Gerhard Kramer
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Gerhard Kramer is Alexander von Humboldt Professor and Chair of Communications Engineering at the Technical University of Munich (TUM). His research interests are primarily in information theory, communications theory, and coding, with applications to wireless, copper, and optical fiber networks.

Since October 2019, he is Senior Vice President for Research and Innovation at TUM. He is also Director of the Master of Science in Communications Engineering (MSCE) Program since 2010 and Deputy Director of the International Graduate School of Science and Engineering (IGSSE) since 2016.

Gerhard Kramer received the B.Sc. and M.Sc. degrees in electrical engineering from the University of Manitoba, Canada, in 1991 and 1992, respectively, and the Dr. sc. techn. degree from the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland, in 1998. From 1998 to 2000, he was with Endora Tech AG in Basel, Switzerland, as a communications engineering consultant. From 2000 to 2008, he was with the Math Center at Bell Labs in Murray Hill, NJ, as a Member of Technical Staff. He joined the University of Southern California (USC), Los Angeles, CA, as a Professor of Electrical Engineering in 2009. He joined TUM in 2010.

He has made several contributions to communications research. His doctoral thesis introduced causally-conditioned directed information, an idea that builds on Marko's free information and directed transinformation, and Massey's directed information, and that characterizes information flow in networks. The thesis was awarded an ETH medal in 1999. During his doctoral studies he also worked on linear cryptanalysis of block ciphers and on code time division multiple access (CTDMA).

At Bell Labs, Gerhard Kramer worked mainly on Shannon theory for feedback, interference, relay, and broadcast communications. He also developed basic theory for empirical coordination, multiple description source coding, channel coding for multi-input multi-output (MIMO) channels, extrinsic information transfer (EXIT) charts and the "area property", wiretap channels, optical fiber capacity, and digital subscriber line (DSL) channel estimation. He received the 2005 Stephen O. Rice Prize Paper Award of the IEEE Communications Society for his work on coded modulation for MIMO, the 2011 Vodafone Innovations Prize for his work on relay communications, and a 2014 Paper Award of the European Association for Signal Processing (EURASIP) for work on wiretap channels. He was a Thomson Reuters Highly Cited Researcher for high impact work in Computer Science during 2002-2014.

At Bell Labs, he played key roles in initiating two applied projects. First, Lucent's transition to using phase shift keying and higher-order modulation for long-haul optical fiber links. Second, Alcatel-Lucent's transition to using vectoring for DSL. He was a member of two teams recognized by Bell Labs teamwork awards: a long-haul optical fiber team and a BLAST (Bell Labs Layered Space-Time) team. He received a 2012 Thomas Alva Edison Patent Award from the Research & Development Council of New Jersey for an invention that improves DSL channel estimation. He has fifteen issued patents.

Gerhard Kramer received an Alexander von Humboldt Professorship in 2011, which is the highest valued international award for research in Germany, and honors academics of all disciplines from abroad who are internationally recognized as leaders in their field. At TUM, he has supported numerous doctoral researchers and postdocs on a broad range of topics in communications engineering, including wireless (coarse quantization, MIMO precoding, relaying, waveforms), optical (capacity, phase noise, shaping), and basic theory (compression, low-latency codes, secrecy, stealth). He personally likes to work on multi-user information theory and the capacity of fiber-optic channels, and he is proud of the LNT research staff's independent success on information theory, coded modulation, and communications algorithms. He received a 2015 Lecturer Award from the Student Association of the TUM Department of Electrical and Computer Engineering for teaching Digital Communications.

Gerhard Kramer is an IEEE Fellow since 2010. He has been particularly active in the IEEE Information Theory Society, including co-founding its schools program in 2008 and serving as its president in 2013. He has chaired, or is chairing, several of the Society's flagship events, including the 2023 IEEE International Symposium on Information Theory (ISIT) in Taipei, ISIT 2017 in Aachen, ISIT 2014 in Honolulu (TPC Chair), and ISIT 2008 in Toronto (TPC Chair). He was general co-chair of the 2017 IEEE Information Theory Workshop in Kaohsiung. He served as Associate Editor for Shannon Theory for the IEEE Transactions on Information Theory from 2006-2008. He was an IEEE Information Theory Society Distinguished Lecturer from 2015-2016.

He was elected to the Bavarian Academy of Sciences and Humanities (Bayerische Akademie der Wissenschaften or BAdW) in 2015. He is a member of the BAdW Technology Forum, and of the selection committee of the BAdW Young Academy.

Since 2013, Gerhard Kramer serves as a member of the Board of Curators of the Eduard Rhein Foundation, an independent, non-profit foundation whose exclusive interest is to present monetary awards to individuals for achievements promoting the public welfare. Since 2016, he also serves as a mentor for the Max Weber Program for highly talented students enrolled at universities in Bavaria.