**Prof. Dr. Christoph Studer**

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# Curriculum Vitae

## Research Interests

My research interests are at the intersection of signal processing and communication algorithms, algorithmic theory, and digital very large-scale integration (VLSI) circuits and systems. The current focus of my research group is on massive multiple-input multiple-output (MIMO) wireless systems, nonlinear signal processing, and machine learning for wireless positioning.

## Education

*July 2009:* Ph.D. in Information Technology and Electrical Engineering, ETH Zurich, Switzerland. Doctoral dissertation: "Iterative MIMO Decoding: Algorithm and VLSI Implementation Aspects," thesis advisors: Prof. W. Fichtner (Integrated Systems Laboratory, ETH Zurich) and Prof. H. Bölcskei (Communication Technology Laboratory, ETH Zurich).

*Jan. 2006 – July 2009:* Doctoral studies carried out jointly at the Integrated Systems Laboratory and the Communication Technology Laboratory, Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland.

*Dec. 2005:* Engineering diploma (equivalent to M.S. degree) in Information Technology and Electrical Engineering, ETH Zurich, Switzerland. Master's Thesis: "Sphere Decoding with Resource Constraints," carried out at the Information Systems Laboratory (with Prof. A. Paulraj), Department of Electrical Engineering, Stanford University, CA, USA.

*Sept. 2000 – Dec. 2005:* Undergraduate and graduate studies in Information Technology and Electrical Engineering, ETH Zurich, Switzerland.

*Feb. 2000 – Aug. 2013:* Service member of the Swiss Armed Forces in terrestrial reconnaissance.

## Academic Positions

*June 2020 – present :* Associate Professor (Ausserordentlicher Professor) in Integrated Information Processing (Integrierte Informationsverarbeitung) at the Department of Information Technology and Electrical Engineering at ETH Zurich, Zurich, Switzerland.

*June 2020 – present :* Visiting Associate Professor at the School of Electrical and Computer Engineering at Cornell University, Ithaca, NY, USA.

*Jan. 2014 – present:* Adjunct Professor at the Department of Electrical and Computer Engineering at Rice University, Houston, TX, USA.

*October 2019 – May 2020 :* Associate Professor at the School of Electrical and Computer Engineering at Cornell University, Ithaca, NY and at Cornell Tech, New York, NY, USA.

*July 2019 – October 2019:* Assistant Professor at the School of Electrical and Computer Engineering at Cornell Tech, New York, NY, USA.

*Jan. 2014 – October 2019:* Assistant Professor at the School of Electrical and Computer Engineering at Cornell University, Ithaca, NY, USA.

*Sep. 2013 – Dec. 2013:* Visiting Assistant Professor at the School of Electrical and Computer Engineering, Cornell University, NY, USA.

*Jan. 2013 – Dec. 2013:* Research Scientist at the Department of Electrical and Computer Engineering, Rice University, TX, USA.

*Mar. 2011 – Dec. 2012:* Postdoctoral Researcher at the Digital Signal Processing (DSP) group (with Prof. R. G. Baraniuk), Department of Electrical and Computer Engineering, Rice University, TX, USA.

*Aug. 2009 – Feb. 2011:* Postdoctoral Researcher at the Communication Technology Laboratory (with Prof. H. Bölcskei), Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland.

*Jan. 2006 – July 2009:* Research and Teaching Assistant at the Integrated Systems Laboratory and the Communication Technology Laboratory, Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland.

*Jan. 2005 – July 2005:* Visiting Researcher at the Information Systems Laboratory (with Prof. A. Paulraj), Department of Electrical Engineering, Stanford University, CA, USA.

## Awards

*2019:* Ph.D. students Alexandra Gallyas-Sanhueza and Oscar Castañeda were awarded a $100,000 Qualcomm innovation fellowship for the project "PPAC: In-Memory Accelerator for Matrix-Vector Products."

*2018:* Paper by Ph.D. students Kaipeng Li (Rice University) and Charles Jeon (Cornell University) on "Feedforward Architectures for Decentralized Precoding in Massive MU-MIMO Systems," was awarded 2nd place at the student paper contest of the 52nd Annual Asilomar Conference on Signals, Systems, and Computers.

*2017:* IEEE Wireless Communication Letters Exemplary Reviewer.

