

# Andrew C. Singer

---

## CURRENT ACADEMIC POSITIONS

Dean, College of Engineering and Applied Sciences  
Professor, Department of Electrical and Computer Engineering  
Stony Brook University

ADDRESS 100 Engineering Drive, Stony Brook, NY 11794  
andrew.c.singer@stonybrook.edu

## EDUCATION

June 1996 **Massachusetts Institute of Technology**, Cambridge, MA  
Ph.D. degree in Electrical Engineering and Computer Science  
Feb. 1992 **Massachusetts Institute of Technology**, Cambridge, MA  
S.M. degree in Electrical Engineering and Computer Science  
Feb. 1990 **Massachusetts Institute of Technology**, Cambridge, MA  
S.B. degree in Electrical Engineering and Computer Science

## AWARDS/HONORS

2023 Best Student Paper Award (co-authored with PhD Advisee) Proceedings of Meetings on Acoustics, The Acoustical Society of America, for "A gradient-based optimization approach for underwater acoustic source localization."

2022 Best Student Paper Award (co-authored with PhD Advisee) Proceedings of Meetings on Acoustics, The Acoustical Society of America, for "Measuring and Exploiting the Locally Linear Mapping Between Relative Transfer Functions and Array Deformations."

2022 Selected for President's Executive Leadership Program, University of Illinois System.

2021 List of Teachers Ranked Excellent by their Students, Fall 2021.

2020 Best Student Paper Award (co-authored with PhD Advisee) The Journal of the Acoustical Society of America.

2020 Faculty Fellow, Research, Innovation and Entrepreneurship Strategy, Office of the Vice Chancellor for Research and Innovation, University of Illinois at Urbana Champaign.

2020 List of Teachers Ranked Excellent by their Students, Fall 2020.

2019 Best Student Paper Award (co-authored with PhD Advisee) Workshop on Applications of Signal Processing to Audio Acoustics.

2018 Amazon Alexa Innovation Fellow.

2018 Presidential Fellow, University of Illinois System, focusing on broadening participation of women and underrepresented groups in innovation and entrepreneurship ecosystems.

2017 Best Student Paper Award (co-authored with PhD Advisee) Asilomar Conference on Signals, Systems and Computers.

2016 Technical University of Munich Institute for Advanced Study Visiting Fellow.

2014 Invested as Fox Family Professor, for "scholarship and teaching focus on economic development, entrepreneurship, and transfer of technology locally, in the state, and in the

- nation." One of only twenty-one university and campus-wide endowed professorships and chairs.
- 2014 Selected as a Distinguished Lecturer for the Signal Processing Society of the Institute of Electrical and Electronics Engineers (IEEE).
- 2013 List of Teachers Ranked Excellent by their Students, Spring 2013.
- 2013 Entrepreneur Advocacy Award, Champaign County Innovation Celebration.
- 2012 Inaugural Curation Board of the National Center for Engineering Pathways to Innovation (Epicenter), an initiative funded by the National Science Foundation.
- 2010 Invited to serve as a Franklin Fellow at the U.S. Department of State.
- 2009 Elected to the grade of Fellow in the Institute of Electrical and Electronics Engineers (IEEE), "for contributions to signal processing techniques for digital communication."
- 2009 Special-Topic Evening Session Award, for the talk entitled, "Trends and Challenges in Optical Communications Front-End," International Solid-State Circuits Conference.
- 2008 Best Paper Award for the IEEE Signal Processing Magazine for the paper entitled "Turbo Equalization," which appeared in the January 2004 issue.
- 2008 Selected for participation in National Academy of Engineering, "Frontiers of Engineering" symposium.
- 2006 Best Paper Award for the IEEE Journal of Solid-State Circuits for the paper entitled, "An MLSE Receiver for Electronic Dispersion Compensation of OC-192 Fiber Links."
- 2002-2009 Donald Biggar Willet Faculty Scholar, College of Engineering, University of Illinois at Urbana-Champaign.
- 2000 Xerox Award for Outstanding Faculty Research, College of Engineering, University of Illinois at Urbana-Champaign.
- 2000 National Science Foundation CAREER Award.
- 2000 Office of Naval Research Special Research Award in Ocean Acoustics.
- 2000,2001 List of Teachers Ranked Excellent by their Students, University of Illinois at Urbana-Champaign, Spring 2000, Fall 2000, Fall 2001.
- 1998 Lockheed Martin Special Recognition Award.

#### APPOINTMENTS AND RELATED EXPERIENCE

8/98 – 7/23 **University of Illinois at Urbana-Champaign**, Urbana, IL

##### Academic Appointments:

- 6/18 – 7/23 Associate Dean for Innovation and Entrepreneurship, College of Engineering, Dean's cabinet, Grainger College of Engineering
- 9/16 – 7/23 Head, Unit Executive Officer, Technology Entrepreneur Center and Innovation, Leadership, and Engineering Entrepreneurship (ILEE) degree program and academic unit
- 8/13 – 7/23 Fox Family Professor, Campus-wide Endowed Professorship
- 8/08 – 7/23 Full Professor, Electrical and Computer Engineering Department
- 8/07 – 7/23 Courtesy appointment in the Department of Industrial and Enterprise Systems Engineering
- 8/17 – 7/23 Research Professor in the Beckman Institute for Advanced Science and Technology

8/16 – 7/23	Courtesy appointment in the Department of Business Administration in the College of Business
11/20 – 8/22	Faculty Fellow, Research, Innovation and Entrepreneurship Strategy, Office of the Vice Chancellor for Research and Innovation
8/18 – 8/19	Presidential Fellow, University of Illinois System
2/14 – 6/18	Special Advisor to the Dean for Innovation and Entrepreneurship, College of Engineering, Dean's cabinet
2/17 – 7/18	Interim Director, Siebel Center for Design
5/05 – 6/18	Director, Technology Entrepreneur Center, College of Engineering
6/17 – 6/18	Thread Leader for Innovation, Carle-Illinois College of Medicine
8/12 – 6/17	Associate Director, Co-PI, Systems on Nanoscale Information fabriCs (SONIC) Research Center
8/16 – 6/17	Technical University of Munich Institute for Advanced Study Visiting Fellow
5/15 – 2/17	Chair, Faculty Committee for the development of campus Design Center
10/07 – 8/13	Guest Investigator, Woods Hole Oceanographic Institution
8/03 – 8/08	Associate Professor, Electrical and Computer Engineering Department
8/98 – 8/03	Assistant Professor, Electrical and Computer Engineering Department

As Associate Dean for Innovation and Entrepreneurship, oversaw activities of the Office of Innovation and Entrepreneurship in the Grainger College of Engineering, including the Technology Entrepreneur Center, Innovation Living Learning Center, and ILEE degree programs. Advise the Dean on matters related to innovation, translational research, and entrepreneurship.

As Unit Executive Officer and Head, oversaw all academic activities, budgetary matters and all faculty and staff hiring and promotion processes within the ILEE academic unit and Technology Entrepreneur Center.

As OVCRI Faculty Fellow, worked closely with OVCRI on all campus matters related to innovation and entrepreneurship across the campus research enterprise. Led campus program development for \$100M in new translational capital building projects. Advised OVCRI and Provost on matters related to the intersection of the academic, research and economic development missions of the university.

Primary academic appointment as Professor in the Electrical and Computer Engineering Department in the Grainger College of Engineering. Research sponsors include the Office of Naval Research, the National Science Foundation, Department of Energy, National Institutes of Health, Defense Advanced Research Projects Agency, and commercial industry. Served from 2012-2017 as Associate Director for the \$35M Systems on Nanoscale Information fabriCs (SONIC) Center, with over 100 graduate students, 27 faculty across ten universities as one of six STARNET centers funded by DARPA and SRC. Director, Signal Processing and Communication Systems Laboratory.

