Martin VETTERLI

http://lcav.epfl.ch/people/martin.vetterli

Education and Diplomas

01/83-04/86	Doctoral Studies, EE Dept., Ecole Polytechnique Fédérale de Lausanne, Switzerland. Awarded the "Doctorat ès Science" in April 1986.
09/81-08/82	Master Program, EE Dept., Stanford University, with courses in statistical signal processing. Awarded the Master of Science in Sept. 1982.
10/76-01/81	Studies for the Engineers degree, EE Dept., Swiss Federal Institute of Technology, Zurich. Awarded the "Dipl. El.-Ing" Degree in Feb.1981.

Professional Experience

01/13 – now	President of the National Research Council, Swiss National Science Foundation.
03/11 - 12/12	Dean of the School of Computer and Communication Sciences, Ecole Polytechnique Fédérale de Lausanne.
05/08 - 02/11	Vice-president for Institutional Affairs and member of Ecole Polytechnique Fédérale de Lausanne's management team. Responsibilities include international affairs, campus-wide computing and information systems, school of management and special projects for the school.
10/04 - 04/08	Vice-President for International Affairs and member of Ecole Polytechnique Fédérale de Lausanne's management team in charge of international developments.
11/01 - 12/04	Director, National Competence Center for Research on Mobile Information and Communication Systems, a Swiss NSF center with a budget of 32 MCHF for 4 years, involving about 30 faculty members across EPFL, ETHZ and other Swiss academic institutions.
12/98 - 12/08	Co-founder and chief scientist, Dartfish, a video special effects company in Switzerland.
08/95 – now	Professeur Ordinaire, Communication Systems, Ecole Polytechnique Fédérale de Lausanne. March 1996 to Dec. 1997, Head of Communication Systems Division. Set up a new graduate program in Communication Systems, organized an advisory board, set up an annual research review. Head of the Audiovisual Communications Laboratory.
07/97 – 06/08	Adjunct Professor of Electrical Engineering, Department of Electrical Engineering and Computer Sciences, University of California at Berkeley, teaching Spring 1998.
01/00 - 12/03	Member of the Swiss Council on Science and Technology, a 12 member national panel advising the Swiss government.
03/98 – 05/98	Visiting Professor, Dept. of EE, Stanford University (teaching a wavelets course).
07/92 – 06/97	Associate and then Full Professor of Electrical Engineering, Department of Electrical Engineering and Computer Sciences, University of California at Berkeley.
06/90	Visiting Professor, Inst. for Inf. and Sig. Proc., ETHZ, Zurich.
07/87-12/94	Assistant and then Associate Professor, Department of Electrical Engineering, Columbia University. Tenured since March 1992. Principal Investigator, Center for Telecommunications Research (a National Engineering Research Center).
10/86-06/87	Associate Research Scientist, Center for Telecommunications Research, Columbia University.

Awards

2015	US National Academy of Engineering, elected foreign member
2014	Thomson ISI Web of Science highly cited researcher in engineering
2010	ERC Advanced Investigators Grant: Sparse Sampling: Theory, Algorithms and Applications – SPARSAM – no 247006
2010	IEEE Signal Processing Society Award for fundamental contributions to signal processing theory, technology and education
2009	ACM Fellow
2008	EURASIP Technical achievement award.
2007	EURASIP Fellow
2007	Thomson ISI Web of Science highly cited researcher in engineering.
2006	IEEE Signal Processing Society's Senior Award (DSP Technical Area) for the paper with P. Marziliano and T. Blu entitled "Sampling signals with finite rate of innovation", IEEE Trans. on SP. Volume 50, Number 6, June 2002
2002	Technical Achievement Award, IEEE Signal Processing Society
1999	Distinguished Lecturer, IEEE Signal Processing Society
1999	SPIE Presidential Award, Wavelets Applications Conference
1996	IEEE Signal Processing Society's 1996 Senior Award (IMDSP Technical Area) for the paper with K. Ramchandran entitled "Best Wavelet Packet Bases in a Rate-Distortion Sense," IEEE Trans. on IP, Apr. 1993
1996	Swiss National Science Foundation Latsis Prize, for best researcher under 40 (all fields) in Switzerland.
1995	Fellow of the IEEE, for "Contributions to the theory and practice of subband coding and wavelets"
1991	IEEE Signal Processing Society's 1991 Senior Award (DSP Technical Area) for the paper with D. LeGall entitled "Perfect reconstruction FIR filter banks: some properties and factorizations," IEEE Trans. on ASSP, July 1989
1988	Research Initiation Award, National Science Foundation
1986	Research prize of the Brown Boveri Corporation (Switzerland) for his doctoral thesis
1984	Best paper award of the European Association for Signal Processing (EURASIP) for his paper "Multidimensional sub-band coding: some theory and algorithms," in Signal Processing, Vol.6, No.2, April 1984

Research Interests

Mathematical signal processing: wavelet theory, filter banks, sampling theory. High dimensional signal processing: plenacoustic, plenoptic sampling and reconstruction. Communication systems: joint source and channel coding, image compression.
Distributed signal processing and communications: sensor networks, self-organized systems. Applications of sensor networking and signal processing to environmental monitoring.

Teaching

Courses taught over the years at Columbia University, UC Berkeley, Stanford and EPFL include Computer Communication Networks, Algorithms and Architectures for Fast DSP, Algebraic Coding Theory, Digital Signal Processing, Signals and Systems, Wavelets and Subband Coding, Communication and Information Theory, Advanced Signal Processing: Wavelets and Applications, Signal Processing for Communications, Statistical Signal Processing and Applications, Mathematical Signal Processing.
Online teaching: Introduced the first online course (MOOC) on Digital Signal Processing (https://class.coursera.org/dsp-005)

Doctoral Students

Graduated 61 PhD's (12 at Columbia, 6 at UCB and 43 at EPFL), and currently advises or co-advises 9 PhD candidates at EPFL. Graduates include company founders, research lab members, and faculty members at top institutions (e.g. CMU, Imperial, KTH, UCB, USC and NTU).

Technology Transfer

Several start-ups grew from the laboratory, including companies in video processing (www.dartfish.com and www.quividi.com) and audio processing (www.illusonic.com) as well as www.vidinoti.ch and www.sensorscope.ch. Technology transfer includes patent portfolio sales to Qualcomm and Rambus.

Professional Activities

Memberships in Societies and Editorial Boards: IEEE, ACM, SIAM, as well as various editorial boards of relevant journals. Guest Editorships of several special issues in IEEE Transactions and Magazines, as well as special sessions.
Numerous invitations as speaker (IEEE ICASSP, ISIT and ICIP, SPIE, Daghstuhl, EUSIPCO, SAMPTA, SPARS, US-NSF).

Publications: books

M. Vetterli and J. Kovacevic, Wavelets and Subband Coding, Prentice Hall, 1995 and open access at: www.waveletsandsubbandcoding.org
P. Prandoni and M. Vetterli, Signal Processing for Communications, EPFL and CRC Press, 2008, and open access at www.sp4comm.org
M. Vetterli, J. Kovacevic and V. Goyal, Foundations of Signal Processing, 2014, Cambridge University Press and open access at www.fourierandwavelets.org

Publications: papers

170 journals papers, mostly in IEEE Transactions (SP, IP, IT), 368 conference papers, mostly in IEEE Conference Proceedings, 13 book chapters. Citations: on WoS about 15'000, h-factor 57, on Google scholar about 51'000, h-factor 94.

Patents

About 50 patents and patent applications.