*2017:* The paper "Towards a Deeper Understanding of Training Quantized Neural Networks" with H. Li, S. De, Z. Xu, H. Samet, and T. Goldstein received the Google Best Student Paper Award at the ICML Workshop on Principled Approaches to Deep Learning.

*2017:* Received a US NSF CAREER award from the Division of Computing and Communication Foundations (CCF) on the first attempt. The $606,661 award supports a five-year interdisciplinary research project on hardware-accelerated Bayesian inference.

*2017:* Ph.D. students Emre Gonultaş and Oscar Castañeda were selected as finalists of the 2017 Qualcomm Innovation Fellowship.

*2016:* Michael Tien '72 Excellence in Teaching Award, Cornell University, College of Engineering.

*2016:* Paper with Ph.D. student Igor Labutov on "Calibrated Self-Assessment" received the Best Student Paper award at the 9th International Conference on Educational Data Mining (EDM).

*2014:* IEEE Wireless Communication Letters Exemplary Reviewer.

*2013:* Shared the Swisscom/ICTnet Innovations Award 2013 on "Design of a Wideband Analog-to-Information Converter for Cognitive Radio" with D. Bellasi, L. Bettini, and C. Benkeser.

*2013:* IEEE Wireless Communication Letters Exemplary Reviewer.

*2013:* Best Demo Award at the IEEE International Symposium on Circuits and Systems (ISCAS) for the demonstration "Real-Time Audio Restoration using Sparse Signal Recovery."

*2011:* Fellowship for Advanced Researchers from the Swiss National Science Foundation (SNSF).

*2011:* ETH Medal for the doctoral dissertation on "Iterative MIMO Decoding: Algorithms and VLSI Implementation Aspects." Research carried out at the Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland.

*2010:* Shared the Swisscom/ICTnet Innovations Award 2010 on "VLSI Implementation of Soft-Input Soft-Output MMSE Parallel Interference Cancellation" with S. Fateh and D. Seethaler.

*2010:* Single tree-search sphere decoding (jointly developed with with Prof. A. Burg) was explicitly cited in the Vodafone Innovations Award 2010 given to Prof. H. Bölcskei.

*2008:* Best Student Paper Award at the IEEE International Symposium on Circuits and Systems (ISCAS) for the paper entitled "VLSI Architecture for Data-Reduced Steering Matrix Feedback in MIMO Systems."

*2007:* 1st place at the Student Paper Contest of the 41th Asilomar Conference on Signals, Systems, and Computers for the paper entitled "Matrix Decomposition Architecture for MIMO Systems: Design and Implementation Trade-Offs."

*2005:* ETH Medal for the M.S. Thesis on "Sphere Decoding with Resource Constraints." Research carried out at the Information Systems Laboratory (with Prof. A. Paulraj), Department of Electrical Engineering, Stanford University, CA, USA.

*2005:* ETH Zurich Travel Grant for travel expenses to Stanford University, CA, USA.

## Academic Work Experience and Teaching Activities

*Fall 2019:* ECE 5415 "Applied Digital Signal Processing and Communication" graduate course at Cornell Tech, New York, NY. (Enrollment 17 students.)

*Fall 2019:* ECE 5746 "Applied Digital ASIC Design" graduate course at Cornell Tech, New York, NY. (Enrollment 15 students.)

*Spring 2014 – 2019:* ECE 4740 "Digital VLSI Design" undergraduate course at the School of ECE, Cornell University, NY, USA. (Enrollment in 2014–2018 between 24 and 72 students.)

*Fall 2018:* ECE 4670 "Digital Communication System Design" undergraduate course at the School of ECE, Cornell University, NY, USA. (Enrollment 25 students.)

*Fall 2015 – 2017:* ECE 5680 "Wireless Communication" graduate course at the School of ECE, Cornell University, NY, USA. (Enrollment between 6 and 18 students.)

*Fall 2014:* ECE 5950 "Special Topics in ECE: Sparse Signal Processing" graduate course at the School of ECE, Cornell University, NY, USA. (Enrollment 11 students.)

*Oct. 2013 – Dec. 2013:* Guest lecturer for ELEC 547 "Computer Vision" and ELEC 301 "Introduction to Signals and Systems" at the ECE Dept. of Rice University, TX, USA. (Enrollment approximately 20 students.)