As Interim Director for the Siebel Center for Design, oversaw construction, programming and campus activities related to \$48M campus-wide facility focused on design; as Director, Technology Entrepreneur Center, Head, Innovation, Leadership, and Engineering Entrepreneurship academic unit and degree program, and Special Advisor to the Dean for Innovation and Entrepreneurship, Grainger College of Engineering, championed the creation of and oversee activities in the College of Engineering relating to the bachelor's degree in Innovation, Leadership, and Engineering Entrepreneurship (ILEE), and curricula for undergraduate, graduate, and distance learning programs for entrepreneurship and innovation reaching over 5,000

students annually. Created and oversee the Faculty Entrepreneurial Fellows Program, as well as the activities of the Innovation Living Learning Community (with University Housing) among a host of other on-campus student and faculty-oriented activities.

Network Connectivity theme lead across five centers of the Microelectronics Advanced Research Corporation (MARCO) Focus Center Research Program and as Co-PI for ONR Multi-University Research Initiative on underwater acoustic communications.

As an advocate for diversity, equity, and inclusion, serve as faculty and administrative member of the Anti-Racism Task Force (ARTF) and faculty member in the Institute for Inclusion, Diversity, Equity, and Access (IDEA) in the Grainger College of Engineering. Chair of committee to develop Code of Conduct for the Grainger College of Engineering. Past member of Chancellor's Diversity Realized by Visioning Excellence (DRIVE) committee. Co-Author of the Advancing Women And under-Represented Entrepreneurs (AWARE) program of the National Science Foundation. University President's fellowship focused on broadening participation in innovation and entrepreneurship programs across the three campuses of the University of Illinois System.

#### 4/07-Present **Consultant and Expert Witness**

Recent cases include: Fujitsu Network Communications, Inc. v. **Tellabs, Inc.**, No. 1:09-cv-4530 (N.D. Illinois); **Tellabs, Inc.** v. Fujitsu Network Communications, Inc., No. 08-CV-3379 (N.D. of Illinois); In re Certain Semiconductor Chips and Products Containing Same, ITC Inv. No. 337-TA-753, on behalf of **Rambus** (Filed 12/1/2010 at the International Trade Commission); **Hill-Rom, Inc.** v. Stryker Corp., No. 1:11-CV-01120-JMS-DKL (Filed 8/15/2011 in the Southern District of Indiana); Mobile Telecommunications Technologies, LLC v. **Clearwire Corporation, Clearwire Wireless, LLC, and Clearwire US, LLC**, No. 2:12-CV-308 (Filed 5/24/2012 in the Eastern District of Texas); Mobile Telecommunications Technologies, LLC v. **Sprint Nextel Corp.**, No. 2:12-cv-832-JRG-RSP (Filed 12/31/2012 in the Eastern District of Texas); Inter Partes Reexamination of: U.S. Patent No. 7,568,246, No. 95/002,051, on behalf of **Hill-Rom** (Filed 7/20/2012 at the PTAB); Spherix Inc. v. **Cisco Systems, Inc.**, No. 1:14-cv-393-SLR (Filed 3/28/2014 in the District of Delaware); Inter Partes Review of U.S. Patent No. 6,744,375, No. IPR2014-01379, on behalf of **Garmin International** (Filed 8/25/2014 at the PTAB); Cellular Communications Equipment LLC v. **LG Electronics, Inc., et al.**, No. 6:14-CV-00982-JRG (Filed 12/19/2014 in the Eastern District of Texas); Core Wireless Licensing S.a.r.l. v. **Apple Inc.**, Nos. 3:15-cv-5007-RS and 5:15-cv-5008-PSG (Filed 9/10/14 in the Northern District of California); In re Certain Audio Processing Hardware and Software and Products Containing the Same, ITC Inv. No. 337-TA-949, on behalf of **Conexant** (Filed 2/9/2015 at the International Trade Commission); Cellular Communications Equipment LLC v. **AT&T Inc., et al.**, No. 2:15-cv-0576 (Filed 4/30/2015 in the Eastern District of Texas); Certain Audio Processing Hardware, Software, and Products Containing the Same, ITC Inv. No. 337-TA-1026, on behalf of **Samsung** (Filed 9/19/2016 at the International Trade Commission); Andrea Electronics Corp. v. **Samsung Electronics America, Inc. et al.**, No. 2:16-cv-05217-JMA (Filed 9/19/2016 in the Eastern District of New York); TC Technology LLC v. **Sprint Corp. & Sprint Spectrum L.P.**, No. 1:16-cv-153-RGA (Filed 3/10/2016 in the District of Delaware); Quanergy Systems, Inc. v. **Velodyne LiDAR, Inc.**, No. 5:16-cv-05251-EJD (Filed 9/13/2016 in the Northern District of California); LoganTree LP. v. **Garmin International, Inc. et al.** Civil Action No 6:17-cv-01217 (District of Kansas); Intellectual Ventures II LLC v. **Sprint Spectrum L.P., et al.**, Civil Action No. 2:17-cv-00662 (E.D. Tex.); Virentem Ventures, LLC v. **YouTube, LLC, et al.**, No. 18-cv-917 (D. Del.); Intellectual Ventures SPE LLC vs. **Apple, Inc.** (2018-01472 - 2018-01478); **Velodyne Lidar** In the Matter of Certain Rotating 3-D LiDAR Devices, Components Thereof, and Sensing Systems Containing the Same (Inv. No. 337-TA-1173); **OADS** vs L3 C.A. No. N17C-05-

619 EMD CCLD; Reexamination of U.S. Patent No. 5,815,488 on behalf of **T-Mobile USA; Panasonic** v. Magna International Inc., Magna Electronics Inc., Civil Action No. 6:21-cv-319-ADA (W.D. Texas).

- 12/16 – **LISNR, Inc.** Technical advisor for acoustic communications.
- 11/14 – **OceanComm, Incorporated**, Chicago, IL. Co-Founder and Chief Executive Officer. SBIR, DARPA, and ONR-funded technology company commercializing underwater acoustic wireless communication technology.
- 12/08 – 12/20 **Diagnostic Photonics**, Chicago, IL. Member of Board of Directors.
- 12/07 – 12/15 **Mimosa Acoustics**, Champaign, IL. Member of Board of Directors.
- 02/10 – 6/12 **Innovate @ Illinois**, Champaign, IL. Host of monthly television program showcasing entrepreneurship and innovation in the University of Illinois Community.
- 3/07 - 2/09 **Finisar Corporation**, Champaign, IL  
Sr. Scientist in Optical Products Division (upon acquisition of Intersymbol Communications, Inc., 3/2007). Research and development in new product areas and Director of the Intersymbol Communications division.
- 8/00 - 3/07 **Intersymbol Communications, Inc.**, Champaign, IL  
Co-Founder and Chief Executive Officer for a venture capital-backed integrated circuit (IC) company creating signal processing-enhanced optical communications ICs. Designed and built the world's first 10Gb/s adaptive MLSE-based receivers for electronic dispersion compensation in high-speed optical communications. Intersymbol was acquired by Kodeos Communications in March, 2006 and by Finisar Corporation in March, 2007, and is now part of II-VI (NASDAQ:IIVI).
- 9/96 - 8/98 **Sanders, A Lockheed Martin Company** (Now BAE Systems), Nashua NH  
Principal investigator under the Army Research Laboratory Program for Advanced Telecommunications. Signal processing lead for ATD-111 Airborne LIDAR mine and submarine detection program. Research areas included underwater acoustic and wireless RF communications; detection systems; real-time algorithm development and implementation, and multi-sensor data fusion. Air-acoustic and underwater acoustic adaptive beamforming and automatic target detection and classification systems.
- 5/96-9/96 **Research Laboratory of Electronics (RLE), MIT**, Cambridge, MA  
Postdoctoral Affiliate in the Digital Signal Processing Group in RLE.

#### BOOKS AND BOOK SECTIONS

R.M. Corey, A.C. Singer and S.S. Kozat, "Parametric Estimation," Chapter in *Signal Processing and Machine Learning Theory*, Edited by P.S.R. Diniz, Academic Press, 2023.

A.C. Singer and S.S. Kozat, "Parametric Signal Estimation," Chapter in *Academic Press Library in Signal Processing, Volume 1*, Edited by S. Theodoridis, R. Chellappa, P. Diniz, P. Naylor and J. Suykens, 1st Edition, Academic Press, 2013.

