2010.

94. X. Z. Gao, **S. J. Ovaska**, and X. Wang, "A simplified linguistic information feedback-based dynamical fuzzy system," *Neural Computing & Applications*, vol. 19, no. 7, pp. 1029-1041, October 2010.

93. X. Z. Gao, X. Wang, **S. J. Ovaska**, and H. Xu, "A modified harmony search method in constrained optimization," *International Journal of Innovative Computing, Information and Control*, vol. 6, no. 9, pp. 4235-4247, September 2010.

92. X. Z. Gao, **S. J. Ovaska**, X. Wang, and M.-Y. Chow, "Multi-level optimization of negative selection algorithm detectors with application in motor fault detection," *Intelligent Automation and Soft Computing*, vol. 16, no. 3, pp. 353-375, September 2010.

91. T. Komrska, J. Žák, **S. J. Ovaska**, and Z. Peroutka, "Current reference generator for 50-Hz and 16.7-Hz shunt active power filters," *International Journal of Electronics*, vol. 97, no. 1, pp. 63-81, January 2010.

90. X. Z. Gao, **S. J. Ovaska**, and X. Wang, "Particle swarm optimization-based detectors in negative selection algorithm," *Journal of Hybrid Computing Research*, vol. 2, no. 2, pp. 18-35, July-December 2009.

89. **S. J. Ovaska**, B. Sick, and A. H. Wright, "Periodical switching between related goals for speeding up evolution to a fixed goal in multi-objective problems," *Information Sciences*, vol. 179, no. 23, pp. 4046-4056, December 2009.

88. X. Z. Gao, **S. J. Ovaska**, and X. Wang, "Re-editing and censoring of detectors in negative selection algorithm," *International Journal of Computational Intelligence Systems*, vol. 2, no. 3, pp. 299-312, October 2009.

87. X. Wang, X. Z. Gao, and **S. J. Ovaska**, "A hybrid artificial immune optimization method," *International Journal of Computational Intelligence Systems*, vol. 2, no. 3, pp. 249-256, October 2009.

86. X. Z. Gao, X. Wang, and **S. J. Ovaska**, "Uni-modal and multi-modal optimization using modified harmony search methods," *International Journal of Innovative Computing, Information and Control*, vol. 5, no. 10, pp. 2985-2996, October 2009.

85. X. Z. Gao, **S. J. Ovaska**, X. Wang, and M.-Y. Chow, "Clonal optimization-based negative selection algorithm with applications in motor fault detection," *Neural Computing & Applications*, vol. 18, no. 7, pp. 719-729, October 2009.

84. X. Z. Gao, X. Wang, and **S. J. Ovaska**, "Fusion of clonal selection algorithm and differential evolution method in training cascade-correlation neural network," *Neurocomputing*, vol. 72, no. 10-12, pp. 2483-2490, June 2009.

83. X. Z. Gao, **S. J. Ovaska**, X. Wang, "A linguistic information feed-back-based dynamical fuzzy system (LIFBDFS) with learning algorithm," *Neural Computing & Applications*, vol. 18, no. 4, pp. 321-329, May 2009.

82. X. Wang, X. Z. Gao, and **S. J. Ovaska**, "Fusion of clonal selection algorithm and harmony search method in optimisation of fuzzy classification systems," *International Journal of Bio-Inspired Computation*, vol. 1, no. 1-2, pp. 80-88, January 2009.

81. D. Shilane, J. Martikainen, S. Dudoit, and **S. J. Ovaska**, "A general framework for statistical performance comparison of evolutionary computation algorithms," *Information Sciences*, vol. 178, no. 14, pp. 2870-2879, July 2008.

80. X. Wang, X. Z. Gao, and **S. J. Ovaska**, "A novel particle swarm-based method for nonlinear function optimization," *International Journal of Computational Intelligence Research*, vol. 4, no. 3, pp. 281-289, May 2008.

79. X. Z. Gao, **S. J. Ovaska**, and X. Wang, "A GA-based negative selection algorithm," *International Journal of Innovative Computing, Information and Control*, vol. 4, no. 4, pp. 971-979, April 2008.

78. X. Z. Gao, **S. J. Ovaska**, X. Wang, and M.-Y. Chow, "A neural networks-based negative selection algorithm in fault diagnosis," *Neural Computing & Applications*, vol. 17, no. 1, pp. 91-98, January 2008.

77. X. Wang, X. Z. Gao, and **S. J. Ovaska**, "A hybrid optimization algorithm based on ant colony and immune principles," *International Journal of Computer Science & Applications*, vol. 4, no. 3, pp. 30-44, September 2007.

76. B. Sick and **S. J. Ovaska**, "Fusion of soft and hard computing: Multi-dimensional categorization of computationally intelligent hybrid systems," *Neural Computing & Applications*, vol. 16, no. 2, pp. 125-137, February 2007.

75. J. Martikainen and **S. J. Ovaska**, "Hierarchical two-population genetic algorithm," *International Journal of Computational Intelligence Research*, vol. 2, no. 4, pp. 367-380, November 2006.

74. X. Z. Gao and **S. J. Ovaska**, "Linguistic information feed-forward-based dynamical fuzzy systems," *IEEE Transactions on Systems, Man, and Cybernetics—Part C: Applications and Reviews*, vol. 36, no. 4, pp. 453-463, July 2006.