*Dec. 2011 – Dec. 2013:* Supervisor of three Ph.D. candidates on the design of a machine-learning-based personalized learning system at the ECE Dept. of Rice University, TX, USA. The developed technology is now used at OpenStax, a nonprofit educational initiative based at Rice university.

*Nov. 2011 – Dec. 2013:* Mentor of Group Projects for ELEC 301 "Introduction to Signals and Systems" at the ECE Dept. of Rice University, TX, USA.

*June 2009 – Dec. 2011:* Main supervisor of Laboratory Courses for B.S. and M.S. students at the Communication Technology Laboratory, ETH Zurich, Switzerland.

*Jan. 2006 – Feb. 2011:* Supervisor of 14 M.S. Theses and 20 Semester Projects at the Integrated Systems Laboratory and the Communication Technology Laboratory, ETH Zurich, Switzerland; leading the specification, design, measurement, and testing of more than 15 application-specific integrated circuits (ASICs).

*Jan. 2006 – June 2009:* Main teaching assistant for the lecture VLSI III (Fabrication and Verification of Highly Integrated Circuits). Organization of the exercises and the supervision of testing the fabricated application specific integrated circuits (ASICs).

*Jan. 2006 – June 2009:* Teaching assistant for VLSI I (Architectures of Highly Integrated Circuits) and VLSI II (Design of Highly Integrated Circuits). Short lectures on specific topics in IC design, exercise preparation, and examination preparation and grading.

*Aug. 2005 – July 2008:* Teaching Assistant at the Integrated Systems Laboratory, ETH Zurich for the Digital Audio practical training, projects, and seminar (PPS) course. Student mentoring for hardware (PCB design) and software development of DSP-based real-time audio-processing algorithms.

## Industrial Work Experience and Consulting

*Aug. 2008 – Jan. 2009:* Consultant for Celestrius AG, an ETH Zurich spinoff specialized in the field of multi-antenna (MIMO) wireless communication (working on the development and silicon integration of high-performance data detection algorithms for IEEE 802.11n wireless LAN).

*Sept. 2004 – Dec. 2004:* Internship at Philips Semiconductors, Digital Baseband, Zurich, Switzerland. The work included the development of a company-wide system-level verification standard for cellular (GSM and EDGE) baseband system-on-chips.

## Research Grants and Industry Support

### Current Support

*NSF CSR:* "CNS Core: Medium: Resource Constrained Reinforcement Learning for Computing Systems," *co-principal investigator*, (PI Prof. C. Yu; Co-PIs Prof. Q. Xie and Prof. S. Banerjee), total funding $1,200,000, funding for PI Studer: $300,000, duration 9/1/2020–8/31/2024.

*NSF SpecEES:* "SPASS: Spatio-Spectral Sensing with Wideband Feature Extraction Arrays," *principal investigator*, (co-PI: Prof. Alyssa Apsel), total funding $641,999, funding for PI Studer: $320,999, duration 9/1/2018–8/31/2021.

*SRC JUMP:* "ComSenTer: A Center for Converged TeraHertz Communications and Sensing," *principal investigator*, (Center Director at UCSB: Prof. Mark Rodwell), total funding for PI Studer $1,015,835, duration 5/1/2018–12/31/2022.

*NSF CNS, Collaborative Research:* "NeTS: Small: Collaborative Research: BRICK: Breaking the I/O and Computation Bottlenecks in Massive MIMO Base Stations," *principal investigator*, (PI at Rice University: Prof. J. R. Cavallaro), total funding $500,000, funding for PI Studer: $250,000, duration 9/1/2017–8/31/2020.

*NSF ECCS and SRC:* "E2CDA: TYPE 1: Durable, Energy-Efficient, Pausable Processing in Polymorphic Memories (DEEP3M)," *co-principal investigator*, (PI at Cornell: Prof. Huili (Grace) Xing), total funding $1,866,663, estimated funding for co-PI Studer: $243,000, duration 10/1/2017–9/30/2020.

*NSF CCF, SHF:* "CAREER: Hardware Accelerated Bayesian Inference via Approximate Message Passing: A Bottom-Up Approach," *principal investigator*, total funding for PI Studer $606,661, duration 2/15/2017–1/31/2022.

