

## Prof. Brian L. Evans

Prof. Brian L. Evans holds the Engineering Foundation Professorship at The University of Texas at Austin. His current research and teaching interests are in signal processing theory and algorithms to increase connection speeds and reliability in cellular communication systems. He has published more than 280 refereed journal articles and conference papers, and served as the research advisor for 31 Ph.D. and 13 MS graduates. From his [Google Scholar page](#), his publications have been cited 15486 times for an H index of 56. He was elevated to IEEE Fellow for “contributions to multicarrier communications and image display” in 2009. He received three Best/Top IEEE Conference Paper Awards, a 1997 U.S. National Science Foundation CAREER Award, and six teaching awards. He was elected President of the Faculty Senate at UT Austin 2019-2020. He received the [2021 Civitatis Award](#) from UT Austin President Jay Hartzell for "dedicated and meritorious service to The University of Texas at Austin above and beyond the regular expectations of teaching, research and service".

### **(a) Professional Preparation**

Rose-Hulman Institute of Technology	Electrical Engineering & Computer Science	BS 1987
Georgia Institute of Technology	Electrical Engineering	MS 1988
Georgia Institute of Technology	Electrical Engineering	PhD 1993
University of California, Berkeley	Electrical Engineering & Computer Sciences	1993-1996

### **(b) Faculty Positions – all are in Electrical and Computer Engineering**

The University of Texas at Austin	Assistant Professor	1996-2000
The University of Texas at Austin	Associate Professor	2000-2005
The University of Texas at Austin	Professor	2005-2009
The University of Texas at Austin	Engineering Foundation Professor	2010-present

### **(c) Selected Publications (links to papers and other online resources underlined)**

#### *Wireless Communication Systems*

1. [E. Balti and B. L. Evans, “A Unified Framework for Full-Duplex Massive MIMO Cellular Networks with Low-Resolution Data Converters”, \*IEEE Open Journal of the Communications Society\*, vol. 4, Jan. 2023, pp. 1-28. 10.1109/OJCOMS.2022.3230327](#)
2. [J. Choi, Y. Cho, and B. L. Evans, “Quantized Massive MIMO Systems with Multicell Coordinated Beamforming and Power Control”, \*IEEE Trans. on Communications\*, vol. 69, no. 2, pp. 946-961, Feb. 2021, DOI 10.1109/TCOMM.2020.3036689.](#)
3. [J. Choi, J. Sung, N. Prasad, X.-F. Qi, B. L. Evans, and A. Gatherer, “Base Station Antenna Selection for Low-Resolution ADC Systems”, \*IEEE Trans. Communications\*, vol. 68, no. 3, Mar. 2020, pp. 1951-1965, DOI 10.1109/TCOMM.2019.2963023.](#)
4. [J. Choi, B. L. Evans and A. Gatherer, “Resolution-Adaptive Hybrid MIMO Architectures for Millimeter Wave Communications”, \*IEEE Trans. Signal Processing\*, vol. 65, no. 23, Dec. 2017, pp. 6201-16.](#)
5. [M. Nassar, P. Schniter and B. L. Evans, “A Factor Graph Approach to Joint OFDM Channel Estimation and Decoding in Impulsive Noise Environments”, \*IEEE Trans. Signal Processing\*, vol. 62, no. 6, Mar. 15, 2014, pp. 1576-1589.](#)
6. [K. Gulati, B. L. Evans, J. G. Andrews, and K. R. Tinsley, “Statistics of Co-Channel Interference in a Field of Poisson and Poisson-Poisson Clustered Interferers”, \*IEEE Trans. Signal Processing\*, vol. 58, no. 12, Dec. 2010, pp. 6207-6222.](#)
7. [I. C. Wong and B. L. Evans, “Optimal Downlink OFDMA Resource Allocation with Linear Complexity to Maximize Ergodic Rates”, \*IEEE Trans. Wireless Communications\*, vol. 7, no. 3, Mar. 2008, pp. 962-971.](#)
8. [Z. Shen, J. G. Andrews, and B. L. Evans, “Adaptive Resource Allocation in Multiuser OFDM Systems with Proportional Rate Constraints”, \*IEEE Trans. Wireless Communications\*, vol. 4, no. 6, pp. 2726-2737, Nov. 2005.](#)