73. **S. J. Ovaska**, A. Kamiya, and Y. Q. Chen, "Fusion of soft computing and hard computing: Computational structures and characteristic features," *IEEE Transactions on Systems, Man, and Cybernetics—Part C: Applications and Reviews*, vol. 36, no. 3, pp. 439-448, May 2006.

72. **S. J. Ovaska**, T. Bose, and O. Vainio, "Genetic algorithm-assisted design of adaptive predictive filters for 50/60 Hz power systems instrumentation," *IEEE Transactions on Instrumentation and Measurement*, vol. 54, no. 5, pp. 2041-2048, October 2005.

71. B.-M. Han, B.-Y. Bae, and **S. J. Ovaska**, "Reference signal generator for active power filters using improved adaptive predictive filter," *IEEE Transactions on Industrial Electronics*, vol. 52, no. 2, pp. 576-584, April 2005.

70. A. Kamiya, **S. J. Ovaska**, R. Roy, and S. Kobayashi, "Fusion of soft computing and hard computing for large-scale plants: A general model," *Applied Soft Computing*, vol. 5, no. 3, pp. 265-279, March 2005.

69. X. Z. Gao, **S. J. Ovaska**, and A. V. Vasilakos, "A modified Elman neural network-based power controller in mobile communications systems," *Soft Computing – A Fusion of Foundations, Methodologies and Applications*, vol. 9, no. 2, pp. 88-93, February 2005.

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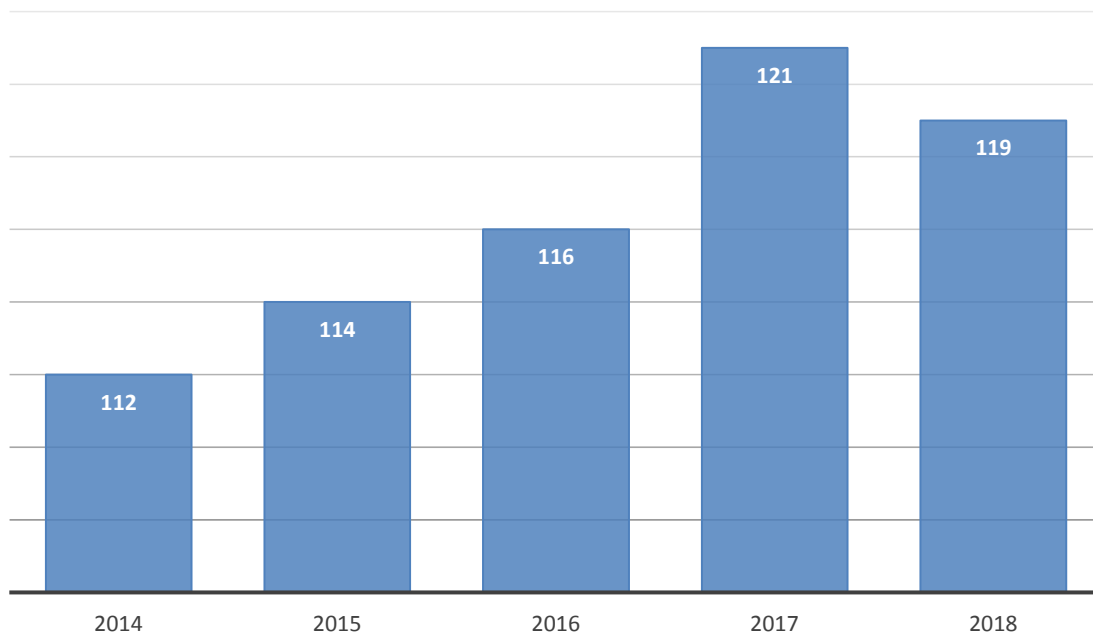
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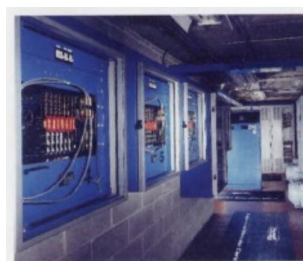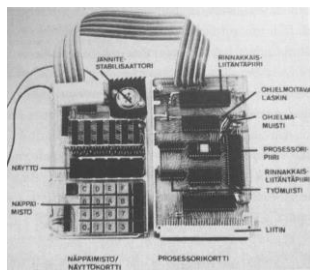**22** (1423 citations)—Web of Science™

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CITATIONS BY YEAR AS A MEASURE OF IMPACT (Scopus®; *self-citations of all authors excluded*)

Year	Citations
2014	112
2015	114
2016	116
2017	121
2018	119

MOMENTOUS PRODUCTS FROM MY STUDY PERIOD AND EARLY R&D CAREER

TMS900 Modernization Overlay (left) made it possible in the 1980s to improve the traffic-handling performance of a multi-car group of elevators while taking one unit out of service for modernization.

During my Master's studies at *Tampere University of Technology* in 1978: **TAM 6802** microcomputer (LEFT).
In the beginning of my industrial R&D career at *Armor Elevator Company* in 1983: **TMS900 MO™** (RIGHT).