*Xilinx Inc., Donation:* Unrestricted gift from Xilinx Inc., total funding for PI Studer: $82,500 (funding of $7,500 biannually received since 5/11/2015).

**Past Support**

*SRC JUMP:* "ComPPAC: Hardware and Compilation for Versatile In-Memory Acceleration of Matrix-Vector Product-Like Tasks," *co-principal investigator*, (PI Prof. Zhiru Zhang), total seed fund of $60,000, seed funding for PI Studer: $30,000, duration: 8/1/2019-7/31/2020.

*NSF CCF, Collaborative Research:* "AitF: EXPL: Collaborative Research: Approximate Discrete Programming for Real-Time Systems," *principal investigator* (PI at University of Maryland: Prof. T. Goldstein), total funding $400,000, funding for PI Studer: $200,000, duration 9/1/2015–12/31/2018.

*NSF EECS, Collaborative Research:* "BAMM: Baseband Accelerators for Massive MIMO," *principal investigator* (PI at Rice University: Prof. J. R. Cavallaro), total funding $331,330, funding for PI Studer: $165,665, duration 9/1/2014–8/31/2017 (no cost extension until 12/31/2018).

*NVIDIA GPU Grant Program:* Funding of $5,000 in the form of a NVIDIA Quadro P6000 received on 1/24/2018.

*Cornell CTE Faculty Grant:* "Data-Collection Campaign for Machine Learning in Education," *principal investigator*, funding $1,500 received on 2/19/2015.

*Cornell New Faculty Institute Research Stipend:* Funding of $1,000 received on 2/9/2015.

*SNSF Grant PA00P2-134155:* "Sparse-Signal Recovery with Statistical Models: Algorithms, Performance, and Implementation," (provided by the Swiss National Science Foundation), *principal investigator*, funding $102,000, duration 3/1/2011–2/28/2013.

## Ph.D. Students and Postdocs

**Current Students**

*Sueda Taner:* Research topic: "Theoretical Aspects of mmWave Communication," Ph.D. student; start: Aug. 2019

*Pengzhi Huang:* Research topic: "Privacy Aspects of Channel Charting," Ph.D. student; start: Aug. 2019

*Alexandra Gallyas-Sanhueza:* Research topic: "Baseband Algorithms for Terahertz Communication Systems," Ph.D. student; start: Aug. 2018

*Brian Rappaport:* Research topic: "Simultaneous Sensing and Communication," Ph.D. student; start: Aug. 2018

*Seyed Hadi Mirfarshbafan:* Research topic: "VLSI Designs for Terahertz Communication Systems," Ph.D. student; start: Aug. 2018

*Saïd Medjkouh:* Research topic: "Machine Learning for Wireless Positioning and Tracking," Ph.D. student; start: Aug. 2018

*Oscar Castañeda:* Research topics: "Discrete Programming, Approximate Semidefinite Relaxation, and Hardware-Aware Machine Learning," Ph.D. student; start: Aug. 2016; expected graduation in 2021

*Emre Gönültaş:* Research topic: "Analog-to-Feature (A2F) Conversion for Low-Power Classification,' Ph.D. student; start: Aug. 2016; expected graduation in 2021

**Former Students**

*Ramina Ghods:* Thesis title: "Nonlinear Estimation with Applications to Wireless Communications, Imaging, and Machine Learning," Ph.D. student; start: Aug. 2014 to Aug. 2019; now at Carnegie Mellon University, School of Computer Science, Pittsburgh, PA

*Charles Jeon:* Thesis title: "Data Detection for Massive MU-MIMO Systems," Ph.D. student; Jan. 2014 to Dec. 2018; ECE Ph.D. teaching assistant award; was at Intel Labs, Hillsboro, OR, and is now at Apple, San Diego, CA

*Michaël Pelissier:* Project title: "Compressive-Sensing RF Receiver," postdoctoral researcher; Oct. 2015 to Aug. 2016; now at CEA-Leti, Laboratoire d'éctronique des technologies de l'information, Grenoble, France