N. Shanbhag, A.C. Singer, and H-M Bae, "Signal Processing for High Speed Links," Section for Chapter on "Applications," *Handbook of Signal Processing Systems*, Edited by S.S. Bhattacharyya, E.F. Depretere, R. Leupers, and J. Takala, Springer, 2010.

J. Buck, M. Daniel, and A. Singer, *Computer Explorations in Signals and Systems Using Matlab*, Prentice Hall *Signal Processing Series*, Prentice Hall, November 1996. Second Edition 2001. Over 20,000 copies sold.

A.C. Singer, "Solitons," Section for Chapter on "Nonlinear Signals and Systems," *The DSP Handbook*, Edited by V. Madisetti and D. Williams, CRC Press, 1997.

#### PEER REVIEWED JOURNAL PUBLICATIONS

1. A.C. Singer, G.W. Wornell, and A.V. Oppenheim, "Nonlinear Autoregressive Modeling and Estimation in the Presence of Noise," *Digital Signal Processing*, vol. 4, no. 4, pp. 207-221, October 1994.
2. A.C. Singer and A.V. Oppenheim, "Circuit Implementations of Soliton Systems," *International Journal of Bifurcation and Chaos*, vol. 9, no. 4, pp. 571-590, April 1999.
3. A.C. Singer, A.V. Oppenheim, and G.W. Wornell, "Detection and Estimation of Multiplexed Soliton Signals," *IEEE Transactions on Signal Processing*, vol. 47, no. 10, pp. 2768-2782, October 1999.
4. A.C. Singer and M. Feder, "Universal Linear Prediction by Model Order Weighting," *IEEE Transactions on Signal Processing*, vol. 47, no. 10, pp. 2685-2699, October 1999.
5. D. Baron and A. C. Singer, "On the Cost of Worst-Case Coding Constraints" *IEEE Trans. Information Theory*, vol. 47, pp. 3088-3090, November 2001.
6. M. J. Lopez, and A. C. Singer, "A DFE Coefficient Placement Algorithm for Digital Communications," *IEEE Transactions on Communications*, vol. 49, no. 8, pp. 1334-1338, Aug. 2001.
7. M. Tuechler, R. Koetter, and A.C. Singer, "Turbo Equalization: Principles and New Results", *IEEE Transactions on Communications*, vol. 50, no. 5, pp.754-767, May 2002.
8. M. Tuechler, A.C. Singer, and R. Koetter, "Minimum Mean Square Error Equalization with Priors," *IEEE Transactions on Signal Processing*, vol. 50 no. 3, pp. 673 -683, March 2002.
9. N. Cadalli, D. C. Munson, and A.C. Singer, "Bistatic Receiver Model for Airborne Lidar Returns Incident on an Imaging Array From Underwater Objects" *Applied Optics*, vol. 41, no. 18, pp. 3638-3649, June 2002.
10. A.C. Singer, S.S. Kozat, and M. Feder, "Universal linear least squares prediction: upper and lower bounds," *IEEE Transactions on Information Theory*, vol. 48, no. 8, pp. 2354-2362, August 2002.
11. J. Nelson, A.C. Singer, and R. Koetter, "Linear Iterative Turbo Equalization (LITE) for Dual Channels," *IEEE Transactions on Communications*, pp. 860-864, June 2003.
12. Y. Jiang, R. Koetter, and A.C. Singer, "On the Separability of Demodulation and Decoding for Communications over Multiple-Antenna Block Fading Channels," *IEEE Transactions on Information Theory*, vol. 49, no. 10, pp. 2709-2713, October 2003.
13. M. Tuechler, R. Koetter, and A.C. Singer, "Graphical models for coded data transmission over intersymbol interference channels," *European Transactions on Telecommunications*, v. 15, n. 4, July/August 2004, *Selected Papers from the 5th International ITG Conference on Source and Channel Coding*, pp. 307-321.
14. S. Song, A.C. Singer, and K.-M. Sung, "Soft input channel estimation for turbo equalization," *IEEE Transactions on Signal Processing*, vol. 52, no. 10, Oct. 2004, pp. 2885 - 2894.
15. R. Koetter, A.C. Singer, and M. Tuechler, "Turbo Equalization," *IEEE Signal Processing Magazine*, invited paper, *Special Issue on Graphical Models*, vol. 21, no. 1, Jan. 2004, pp. 67 - 80.
16. Feder, M.; Figueiredo, M.A.T.; Hero, A.O.; Lee, C.-H.; Loeliger, H.-A.; Nowak, R.; Singer, A.C.; Yu, B.; Guest Editorial: Special Issue on Machine Learning Methods in

- Signal Processing; *IEEE Transactions on Signal Processing*, vol. 52, no. 8, Aug. 2004, pp. 2152 – 2152.
17. R.J. Drost and A.C. Singer, "Factor graph methods for three-dimensional shape reconstruction as applied to LIDAR imaging" *Journal of the Optical Society of America A (Optics, Image Science and Vision)*, vol. 21, no. 10, Oct. 2004, pp. 1855-68.
  18. S.J. Lee, N.R. Shanbhag and A.C. Singer, "Energy-efficient VLSI architecture for linear turbo equalizer," *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology*, vol. 39, no. 1-2 SPEC.ISS., January/February 2005, pp. 49-62.
  19. S.-J. Lee, N.R. Shanbhag, and A.C. Singer, "A 285-MHz MAP Decoder in 0.18 $\mu$ m CMOS," *IEEE Journal of Solid-State Circuits*, vol. 40, no. 8, Aug. 2005, pp. 1718 - 1725.
  20. S.-J. Lee, A.C. Singer, and N. R. Shanbhag, "Linear Turbo Equalization Analysis via Linearized BER Transfer and EXIT Charts," *IEEE Transactions on Signal Processing*, vol. 53, no. 8, Part 1, Aug. 2005, pp. 2883 - 2897.
  21. J.K. Nelson, A.C. Singer, U. Madhow, and C. Mc Gahey, "BAD: Bidirectional Arbitrated Decision Feedback Equalization", *IEEE Transactions on Communications*, vol. 53, no. 2, February 2005, pp. 214-218.
  22. S.-J. Lee, N.R. Shanbhag, and A.C. Singer, "Area-Efficient, High-Throughput MAP Decoder Architectures," *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, vol. 13, no. 8, Aug. 2005, p 921-33.
  23. C.J. Lam and A.C. Singer, "Bayesian Beamforming for DOA Uncertainty: Theory and Implementation", *IEEE Transactions on Signal Processing*, vol. 54, no. 11, Nov. 2006, pp. 4435 – 4445.
  24. H. M. Bae, J. Ashbrook, J. Park, N. Shanbhag, A.C. Singer, and S. Chopra, "An MLSE receiver for electronic-dispersion compensation of OC-192 links," *Journal of Solid-State Circuits Conference, Journal of Solid State Circuits*, vol. 41, no. 11, Nov. 2006, pp. 2541 – 2554.
  25. J.W. Choi, B. Shim, A.C. Singer, and N.I. Cho, "Low-Power filtering via minimum power soft error cancellation (MP-SEC)," *IEEE Transactions on Signal Processing*, vol. 55, no. 10, Oct. 2007, pp. 5084 – 5096.
  26. R. Drost, A.C. Singer, "Factor Graph Algorithms for Equalization," *IEEE Transactions on Signal Processing*, vol. 55, no. 5, Part 2, May 2007, pp. 2052 – 2065.
  27. A. Sen Gupta, A.C. Singer, "Successive Interference Cancellation using Constellation Structure," *IEEE Transactions on Signal Processing*, vol. 55, no. 12, Dec. 2007, pp. 5716 – 5730.
  28. S. S. Kozat and A.C. Singer, "Universal Piecewise Linear Prediction via Context Trees," *IEEE Transactions on Signal Processing*, July 2007, vol. 55(7), Part 2, pp. 3730-3745.
  29. S.S. Song and A.C. Singer, "Blind OFDM Channel Estimation Using FIR Constraints: Reduced Complexity and Identifiability," *IEEE Transactions on Information Theory*, vol. 53, no. 3, March 2007, pp. 1136 – 1147.
  30. S.S. Song and A.C. Singer, "Pilot-Aided OFDM Channel Estimation in the Presence of the Guard Band," *IEEE Transactions on Communications*, vol. 55(8), August 2007, pp. 1459-1465.
  31. Y. Jiang, A. Ashikhmin, R. Koetter, A. C. Singer, "Extremal Problems of Information Combining," *IEEE Transactions on Information Theory*, Volume 54, Issue 1, Jan. 2008, pp. 51 - 71.
  32. S.S. Kozat and A.C. Singer "Universal Switching Linear Least Squares Prediction," *IEEE Transactions on Signal Processing*, vol. 56, no. 1, Jan. 2008, pp. 189 – 204.
  33. H.M. Bae, J. Ashbrook, N.R. Shanbhag, and A.C. Singer "Fast Power Transient Management for OC-192 WDM Add/Drop Networks," *IEEE Journal of Solid-State Circuits*, vol. 43, no. 12, Dec. 2008, pp. 2958 – 2966.
  34. K.M. Guan, S.S. Kozat and A.C. Singer "Adaptive reference levels in a level-crossing analog-to-digital converter," *Eurasip Journal on Advances in Signal Processing*, vol. 2008, pp. 1-11.