### *Wired Communication Systems*

9. J. Lin, T. Pande, I.-H. Kim, A. Batra and B. L. Evans, "Time-Frequency Modulation Diversity To Combat Periodic Impulsive Noise In Narrowband Powerline Communications", *IEEE Trans. Communications*, vol. 63, no. 5, pp. 1837-49, May 2015.
10. J. Lin, M. Nassar, and B. L. Evans, "Impulsive Noise Mitigation in Powerline Communications using Sparse Bayesian Learning", *IEEE Journal Selected Areas in Communications*, vol. 31, no. 7, Jul. 2013, pp. 1172-1183.
11. G. Arslan, B. L. Evans, and S. Kiaei, "Equalization for Discrete Multitone Receivers To Maximize Bit Rate", *IEEE Trans. Signal Processing*, vol. 49, no. 12, pp. 3123-3135, Dec. 2001.

### *Image/Video Processing*

12. D. Kundu, D. Ghadiyaram, A. C. Bovik and B. L. Evans, "No-Reference Quality Assessment of Tone-Mapped HDR Pictures", *IEEE Trans. Image Processing*, vol. 26, no. 6, pp. 2957-71, Jun. 2017..
13. D. Kundu and B. L. Evans, "Full-Reference Visual Quality Assessment for Synthetic Images: A Subjective Study", *Proc. IEEE Int. Conf. Image Processing*, Sep. 2015. **Top 10% Paper Award.**
14. C. Jia and B. L. Evans, "Constrained 3D Rotation Smoothing via Global Manifold Regression for Video Stabilization", *IEEE Trans. Signal Processing*, vol. 62, no. 13, pp. 3293-3304, Jul. 1, 2014.
15. N. Damera-Venkata, T. D. Kite, W. S. Geisler, B. L. Evans, and A. C. Bovik, "Image quality assessment based on a degradation model", *IEEE Trans. Image Processing*, vol. 9, no. 4, pp. 636-650, May 2000.

### **(d) Synergistic Activities**

Created a unified framework for 5G full duplex cellular systems with low-resolution data converters for energy efficiency (paper #1)

Developed algorithms for 5G cellular systems for joint beamforming and power control (paper #2)

Derived 5G antenna selection and adaptive resolution algorithms for massive antenna arrays with hybrid analog/digital beamforming and low-resolution data converters for energy efficiency (papers #3/4)

Modeled/mitigated impulsive interference in wireless (papers #5/6) and wireline (papers #9/10) systems

Developed large-scale visual quality assessment studies for HDR/synthetic images (papers #12/13)

Removal of hand jitter and rolling shutter artifacts when taking video on smart phones (paper #14)

Elevated to IEEE Fellow "for contributions to multicarrier communications and image display" (2009):

- Compensated visual distortion in image halftoning for use in printers and displays (paper #15)
- Developed downlink LTE basestation algorithms to maximize sum of user bit rates (papers #7/8)
- Made equalizer algorithms to double bit rates in ADSL receivers with change of software (paper #11)

Co-authored *Ptolemy Classic* (1993-96) for specifying, simulating and synthesizing embedded digital systems. Downloaded from 450 domains (1998). Commercialized in Agilent Advanced Design System.

Received 1997 NSF CAREER Award

### **(e) PhD graduates advised (31)**

Gregory E. Allen (UT Austin), Dogu Arifler (Eastern Mediterranean Univ.), Guner Arslan (Silicon Labs), Serene Banerjee (Ericsson Research), Jinseok Choi (Korea Advanced Inst. of Science), Aditya Chopra (Amazon Project Kuiper), Niranjan Damera-Venkata (HP Labs), Ming Ding (Broadcom), Kapil Gulati (Qualcomm R&D), Kyungtae Han (Toyota InfoTech. R&D Center), Chao Jia (Waymo), Thomas Kite (deceased), Debarati Kundu (Qualcomm R&D), Jing Lin (Qualcomm), Biao Lu (OpenSpirit), Faris Mismar (Nokia Bell Labs), Milos Milosevic (Halliburton), Vishal Monga (Penn. State Univ.), Yousof Mortazavi (Ambiq Micro), Marcel Nassar (Intel), Karl Nieman (AT&T Labs), Hamood-ur Rehman (Avvasi), Javier Rodriguez-Fernandez (Qualcomm), Wade C. Schwartzkopf (Integrity Appl.), Zukang Shen (Huawei), K. Clint Slatton (deceased), Junmo Sung (Samsung), Murat Torlak (UT Dallas), Dong Wei (formerly at AT&T Labs), Kyle Wesson (Starlink at SpaceX), Ian C. Wong (VIAVI Solutions).