*Igor Labutov:* Thesis title: "Machine Learning Methods For Machine Teaching," Ph.D. student; Jan. 2014 to June 2016; from 2016 to 2018 was with Prof. Tom Mitchell at Carnegie Mellon University, Pittsburgh, PA and since 2018 is a Runway Startup postdoctoral researcher at Cornell Tech, NY

*Paul Chollet:* Project title: "Analog-to-Feature (A2F) Conversion for ECG Low-Power Signal Classification," visiting Ph.D. student; Aug. 2016 to Dec. 2016; now Assistant Professor at Télécom ParisTech, Paris, France

## Participation in External Ph.D. Thesis Committees

*Asmaa Abdallah :* "Interference Mitigation in 5G Network Densification Technologies: Algorithms and Performance Limits," Department of Electrical and Computer Engineering, American University of Beirut, Beirut, Lebanon, April 2020.

*Kaipeng Li:* "Decentralized Baseband Processing for Massive MU-MIMO Systems," Department of Electrical and Computer Engineering, Rice University, Houston, TX, April 2019.

*Marguerite Marnat:* "Radio Frequency Receivers Based on Compressive Sampling for Feature Extraction in Cognitive Radio Applications," Université de Grenoble, Saint Martin d'Hères, France, Nov. 2018.

*David Bellasi:* "Toward Energy-Proportional Compressive Sensors," Department of Information Technology and Electrical Engineering, ETH Zurich. Switzerland, Dec. 2017.

*Jérémy Nadal:* "Filtered Multicarrier Waveforms in the Context of 5G: Novel Algorithms and Architecture Optimization," IMT Atlantique, École Mines-Télécom, Bertagne-Pays de la Loire, France, Dec. 2017.

*Nicholas Preyss:* "Modulation, Coding, and receiver Design for Gigabit mmWave Communication," Electrical Engineering Department (EDEE), École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, July 2016.

*Michael Wu:* "Efficient Detectors for LTE Uplink Systems: From Small to Large Systems," Department of Electrical and Computer Engineering, Rice University, Houston, TX, March 2016.

*Schekeb Fateh:* "Calibration Techniques for Digitally Assisted Nyquist-Rate ADCs," Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland, Jan. 2016.

*Bei Yin:* "Low-Complexity Detection and Precoding for Massive MIMO-OFDM Systems: Algorithm, Architecture, and Application," Department of Electrical and Computer Engineering, Rice University, Houston, TX, Sept. 2014.

*Iker S. Polancos:* "Detection and Decoding Algorithms of Multi-Antenna Diversity Techniques for Terrestrial DVB Systems," Dept. Electronics and Computer Science, University of Mondragón, Arrasate, Basque Country, Spain, Nov. 2010.

## Diversity and Outreach Activities

*July 2019:* Lead of the one-week research project "Bits over the Air: Experiencing Wireless Systems" for Cornell's CATALYST Academy, a one-week summer residential program for underrepresented minority high-school sophomores, juniors, and seniors.

*July 2015, 2016, and 2018:* Field-session presenter for Cornell's CURIE Academy, a one-week summer residential program for rising female high school sophomores, juniors, and seniors.

*May 2015, 2016, and 2017:* Lecturer for Math Day at Boynton Middle School, Ithaca, in which Cornell professors replace the usual math lessons for the day.

*Summer 2016:* Supervisor of Felipe Suárez Colmenares from the Universidad de los Andes, Bogotá, Colombia, for Cornell's CienciAmerica summer program.

*Summer 2015:* Supervisor of Oscar Castañeda from Universidad del Valle de Guatemala, Guatemala, for Cornell's CienciAmerica summer program.

*July 2015:* Field-session presenter for the CATALYST Academy, a one-week summer residential program for rising high school sophomores, juniors, and seniors.

*July 2014:* Field-session presenter (jointly with Prof. Zhang) for the CATALYST Academy, a one-week summer residential program for rising high school sophomores, juniors, and seniors.