35. A.C. Singer, N.R. Shanbhag, and H.M. Bae, "Electronic Dispersion Compensation," *IEEE Signal Processing Magazine*, vol. 25, no. 6, Nov. 2008, pp. 110 – 130.
36. A. Sen Gupta and A.C. Singer, "Interference Suppression for Memoryless Nonlinear Multiuser Systems Using Constellation Structure," *IEEE Transactions on Signal Processing*, vol. 56, no. 11, Nov. 2008, pp. 5589 – 5604.
37. A.C. Singer, J.K. Nelson and S.S. Kozat, "Signal Processing for Underwater Acoustic Communications," *IEEE Communications Magazine*, invited, vol. 47, no. 1, Jan. 2009, pp. 90-96.
38. S. Kozat and A.C. Singer "Switching Strategies for Sequential Decision Problems with Multiplicative Loss with Application to Portfolios," *IEEE Transactions on Signal Processing*, vol. 57, no. 6, June 2009, pp. 2192 – 2208.
39. S. Kozat and A.C. Singer, "Competitive Prediction Under Additive Noise," *IEEE Transactions on Signal Processing*, vol. 57, no. 9, Sept. 2009, pp. 3698 – 3703.
40. J.W. Choi, B. Shim, A.C. Singer, and N.I. Cho, "Low-Complexity Decoding Via Reduced Dimension Maximum Likelihood Search," *IEEE Transactions on Signal Processing*, vol. 58(3):2, p.p. 1780 – 1793, 2010.
41. S.S. Kozat, A.T. Erdogan, A.C. Singer and A.H. Sayed, "Steady-State MSE Performance Analysis of Mixture Approaches to Adaptive Filtering," *IEEE Transactions on Signal Processing*, vol. 58, no. 8, August 2010, pp. 4050-4063.
42. S.S. Kozat and A.C. Singer, "Universal Randomized Switching," *IEEE Transactions on Signal Processing*, vol. 58, no. 3, Part: 2, 2010, pp. 1922 – 1927.
43. J.W. Choi, A.C. Singer, J. Lee, and N.-I. Cho, "Improved linear soft-input soft-output detection via soft feedback interference cancellation," *IEEE Transactions on Communications*, vol. 58, no. 3, 2010, pp. 986 - 996.
44. S.S. Kozat, A.T. Erdogan, A.C. Singer, and A.H. Sayed, "Unbiased Model Combinations for Adaptive Filtering," *IEEE Transactions on Signal Processing*, vol. 58, no. 8, August 2010, pp.4421-4427.
45. S.S. Kozat and A.C. Singer, "Universal Semi-constant Rebalanced Portfolios," *Journal of Mathematical Finance*, vol. 21, no. 2, pp. 293-311, 2011.
46. M. Tuechler and A.C. Singer, "Turbo Equalization: An Overview," *IEEE Transactions on Information Theory*, vol. 57, no. 2, pp. 920-952, 2011.
47. J.W. Choi, T.J. Riedl, K. Kim, A.C. Singer, and J.C. Preisig, "Adaptive Linear Turbo Equalization Over Doubly Selective Channels," *IEEE Journal of Oceanic Engineering*, vol. 36, no. 4, pp. 473-489, 2011.
48. R.R. Chen, A. Chockalingam, G. Leus, R. Raheli, A.C. Singer, "Introduction to the Issue on Soft Detection for Wireless Transmission," *IEEE Journal of Selected Topics in Signal Processing*, vol. 5, no. 8, pp. 1397-1399, 2011.
49. A. Sen Gupta, J.K. Nelson, W. Zhou, A.C. Singer, and J.C. Preisig, "A Geometric Approach to Improve Interference Mitigation in Multi-User Detection and Equalization," *IEEE Transactions on Signal Processing*, vol. 59(4), pp. 1694-1705, 2011.
50. H. Wan, R.R. Chen, J.W. Choi, A.C. Singer, J.C. Preisig, B. Farhang-Boroujeny, "Markov Chain Monte Carlo Detection for Frequency-Selective Channels Using List Channel Estimates," *IEEE Journal of Selected Topics in Signal Processing*, vol. 5(8), 2011.
51. S.S. Kozat, A.T. Erdogan, A.C. Singer, A.H. Sayed, "Transient Analysis of Adaptive Affine Combinations," *IEEE Transactions on Signal Processing*, vol. 59, no. 12, pp. 6227 – 6232, 2011.
52. M. Effros, G.D. Forney, Jr., F.R. Kschischang, M. Medard, A.C. Singer, A. Vardy, "The Scientific Legacy of Ralf Koetter," *IEEE Transactions on Information Theory*, vol. 57, no. 2, pp. 589 – 592, 2011.
53. A.J. Bean and A.C. Singer, "Universal Switching and Side Information Portfolios Under Transaction Costs Using Factor Graphs," *IEEE Journal on Selected Topics in Signal Processing*, Volume 6, No. 4, pp. 351- 365, August 2012.



