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Peter Mathys received the Dipl.Ing. and Ph.D. degrees in Electrical Engineering from the Swiss Federal Institute of Technology (ETH), Zürich, Switzerland, in 1976 and 1985, respectively. During 1985-86 he was a Visiting Research Scientist at the Laboratory for Information and Decision Systems at the Massachusetts Institute of Technology, Cambridge, MA. In August 1986 he joined the faculty of the University of Colorado at Boulder, where he is now an Associate Professor in the Department of Electrical and Computer Engineering. His main academic interest is to motivate students by visibly integrating theory and practice in the classroom and in the lab. He has been a consultant for a number of companies in the US and in Europe in the areas of communications, data networks, error control coding, and cryptography. His research interests include multi-user information theory and coding, data networks, communication theory, wireless communications, coding and modulation for magnetic recording, cryptography, and analysis of algorithms.

Academic Experience:

2003-current: Chair Curriculum Committee.

1993-current: Associate Professor, Department of Electrical and Computer Engineering, University of Colorado at Boulder. Courses taught include: ECEN 1200 Telecommunications 1, ECEN 2250 Circuits/Electronics 1, ECEN 2260 Circuits/Electronics 2, ECEN 3310 Linear Systems, ECEN 4242 Communication Theory, ECEN 4652 Communications Lab, ECEN 5002 Data Networks, ECEN 5032 Cryptography, ECEN 5612 Noise and Random Processes, ECEN 5622 Information Theory and Coding, ECEN 5682 Error Control Coding, ECEN 5692 Principles of Communication Engineering.

1995-current: Specializing on developing and teaching courses that have an applied laboratory component to visibly integrate theory and practice. Examples can be found at

- <http://ece.colorado.edu/~mathys/ecen1200> (Telecommunications 1)
- <http://ece.colorado.edu/~mathys/ecen2250> (Circuits/Electronics 1)
- <http://ece.colorado.edu/~mathys/ecen2260> (Circuits/Electronics 2)
- <http://ece.colorado.edu/~mathys/ecen3300> (Linear Systems)
- <http://ece.colorado.edu/~mathys/ecen4652> (Communications Lab)

2001-current: Teaching short courses in “Digital Signal Processing”, “Communication Theory and Practice”, and “Error Control Coding” for CCIS (Colorado Center for Information Storage), Boulder, Colorado.

Awards:

1987: W.R.G. Baker Prize Award, given annually for the best paper in any IEEE publication, for the paper “The Collision Channel Without Feedback” (with J.L. Massey).

1990: Presidential Young Investigator Award.

2003: Sullivan-Carlson “Innovation in Teaching Award”, presented by the Engineering Students at CU Boulder.

Industrial Experience:

2006: Consultant for Mempile Inc., using spread spectrum technology to measure channel parameters for optical recording channels.

1996–2005: Consultant for Exabyte Corporation, analyzing and designing codes for error-control coding in magnetic recording. Analysis of patents and providing documentation for the resolution of patent infringement claims.

2003: Consultant for Quantum Corporation, analyzing the performance and implementation of error detection/correction schemes.

2000–2002: Consultant for PCcoach, developing advanced DSP algorithms for SonicLink data reception from heart rate monitors for athletes.

1997–1998: Consultant for Ecix Corporation, analyzing the performance of error-control codes in magnetic recording.

1995–1999: Consultant for Welch Allyn and LifeLink, designing and implementing a medical data collection network for home treatment of chronically-ill patients.

1994: Consultant for Displaytech, analyzing source coding and multiplexing schemes for high-resolution color LCD displays.

1990–1995: Consultant for Radish Corporation, designing specialized modem and data link protocols for simultaneous voice and data transmission over the analog public telephone network.

Selected Publications:

J.L. Massey and P. Mathys, “The collision channel without feedback,” *IEEE Trans. Info. Theory*, vol. IT-31, no. 2, pp. 192–204, March 1985.

P. Mathys and P. Flajolet, “Q-ary collision resolution algorithms in random-access systems with free or blocked channel access,” invited paper, *IEEE Trans. Info. Theory*, vol. IT-31, no. 2, pp. 217–243, March 1985.

P. Mathys, “A class of codes for a T active users out of N multiple-access communication system,” *IEEE Trans. Info. Theory*, vol. 36, no. 6, Nov. 1990, pp. 1206–1219.

P. Mathys, Hui Tong, and Lidija Trailović, “Feasibility Study for Qualcomm CDMA-Based System in Wireless LANs,” Dept of ECE, Univ. of Colorado, Boulder, Oct. 1996.

M. Rice, S. Tretter, and P. Mathys, “On Differentially Encoded M-Sequences,” *IEEE Trans. Comm.*, vol. 49, no. 3, pp. 421–424, March 2001.