## Professional Activities

### Memberships

- ***IEEE Senior Member*** since Sep. 2014.
- Member of the IEEE Communications, IEEE Circuits and Systems, IEEE Information Theory, IEEE Signal Processing, and IEEE Solid State Circuits societies.
- Member of the following technical committees:
  - IEEE Machine Learning for Communications Emerging Technologies Initiatives since Sep. 2018.
  - IEEE Signal Processing for Communications and Networking (SPCOM) Technical Committee since Jan. 1, 2017 (regional representative for the U.S., member of the Education Subcommittee since March 2017-May 2019, chair of the Education Subcommittee since May 2019). Elected until 2023.
  - IEEE Design and Implementation of Signal Processing Systems (DISPS) Technical Committee since Jan. 2017. Elected until 2019.
  - IEEE Circuits and Systems for Communication (CASCOM) Technical Committee since May. 2016. Elected until 2019.

**Conference and Workshop (Co-)Organization**

- ***Track Chair*** for "Track 10: Machine Learning and AI for Communications" at the IEEE Vehicular Technology Conference 2021 Spring with co-chairs Dr. J. Hoydis, Nokia France and Prof. A. Balatsoukas-Stimming, Eindhoven University of Technology, NL.
- ***Alternate Technical Chair*** for the Asilomar Conference on Signals, Systems, and Computers, Oct. 2020 to support the TC Prof. Marco Duarte from UMass Amherst.
- ***Associate Editor*** for the IEEE Open Journal of Circuits and Systems (OJCAS) since Aug. 2019.
- ***Technical Chair*** for the Asilomar Conference on Signals, Systems, and Computers, Oct. 2019.
- ***Technical Chair*** for the IEEE Intl. Workshop on Signal Processing Systems (SiPS), Oct. 2019.
- ***Technical Area Chair*** for the "Architecture and Implementation" track, at the Asilomar Conference on Signals, Systems, and Computers, Oct. 2017.
- ***Publication Chair*** (together with Prof. G. Durisi) for the 2017 IEEE International Symposium on Information Theory (ISIT), Aachen, Germany, June 2017.
- Technical program committee (TPC) member for the following conferences and workshops:
  - ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2014
  - European Signal Processing Conference (EUSIPCO), 2014 and 2017
  - European Solid State Circuit Conference (ESSCIRC), 2016, 2017, and 2018
  - IEEE Global Communications Conference (GLOBECOM), 2019 and 2020
  - IEEE Global Conference on Signal and Information Processing (GlobalSIP), 2014 to 2016, and 2019
  - IEEE Intl. Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2014
  - IEEE Intl. Conference on Electronic Circuits and Systems (ICECS), 2014
  - IEEE Intl. Symposium on Circuits and Systems (ISCAS), 2013 and 2015
  - IEEE Intl. Symposium on Turbo Codes & Iterative Information Processing, 2016
  - IEEE Intl. Symposium on Wireless Communication Systems (ISWCS), 2018 and 2019
  - IEEE Intl. Workshop on Signal Processing Systems (SiPS), 2017
  - IEEE Vehicular Technology Conference (VTC Fall), 2014
  - IEEE Vehicular Technology Conference (VTC Spring), 2015
  - IEEE Intl. Conference on Very Large Scale Integration (VLSI-SoC), 2017
  - IEEE Intl. Symposium on Wireless Communication Systems, 2018
  - IEEE Intl. Workshop on Signal Processing Advances in Wireless Communications (SPAWC), 2017 to 2019
  - IEEE Intl. Workshop on Signal Processing Systems (SiPS), 2018
  - International Conference on Wireless Communications and Signal Processing (WCSP; co-sponsored by IEEE), 2018
  - Signal Processing with Adaptive Sparse Structured Representations (SPARS), 2017
- Guest editor for the following journal special issues:
  - IEEE Access, 2020, special section on "Beyond 5G Communications" (with Dr. U. Gustavsson, Dr. J. Hoydis, Prof. U. Mitra, Prof. L. Sanguinetti, and Prof. M. Tao)

  - IEEE Journal on Emergent Topics in Circuits and Systems (JETCAS), 2020, on "Artificial Intelligence for 5G and Beyond 5G: Implementations, Algorithms, and Optimizations" (with Prof. A. P. Burg, Prof. Y.-L. Ueng, and Prof. C. Zhang)
  - IEEE Transactions on Circuits and Systems II (TCAS-II), 2020, on "International Symposium on Circuits and Systems Special Issue" (with Prof. Yajun Ha *et al.*)
  - IEEE Transactions on Circuits and Systems I (TCAS-I), 2016, on "International Symposium on Circuits and Systems Special Issue" (with Prof. E. Da Silva *et al.*)
  - EURASIP Journal on Wireless Communications and Networking, Dec. 2015, on "Recent Advances in Massive MIMO Systems" (with Prof. R. de Lamare)
  - EURASIP Journal on Wireless Communications and Networking, Dec. 2011, on "Algorithm and Implementation Aspects of Channel Codes and Iterative Receivers" (with Prof. J. R. Cavallaro and Prof. A. P. Burg)