54. G. Zeitler, G. Kramer, and A.C. Singer, "Bayesian Parameter Estimation Using Single-Bit Dithered Quantization," *IEEE Transactions on Signal Processing*, Vol. 60, No. 6, pp. 2713-2726, June 2012.
55. G. Zeitler, A.C. Singer, and G. Kramer, "Low-Precision A/D Conversion for Maximum Information Rate in Channels with Memory," *IEEE Transactions on Communications*, Volume 6, No. 9, pp. 2511- 2521, September 2012.
56. J. W. Choi, B. Shim, and A.C. Singer, "Efficient Soft-Input Soft-Output Tree Detection via an Improved Path Metric," *IEEE Trans. Information Theory*," vol. 58, pp. 1518-1533, March 2012.
57. R.J. Drost, and A.C. Singer, "Fast Recursive Equalizers for 1D and 2D Linear Equalization," *IEEE Transactions on Signal Processing*, Vol. 60, No. 12, pp. 3886-3891, July 2012.
58. L.N. Rajan, M. Lu, N.R. Shanbhag, and A.C. Singer, and N.R. Shanbhag, "BER-Optimal Analog-to-Digital Converters for Communication Links," *IEEE Transactions on Signal Processing*, Volume: 60, No. 7, pp. 3683- 3691, July 2012.
59. S.S. Kozat, K.M. Guan, and A.C. Singer, "Tracking the best level set in a level-crossing analog-to-digital converter," *Digital Signal Processing*, vol. 23, no. 1, pp. 478-487, Jan. 2013.
60. K. Kim, N. Kalantarova, S.S. Kozat, and A.C. Singer, "Linear MMSE-Optimal Turbo Equalization Using Context Trees," *IEEE Transactions on Signal Processing*, Volume: 61, no. 12, pp. 3041-3055, June 2013.
61. K. Kim, J. W. Choi, S. S. Kozat, and A. C. Singer, "Low Complexity Turbo-Equalization: A Clustering Approach," *IEEE Communications Letters*, vol. 18, no. 6, pp. 1063-1066, June 2014.
62. R. M. Corey and A. C. Singer, "A Multistage Architecture for Statistical Inference with Stochastic Signal Acquisition," *Journal of Signal Processing Systems*, vol. 84, no. 3, pp. 425-434, Jul. 2015.
63. Y. Lin, M. Keel, A. Faust, A. Xu, N. Shanbhag, E. Rosenbaum, A. Singer, "A Study of BER-optimal ADC-based Receiver for Serial Links," *IEEE Transactions on Circuits and Systems I*, vol. 63, no. 5, May 2016, pp. 693 – 704.
64. M. A. Donmez, M. Raginsky and A. C. Singer, "Online Optimization Under Adversarial Perturbations," in *IEEE Journal of Selected Topics in Signal Processing*, vol. 10, no. 2, pp. 256-269, March 2016.
65. O. Ordentlich, G. Tabak, P.K. Hanumolu, A.C. Singer, and G.W. Wornell, "A Modulo-Based Architecture for Analog-to-Digital Conversion." *IEEE Journal on Selected Topics in Signal Processing*, vol. 12, no. 5, pp. 825-840, October, 2018.
66. S. Yang, G. B. Deane, J. C. Preisig, N. C. Seviktekin, J. W. Choi and A. C. Singer, "On the Reusability of Postexperimental Field Data for Underwater Acoustic Communications R&D," in *IEEE Journal of Oceanic Engineering*, vol. 44, no. 4, pp. 912-931, Oct. 2019.
67. N. C. Seviktekin and A. C. Singer, "Representation and Reconstruction of Finite-Energy Band-Limited Signals via Pulse-Width Modulation," in *IEEE Transactions on Signal Processing*, vol. 67, no. 19, pp. 5153-5168, 1 Oct.1, 2019.
68. N.C. Seviktekin, L.R. Varshney, P.K. Hanumolu, and A.C. Singer, "Signal Processing Foundations for Time-Based Signal Representations: Neurobiological parallels to engineered systems designed for energy efficiency or hardware simplicity, " in *IEEE Signal Processing Magazine*. 36, 6, p. 38-50, Nov. 2019.
69. S. Yang, O. Baltaji, A. C. Singer and Y. M. A. Hashash, "Development of an Underground Through-Soil Wireless Acoustic Communication System," in *IEEE Wireless Communications*, vol. 27, no. 1, pp. 154-161, February 2020.
70. M.A. Donmez , M. Raginsky, A.C. Singer, and L.R. Varshney, "Cost-Reliability Tradeoffs in Fusing Unreliable Computational Units," in *IEEE Open Journal of Signal Processing*, June, 2020. Digital Object Identifier 10.1109/OJSP.2020.2997262.

71. King, W. P., Amos, J., Azer, M., Baker, D., Bashir, R., Best, C., Bethke, E., Boppart, S. A., Bralts, E., Corey, R. M., Dietkus, R., Durack, G., Elbel, S., Elliott, G., Fava, J., Goldenfeld, N., Goldstein, M. H., Hayes, C., Herndon, N., Jamison, S. & 35 others, Johnson, B., Johnson, H., Johnson, M., Kolaczynski, J., Lee, T., Maslov, S., McGregor, D. J., Milner, D., Moller, R., Mosley, J., Musser, A., Newberger, M., Null, D., O'Bryan, L., Oelze, M., O'Leary, J., Pagano, A., Philpott, M., Pianfetti, B., Pille, A., Pizzuto, L., Ricconi, B., Rubessa, M., Rylowicz, S., Shipley, C., Singer, A. C., Stewart, B., Switzky, R., Tawfick, S., Wheeler, M., White, K., Widloski, E. M., Wood, E., Wood, C. & Wooldridge, A. R., "Emergency ventilator for COVID-19," *PloS one*. Dec 30 2020, 15, 12, p. 1-19.
72. R.M. Corey, U. Jones, and A.C. Singer, "Effects of medica, cloth, and transparent face masks on speech signals," *The Journal of the Acoustical Society of America*. vol. 148, no. 4, p. 2371-2375, Oct. 2020.
73. Corey, R. M., Widloski, E. M., Null, D., Ricconi, B., Johnson, M. A., White, K. C., Amos, J. R., Pagano, A., Oelze, M. L., Switzky, R. D., Wheeler, M. B., Bethke, E. B., Shipley, C. F. & Singer, A. C., "Low-Complexity System and Algorithm for an Emergency Ventilator Sensor and Alarm", *IEEE Transactions on Biomedical Circuits and Systems*. 14, 5, p. 1088-1096, Oct. 2020.
74. G. Tabak, S. Yang, R. Miller, M. Oelze, A.C. Singer "Video-Capable Ultrasonic Wireless Communications through Biological Tissues," *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 68:3, p. 664-674, March 2021.
75. T. Arikan and A.C. Singer, "Receiver Designs for Low-Latency HF Communications," *IEEE Transactions on Wireless Communications*, 20, 4, pp. 305-3015, May 2021.
76. Z. Kou, R.J. Miller, A.C. Singer, and M.L. Oelze (2021). "High Data Rate Communications In vivo Using Ultrasound." *IEEE Transactions on Biomedical Engineering*, 68(11), 3308-3316.
77. R.M. Corey and A.C. Singer, "Modeling the effects of dynamic range compression on signals in noise," *Journal of the Acoustical Society of America*, July 2021, 150(1), pp. 159-170.
78. Ryan M. Corey, Uriah Jones, and Andrew C. Singer, "Comparison of the Acoustic Effects of Face Masks on Speech," *The Hearing Journal*, vol. 74, no. 1, pp. 36-38, January 2021.
79. Choi, Jae Won, Aseem Borkar, Andrew Singer, and Girish Chowdhary. "Broadband Acoustic Communication Aided Underwater Inertial Navigation System." *IEEE Robotics and Automation Letters*, vol. 7, no. 2, pp. 5198-5205, April 2022.
80. G. Tabak, M. Oelze, A.C. Singer, "Effects of acoustic nonlinearity on communication performance in soft tissues," *Journal of the Acoustical Society of America*, 152(6), 3583-3594. 2022.
81. A. Weiss, T. Arikan, H. Vishnu, G.B. Deane, A.C. Singer, G.W. Wornell, "A Semi-Blind Method for Localization of Underwater Acoustic Sources," *IEEE Transactions on Signal Processing*, vol. 70, pp. 3090-3106, 2022.
82. R.M. Corey, S. Tao, N. Verma, A.C. Singer, Reliable measurement using unreliable binary comparisons, "Signal Processing," 203, 2023, pp. 1-29.
83. T. Arikan, A. Weiss, H. Vishnu, G.B. Deane, A.C. Singer, and G.W. Wornell, "An architecture for passive joint localization and structure learning in reverberant environments." *Journal of the Acoustical Society of America*, 153(1), 665-677. 2023.

#### PEER REVIEWED CONFERENCE ARTICLES

1. A.C. Singer, G.W. Wornell, and A.V. Oppenheim, "Codebook Prediction: A Nonlinear Signal Modeling Paradigm," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 325-8, vol. 5, San Francisco, CA, March 1992.