- Organizer of the following special sessions:
  - IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Atlanta, GA, May 2019, on "System and Transceiver Design for mmWave and Terahertz Communication Systems."
  - IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Cannes, France, July 2019, on "System and Transceiver design for mmWave and TeraHertz Communications in beyond 5G."
  - 52nd Asilomar Conference on Signals, Systems, and Computers, CA, USA, Nov. 2018, on "Machine Learning for Wireless Systems I and II."
  - 50th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA, Nov. 2016, on "Hardware Aspects for Compressive Sensing and Analog-to-Information Conversion" and "Algorithm and Hardware Aspects for 5G Wireless Systems"
  - 47th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA, Nov. 2013 on "Implementation Aspects for Full Duplex and Large-Scale MIMO Wireless Systems"
  - 46th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA, Nov. 2012, on "Compressive Sensing"
  - IEEE Intl. Symposium on Circuits and Systems (ISCAS), Rio de Janeiro, Brazil, May 2011, on "VLSI Architectures for LDPC Coding/Decoding," (with Prof. A. Burg)

- Organizer of the following workshops:
  - Neural Information Processing Systems (NIPS) Conference, Barcelona, Spain, Dec. 2016, on "Machine Learning for Education" (with Prof. R. G. Baraniuk, Dr. A. S. Lan, and Dr. J. Ngiam)
  - Intl. Conference on Machine Learning (ICML), Lille, France, July 2015, on "Machine Learning for Education" (with Prof. R. G. Baraniuk, Prof. E. Brunskill, Dr. J. Huang, Prof. M. van der Schaar, Prof. M. C. Mozer, and Dr. A. S. Lan)
  - Neural Information Processing Systems (NIPS) Conference, Quebec, Canada, Dec. 2014, on "Human Propelled Machine Learning" (with Prof. R. G. Baraniuk and Prof. M. C. Mozer)
  - IEEE Global Communications Conference (GLOBECOM), Austin, TX, Dec. 2014 on "Massive MIMO: From Theory to Practice" (with Prof. O. Edfors, Prof. L. van der Perre, and Prof. F. Rusek)

- Committee member for the Student Paper Contest at the 45th Asilomar Conference on Signals, Systems, and Computers (ACSSC), Pacific Grove, CA, USA, Nov. 2011.

**Review Activities**

- Reviewer of project proposals for the following agencies:
  - US National Science Foundation (NSF), 2016 and 2017
  - Fonds zur Förderung der Wissenschaftlicher Forschung (FWF), Vienna, Austria, 2014
- Reviewer for the following journals (in alphabetical order):
  - Hindawi Mobile Information Systems
  - IEEE Communications Letters
  - IEEE Embedded Systems Letters
  - IEEE Journal of Selected Topics in Signal Processing
  - IEEE Signal Processing Letters
  - IEEE Signal Processing Magazine
  - IEEE Open Journal of Circuits and Systems
  - IEEE Solid-State Circuits Letters
  - IEEE Transactions on Circuits and Systems I
  - IEEE Transactions on Circuits and Systems II
  - IEEE Transactions on Communications
  - IEEE Transactions on Image Processing
  - IEEE Transactions on Information Theory
  - IEEE Transactions on Signal Processing
  - IEEE Transactions on Vehicular Technology
  - IEEE Transactions on Very Large Scale Integration Systems
  - IEEE Transactions on Wireless Communications
  - IEEE Wireless Communication Letters **(exemplary reviewer award in 2013, 2014, and 2017)**
  - Elsevier Applied and Computational Harmonic Analysis
  - Elsevier Intl. Journal of Electronics and Communications
  - Elsevier Signal Processing
  - EURASIP Journal on Signal Processing
  - EURASIP Journal on Advances in Signal Processing
  - European Transactions on Telecommunications
  - Arabian Journal for Science and Engineering
  - IET Circuits, Devices and Systems
  - Springer Journal of Fourier Analysis and Application
  - Springer Journal of Signal Processing Systems
- Reviewer for the following conferences (in alphabetical order):
  - Asilomar Conference on Signals, Systems, and Computers (ACSSC)
  - European Conference on Signal Processing (EUSIPCO)
  - IEEE Global Communications Conference (GLOBECOM)
  - IEEE Intl. Symposium on Information Theory (ISIT)

  - IEEE Intl. Conference on Acoustics, Speech, and Signal Processing (ICASSP)
  - IEEE Intl. Symposium on Circuits and Systems (ISCAS)
  - IEEE Intl. Communications Conference (ICC)
  - IEEE Intl. Workshop on Signal Processing Advances for Wireless Communications (SPAWC)
  - IEEE Intl. Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)
  - IEEE Intl. Symposium on Wireless Communication Systems (ISWCS)
  - IEEE Intl. Conference on Communications and Signal Processing (ICCSP)
  - IEEE Intl. Conference on Electronics, Circuits, and Systems (ICECS)
  - IEEE Intl. Symposium on Turbo Codes & Iterative Information Processing (ISTC)
  - IEEE Intl. Conference on Electrical Engineering, Computing Science and Automatic Control (CCE)
  - IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)
  - IEEE Vehicular Technology Conference (VTC)
  - IEEE Wireless Communications and Networking Conference (WCNC)
  - Information Theory Workshop (ITW)
  - Intl. Data Compression Conference (DCC)
  - Intl. ITG Conference on Systems, Communications, and Coding (SCC)
  - Intl. ITG Workshop on Smart Antennas (WSA)
  - Intl. Conference on Sampling Theory and Applications (SampTA)
- Conference session chair:
  - IEEE GLOBECOM, Abu Dhabi, Dec. 2018 on "Detection and Estimation 2"
  - 52nd Asilomar Conference on Signals, Systems, and Computers (ACSSC), Pacific Grove, Nov. 2018 on "Machine Learning for Wireless Systems I and II"
  - IEEE Intl. Symposium on Circuits and Systems (ISCAS), Florence, Italy, May, 2018, on "Enabling baseband Technologies for 5G & Beyond", "Technology and Circuits for Communication," and "Wireline Communications 2."
  - 2018 Information Theory and Applications Workshop, San Diego, CA, Feb. 2018 on "Sparse Signal Processing."
  - 51st Asilomar Conference on Signals, Systems, and Computers (ACSSC), Pacific Grove, CA, USA, Nov. 2017 on "Computer Architecture"
  - 42nd IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Mar. 2017, New Orleans, USA, on "mmWave MIMO and Beamforming"
  - 22nd European Signal Processing Conference (EUSIPCO), Lisbon, Portugal, Sep. 2014, on "Design and Implementation of Signal Processing Systems"
  - 51st Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL, Oct. 2013 on "Sparse Data Analysis"
  - IEEE Intl. Symposium on Information Theory (ISIT), Cambridge, MA, USA, July 2012, on "Compressive Sensing and Algorithms"
  - 45th Asilomar Conference on Signals, Systems, and Computers (ACSSC), Pacific Grove, CA, USA, Nov. 2011 on "Advances in Compressive Sensing"

**ETH Zurich Internal Activities (2020 – today)**

- Member of a faculty search committee in electronics (Jan. 2020 – June 2020)

**Cornell Internal Activities (2014–2020)**

- Member of the Cornell Tech ECE faculty hiring committee (Aug. 2019 – May 2020)
- Chair of the Cornell ECE colloquium committee (May. 2017 – May 2020)
- Cornell ECE graduate committee (Jan. 2014 – Aug. 2017)
- Cornell ECE colloquium committee (Jan. 2015 – May. 2017)
- Cornell ECE faculty search committee since Spring 2017
- Member of the Cornell ECE graduate field since Jan. 2014

## Languages

*German:* Native language.

*English:* Fluent in speech and writing.

*French:* Good in speech and writing.

*Italian:* Basic skills.

## References

References available upon request.

*Last updated: August 2020*