2. C. Meyers, A.C. Singer, F. Shin, and E. Church, "Modeling Chaotic Systems with Hidden Markov Models," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 565-8, vol. 5, San Francisco, CA, March 1992.
3. A.C. Singer, "Signaling Techniques Using Solitons," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 1336-9, vol. 2, Detroit, MI, May 1995.
4. A.C. Singer, "A New Circuit for Communication Using Solitons," *Proceedings of the IEEE Workshop on Nonlinear Signal and Image Processing*, pp. 150-3, vol. 1, Halkidiki, Greece, June 1995.
5. A.C. Singer, "Detection and Estimation of Soliton Signals," *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, pp. 1625-8, vol. 3, Atlanta, GA, May 1996.
6. A.C. Singer, "Lattice Filters for Adaptive Underwater Equalization," *IEEE Underwater Acoustic Signal Processing Workshop*, Kingston, RI, Oct. 1997.
7. R. Learned, A.C. Singer, and G. Wornell, "Iterative Decision Feedback Joint Detection and Decoding for Multiple Access Communications," *Proc. 1998 ARL Conference on Advanced Telecommunications / Information Distribution Research*.
8. A.C. Singer and M. Feder, "Robust Channel Equalization via Universal Adaptive Filtering," *Proc. 1998 ARL Conference on Advanced Telecommunications / Information Distribution Research*.
9. R. Learned and A.C. Singer, "Coding Enhanced Joint Detection for Multiple Access Communications," *Proc. 1998 International Conference on Acoustics, Speech, and Signal Processing*, pp. 3193-6, vol. 6.
10. R. Learned and A.C. Singer, "Iterative Joint Detection and Decoding for Multiple Access Communications Using Feedback," *SPIE-Int. Soc. Opt. Eng. Proceedings of Spie - the International Society for Optical Engineering*, vol. 3393, pp.154-161, 1998.
11. A.C. Singer and M. Feder, "Twice Universal Linear Prediction of Individual Sequences," *Proceedings of 1998 IEEE International Symposium on Information Theory*, p.135, 1998.
12. M. Feder and A.C. Singer, "Universal Data Compression and Linear Prediction," *Proceedings of the 1998 IEEE Data Compression Conference*, pp. 511-520, Snowbird, Utah, 1998.
13. M.J. Lopez, A.C. Singer, S.L. Whitney, and G.S. Edelson, "A DFE Coefficient Placement Algorithm for Underwater Digital Acoustic Communications," *Proceedings of OCEANS '99*, Sept. 13-16, Seattle, WA, 1999.
14. A. Singer, J. Nelson, and R. Koetter, "Linear Iterative Turbo Equalization (LITE) for Dual Channels," *Proc. of the Thirty-third Asilomar Conf. on Signals, Systems, and Computers*, October 24-27, pp. 1670-1674, Monterey, CA, 1999.
15. A.C. Singer and S. Kozat, "On Universal Linear Prediction of Gaussian Data," *Proceedings of the 2000 IEEE Conference on Acoustics, Speech, and Signal Processing*, Istanbul, Turkey, vol. 1, 2000, pp. 13-16.
16. A.C. Singer and S. Kozat, "Multi-Stage Adaptation Algorithms for Filtering Processes of Unknown Order," *Proc. of the First IEEE Sensor Array and Multi-channel Signal Processing Workshop*, March 16-17, Cambridge, MA, 2000, pp. 380-4.
17. R. Koetter, A.C. Singer, and M. Tuechler, "Iterative Correction of Intersymbol Interference via Equalization and Decoding with Priors," *Proceedings of the 2000 International Symposium on Information Theory*, Sorrento Italy, June 25-30, 2000.
18. A.C. Singer and M. Feder, "Universal Linear Least-Squares Prediction," *Proceedings of the Int. Symposium on Information Theory*, Sorrento, Italy, June 25-30, 2000.
19. N. Cadalli, P. Shargo, D. C. Munson, Jr., A.C. Singer, "3-D Tomographic Imaging of Ocean Mines from Real and Simulated LIDAR Returns," *SPIE 46th Annual Meeting: The International Symposium on Optical Science and Technology*, San Diego, CA, June 25-30, 2000.

20. J. Nelson, R. Koetter, and A.C. Singer, "Evolution of Priors in the LITE," *Proc. 4th Conference on Information Sciences and Systems*, Princeton, NJ, March 15-17, 2000.
21. C. McGahey, A.C. Singer and U. Madhow, "BAD: A Bi-directional Arbitrated Decision Feedback Equalizer," *Proc. 34th Conference on Information Sciences and Systems*, Princeton, NJ, March 15-17, 2000.
22. P. Shargo, N. Cadalli, A.C. Singer, D. Munson, "A Tomographic Framework for LIDAR Imaging," *Proc. International Conference on Acoustics, Speech, and Signal Processing*, Salt Lake City, UT, 2001, pp. 1893-1896, vol. 3.
23. N. Cadalli, P. Shargo, D. Munson, A.C. Singer, "3-D Tomographic Imaging of Ocean Mines from Real and Simulated Lidar Returns," *SPIE's 46th Annual Meeting: The International Symposium on Optical Science and Technology*, San Diego, CA, 29 July - 3 August 2001.
24. J.K. Nelson, A.C. Singer, R. Koetter, "Evolution of Prior Information in SISO Equalization" *Proc. 2001 International Symposium on Information Theory*, 2001, p. 74.
25. M. Tuechler, A.C. Singer, and R. Koetter, "Hybrid equalization strategies for iterative equalization and decoding," *Proceedings of the 2001 International Symposium on Information Theory*, 2001.
26. R. Drost, D. Munson, A.C. Singer, "A Shape from Silhouette Approach to Imaging Ocean Mines," *SPIE 46th Annual Meeting: The International Symposium on Optical Science and Technology*, San Diego, CA, 29 July-3 August 2001, vol. 4488, pp. 115-122.
27. S.S. Kozat and A.C. Singer, "Further Results in Multistage Adaptive Filtering", *Proceedings of ICASSP*, Orlando, FL, vol. 2, 2002, pp. II/1329-II/1332.
28. S. Song, A.C. Singer, and K.-M. Sung, "Turbo equalization with an unknown channel," *Proc. ICASSP 2002*, vol. 3, pp. III.2805-III.2808, 2002.
29. S.S. Kozat and A.C. Singer, "A Lower bound on the Performance of Sequential Prediction", *Proc. IEEE ISIT 2002*, Switzerland, 2002, p. 147.
30. C.J. Lam and A.C. Singer "A Sequential Bayesian Beamformer for Gauss-Markov Signals," *Second IEEE Sensor Array and Multi-channel Signal Processing Workshop*, August 2002, Washington, DC, pp. 28-32.
31. S.-J. Lee, N. R. Shanbhag, and A.C. Singer, "Low-Power Turbo equalizer architecture," in *Proc. of IEEE Signal Processing Systems(SiPS):Design and Implementation*, pp. 33-38, October 2002.
32. Y. Jiang, R. Koetter, and A.C. Singer, "On the Separation of Demodulation and Decoding for Communications over Multiple-Antenna Channel," *Proceedings of IEEE International Symposium on Information Theory*, pp. 92, July 2003.
33. J.K. Nelson, A.C. Singer, and U. Madhow, "Asymptotic efficiency of the BAD algorithm," *Proc. 2003 IEEE Workshop on Statistical Signal Processing*, 2003, p 86-9.
34. S-J. Lee, A.C. Singer, and N. R. Shanbhag, "Analysis of linear Turbo-Equalizer via EXIT chart," *Proc. Global Telecommunication Conference*, 2003, pt. 4, pp. 2237-2242 vol. 4.
35. S.-J. Lee, N. R. Shanbhag, and A.C. Singer, "A low-power VLSI architecture for Turbo decoding," *Proceedings of IEEE International Symposium on Low Power Electronics Design (ISLPED'03)*, 2003, pp. 366-371
36. A. Sen Gupta and A.C. Singer, "Linear complexity multi-user detector using joint successive interference cancellation," *Proceedings of Asilomar Conference on Signals, Systems, Computers*, Pacific Grove, CA, November 9-12, 2003. 2003, pt. 1, pp. 157-61 vol. 1.
37. M. Tuechler, R. Koetter, and A.C. Singer, "Graphical models for coded data transmission over intersymbol interference channels," in *Proceedings of the 5th ITG Conference on Source and Channel Coding*, Erlangen, Germany, January 2004.
38. C. J. Lam and A.C. Singer, "Fast Adaptive Bayesian Beamforming using the FFT," *Proceedings of the IEEE Workshop on Statistical Signal Processing*, St Louis, MO, September 2003.

39. R. J. Drost and A.C. Singer, "Image Segmentation Using Factor Graphs," *2003 IEEE Workshop on Statistical Signal Processing*, St. Louis, MO, September 28 - October 1, 2003, pp. 150-153.
40. S.J. Lee and A.C. Singer, "Convergence Analysis of Linear Turbo Equalizer," *Proceedings of the 37th Asilomar Conference on Signals, Systems, and Computers*, November 2003, pt. 1, pp. 667-71, vol.1.
41. S.J. Lee, N.R. Shanbhag, and A.C. Singer, "Area-efficient high-throughput VLSI architecture for MAP-based Turbo equalizer," *Proceedings of IEEE Workshop on Signal Processing Systems*, 2003, pp. 87-92.
42. Y. Jiang, R. Koetter, and A.C. Singer, "On the Gaussian Approximation in the Analysis of Iterative MIMO Processing," *Proceedings of the 37th Asilomar Conference on Signals, Systems and Computers*, November 2003, pt. 1, pp. 1105-1109, vol. 1.
43. J.K. Nelson and A.C. Singer, "Asymptotic efficiency of a blind maximum likelihood sequence detector" *Proc. Asilomar Conference on Signals, Systems and Computers*, 2003, pp. 1667-1671.
44. A. Sen Gupta and A.C. Singer, "Near-far resistant multi-user detector using energy contours," *Proc. ICASSP 2004*, Montreal, Canada, May 21-24, 2004, pp. IV-993-IV-996.
45. C.J. Lam and A.C. Singer, "Performance Analysis of the Bayesian Beamformer," *Proc. of ICASSP 2004*, Montreal, Quebec, Canada, vol. 2, pp. II197-II200.
46. D. Baron, A.C. Singer, and R. G. Baraniuk, "Probability Assignments with Worst-Case Coding Length Constraints," *Proceedings of the Conference on Information Sciences and Systems*, Princeton, NJ, March 17-19, 2004.
47. S.S. Kozat and A.C. Singer, "Minmax Optimal Prediction with Side Information," *Proc. of ICASSP 2004*, Montreal, Quebec, Canada, pp. V-469-V-472.
48. S.-J. Lee; N.R. Shanbhag, and A.C. Singer "Switching methods for linear turbo equalization," *2004 IEEE International Symposium on Circuits and Systems*, 2004, pt. 3, pp. III-601-4, vol. 3.
49. S.J. Lee, A.C. Singer and N.R. Shanbhag, "Switching LMS linear turbo equalization" *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing*, 2004, pp. IV-641-IV-644.
50. D. Luengo, S.S. Kozat, and A.C. Singer, "Universal piecewise linear least squares prediction" *Proc. IEEE International Symposium on Information Theory*, 2004, p. 198.
51. R.J. Drost, A.C. Singer, "Linear equalization via factor graphs", *Proceedings - 2004 IEEE International Symposium on Information Theory*, 2004, p. 129.
52. J.K. Nelson, A.C. Singer, U. Madhow, "Multi-directional decision feedback for 2D equalization" *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing*, 2004, pp. IV-921-IV-924.
53. J. W. Choi, B. Shim, A.C. Singer, and N.I. Cho, "Energy-efficient digital filtering using ML-based error correction (ML-EC) technique," *2005 IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2005, pt. 4, pp. iv /733-6, vol. 4.
54. Y. Jiang, A. Ashikhmin, R. Koetter, A. C. Singer, "Extremal Problems of Information Combining," *Proc. IEEE International Symposium on Information Theory*, pp. 1236 - 1240, Sep. 2005.
55. A. Sen Gupta, A.C. Singer, "Maximal conditional efficiency successive interference cancellation", *Proc. International Conference on Acoustics, Speech and Signal Processing*, 2006. vol. 4, 2006, pp. IV-785 - IV-788.
56. A. Sen Gupta and A.C. Singer, "Successive interference annulment for multi-user systems with known non-linearity", *40th Annual Conference on Information Sciences and Systems*, March 2006, pp. 442 - 446.
57. C.J. Lam and A.C. Singer, "Adaptive Bayesian Beamforming for Steering Vector Uncertainties with Order Recursive Implementation" *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing*, May 2006, vol. 4, 2006, pp. IV-997 - IV-1000.

58. K. Guan and A. C. Singer, "A Level-Crossing Sampling Scheme for Non-Bandlimited Signals," *Proc. International Conference on Acoustics, Speech and Signal Processing*, 2006. Vol. 3, 21-24 May 2006 pp. III-381 - III-383.
59. K. Guan and A.C. Singer, "A Level-Crossing Sampling Scheme for both Deterministic and Stochastic Non-Bandlimited Signals," *Proc. Sarnoff Symposium*, 2006.
60. J. W. Choi, A.C. Singer, N. I. Cho, "Low-Power Adaptive Equalizer via soft Error Cancellation," *Proc. 2006 International Conference on Acoustics Speech and Signal Processing*, vol. 4, 2006, pp. IV-433 - IV-436.
61. H.-M. Bae, J. Ashbrook, J. Park, N. Shanbhag, A.C. Singer, and S. Chopra, "An MLSE receiver for electronic-dispersion compensation of OC-192 links," *Proc. 2006 International Solid-State Circuits Conference*, pp. 234-235, San Francisco, February 2006.
62. S.S. Kozat and A.C. Singer, "Universal Switching Linear Least Squares Prediction," *Proc. of the 2006 Information Theory and its Applications Workshop*, UCSD, Feb. 6-10, La Jolla, CA.
63. J. K. Nelson and A.C. Singer, "Bayesian ML Sequence Detection for ISI Channels," *Proceedings of CISS 2006*, March 2006, pp. 693-698.
64. A.C. Singer and S. S. Kozat, "Universal Context Tree Least Squares Prediction," *Proc. ISIT 2006*, July 2006 pp. 426 - 430.
65. J.K. Nelson and A.C. Singer, "Bayesian Sequential Detection for the BSC with Unknown Crossover Probability," *Proceedings of International Symposium on Information Theory*, March 2006 pp. 693 - 698.
66. N.C. Soldner, C.J. Lam, A.C. Singer, and J.T. Bernhard, "Beamforming in intelligent randomly distributed sensor networks using electrically-small dual-sector antennas for planetary exploration Space Mission Challenges for Information Technology" *Proc. SMC-IT 2006*, 17-20 July 2006, pp. 7.
67. A. Sen Gupta and A.C. Singer, "Multi-stage Detection Using Constellation Structure", *Proc. Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, Oct 2006.
68. A.C. Singer, S.S. Kozat, and G.C. Zeitler, "Universal Context Tree PTH-Order Least Squares Prediction" *Proc. IEEE Workshop on Machine Learning for Signal Processing*, 2006. pp. 141 - 146.
69. K.M. Guan and A.C. Singer, "Opportunistic sampling by level-crossing," *Proc. ICASSP*, Honolulu, Hawaii, April 2007, pp. III1513-III1516.
70. K.M. Guan and A.C. Singer, "Opportunistic sampling by level-crossing - an information theoretic approach," *Proc. CISS*, Baltimore, MD, March 2007.
71. A.C. Singer and S. Kozat "Switching Universal Portfolios" *Proceedings of the 2007 Workshop on Information Theory and its Applications*, UCSD, La Jolla, CA, 2007.
72. G.C. Zeitler, A.C. Singer, S.S. Kozat, "Universal Piecewise Linear Regression of Individual Sequences: Lower Bound", *Proc. ICASSP*, Honolulu, 2007, pp. III-841-4.
73. S.S. Kozat and A.C. Singer, "Universal Constant Rebalanced Portfolios with Switching" *Proceedings of ICASSP*, Honolulu, 2007. pp. III1129-III1132.
74. R. Drost and A.C. Singer "Complexity Constrained Generalized Context Tree Algorithms," *Proc. Statistical Signal Processing Workshop*, Madison, WI, 2007.
75. G. Zeitler and A.C. Singer "Universal Linear Least-Squares Prediction in the Presence of Noise," *Proc. Statistical Signal Processing Workshop*, Madison, WI, 2007.
76. K.M. Guan and A.C. Singer, "Sequential placement of reference levels in a level-crossing analog-to-digital converter" *Proc. CISS 2008*, The 42nd Annual Conference on Information Sciences and Systems, 2008, pp. 464-469.
77. J.W. Choi, A.C. Singer, J.W. Lee and N.I. Cho "An improved soft feedback v-blast detection technique for turbo-MIMO systems" *Proc. IEEE International Conference on Acoustic, Speech and Signal Processes*, 2008, pp. 3181-4.

78. A. Sen Gupta and A.C. Singer, "Interference suppression for memoryless nonlinear multiuser systems using constellation structure" *IEEE Transactions on Signal Processing*, vol. 56, no. 11, Nov. 2008, pp. 5589-604.
79. C.J. Lam and A.C. Singer, "A recursive filter approach to adaptive Bayesian beamforming for unknown DOA" *Proc. 2008 IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, July 2008, pp. 307-310.
80. J.W. Choi, B.H. Shim and A.C. Singer "A low-complexity near-ml decoding technique via reduced dimension list stack algorithm" *Proc. SAM 2008 - 5th IEEE Sensor Array and Multichannel Signal Processing Workshop, SAM 2008 - 5th IEEE Sensor Array and Multichannel Signal Processing Workshop*, 2008, pp. 41-44.
81. J.W. Choi, R.J. Drost, A.C. Singer and J.C. Preisig, "Iterative multi-channel equalization and decoding for high frequency underwater acoustic communications" *Proc. 2008 IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, July 2008, pp. 127-130.
82. S.S. Kozat, A.C. Singer and A.J. Bean, "Universal portfolios via context trees" *Proc. IEEE International Conference on Acoustic, Speech and Signal Processes*, 2008, pp. 2093-2096.
83. S.S. Kozat and A.C. Singer "Universal switching portfolios under transaction costs" *Proc. ICASSP 2008, IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 5404-5407.
84. A.C. Singer, N.R. Shanbhag and H.M. Bae, "Electronic equalization of fiber optic links" *Proc. International Zurich Seminar on Digital Communications, Proceedings - 2008 International Zurich Seminar on Communications, IZS*, 2008, p 48-51.
85. H.M. Bae, A.C. Singer, J.A. Ashbrook and N.R. Shanbhag, "10Gb/s MLSE-based Electronic-Dispersion-Compensation IC with Fast Power-Transient Management for WDM Add/Drop Networks," *IEEE International Solid-State Circuits Conference, 2008 (ISSCC) Digest of Technical Papers*, Feb. 2008, pp. 234 - 609.
86. S. Kozat and A.C. Singer "A Performance Weighted Mixture of LMS Filters," *Proceedings of the IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP)* April, 2009, Tai Pei, pp. 3101 - 3104.
87. A. T. Erdogan, S.S. Kozat and A.C. Singer, "Comparison of Convex Combination and Affine Combination of Adaptive Filters," *Proceedings of the IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP)* April, 2009, Tai Pei, pp. 3089 - 3092.
88. J.W. Choi, K. Kim, T.J. Riedl, A.C. Singer, "Doubly-selective Multi-input Multi-output (MIMO) Channels," *Proceedings of the Forty-Third Asilomar Conference on Signals, Systems and Computers*, November 1 - 4, 2009, Pacific Grove, CA.
89. T.J. Riedl, J.W. Choi, and A.C. Singer, "Channel Estimation by Inference on Gaussian Markov Random Fields," *Proceedings of the Forty-Third Asilomar Conference on Signals, Systems and Computers*, November 1 - 4, 2009, Pacific Grove, CA.
90. A.J. Bean and A.C. Singer, "Factor Graphs for Universal Portfolios," *Proceedings of the Forty-Third Asilomar Conference on Signals, Systems and Computers*, November 1 - 4, 2009, Pacific Grove, CA.
91. K. Kim, J.W. Choi, A.C. Singer, and K. Kim, "A New Adaptive Turbo Equalizer with Soft Information Classification," *Proc. IEEE International Conference on Acoustics, Speech and Signal Processing*, 2010, pp. 3206-3209.
92. A.C. Singer, A.J. Bean, and J.W. Choi, "Mutual Information and Time Interleaved Analog to Digital Converters," *Proc. IEEE Workshop on Information Theory and its Applications*, January 2010, pp. 1-5.
93. A.J. Bean and A.C. Singer, "Universal switching and side information portfolios under transaction costs using factor graphs," *IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP)*, 2010, pp. 1986 - 1989.

94. A.C. Singer and S.S. Kozat, "A competitive algorithm approach to adaptive filtering," *7th International Symposium on Wireless Communication Systems (ISWCS)*, 2010, pp. 350 - 354.
95. J.W. Choi, T.J. Riedl, E.L. Daly, K. Kim, A.C. Singer, and J.C. Preisig, "Adaptive linear turbo equalization of large delay spread time-varying channel responses," *IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, 2010, pp. 77 - 80.
96. R. Narasimha, N. Shanbhag, and A.C. Singer, "BER-based adaptive ADC-equalizer based receiver for communication links," *2010 IEEE Workshop on Signal Processing Systems (SIPS)*, 2010, pp. 64 - 69.
97. H. Wan, R.R. Chen, J.W. Choi, A.C. Singer, J.C. Preisig, B. Farhang-Boroujeny, "Markov Chain Monte Carlo detection for underwater acoustic channels," *Information Theory and Applications Workshop (ITA)*, 2010, pp. 1 - 5.
98. H. Wan, R.R. Chen, J.W. Choi, A.C. Singer, J.C. Preisig, B. Farhang-Boroujeny, "Joint channel estimation and Markov Chain Monte Carlo detection for frequency-selective channels," *2010 IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, 2010, pp. 81 - 84.
99. J.W. Choi, B. Shim, and A.C. Singer, "Linear estimate-based look-ahead path metric for efficient soft-input soft-output tree detection," *2010 IEEE International Symposium on Information Theory Proceedings (ISIT)*, 2010, pp. 804 - 808.
100. J.C. Preisig, A.C. Singer, G.W. Wornell, "Reduced bandwidth frequency domain equalization for underwater acoustic communications," *2010 IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, 2010, pp. 93 - 96.
101. H. Wan, R.R. Chen, J.W. Choi, A.C. Singer, J.C. Preisig, B. Farhang-Boroujeny, "Stochastic Expectation Maximization Algorithm for Long-Memory Fast-Fading Channels," *2010 IEEE Global Telecommunications Conference (GLOBECOM 2010)*, 2010, pp. 1 - 5.
102. T.J. Riedl, A.C. Singer, J. W. Choi, "Learning in Gaussian Markov random fields," *2010 IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP)*, 2010, pp. 3070 - 3073.
103. J.W. Choi, B. Shim, A.C. Singer, A.C., "On the improved path metric for soft-input soft-output tree detection," *2010 Information Theory and Applications Workshop (ITA)*, 2010, pp. 1-5.
104. M. Lu, N. Shanbhag, and A.C. Singer, "BER-optimal analog-to-digital converters for communication links," *Proceedings of 2010 IEEE International Symposium on Circuits and Systems (ISCAS)*, 2010, pp. 1029 - 1032.
105. J.W. Choi, T.J. Riedl, K. Kim, A.C. Singer, and J.C. Preisig, "Practical application of turbo equalization to underwater acoustic communications," *7th International Symposium on Wireless Communication Systems (ISWCS)*, 2010, pp. 601 - 605.
106. T.J. Riedl, and A.C. Singer, "Iterative state estimation" *Conference Record of the Forty Fourth Asilomar Conference on Signals, Systems and Computers (ASILOMAR)*, 2010, pp. 1956 - 1958.
107. J.W. Choi, B. Shim, J.K. Nelson, and A.C. Singer, "Efficient Soft-Input Soft-Output MIMO Detection via Improved M-Algorithm," *2010 IEEE International Conference on Communications (ICC)*, pp. 1 - 5.
108. E.L. Daly, A.C. Singer, J.W. Choi, and J.C. Preisig, "Linear turbo equalization with precoding for underwater acoustic communications," *2010 Conference Record of the Forty Fourth Asilomar Conference on Signals, Systems and Computers (ASILOMAR)*, pp. 1319 - 1323.
109. G. Zeitler, A.C. Singer, and G. Kramer, "Low-precision A/D conversion for maximum information rate in channels with memory," *2011 IEEE International Symposium on Information Theory Proceedings (ISIT)*, pp. 2602 - 2606.



110. A.J. Bean, and A.C. Singer, "Factor graph switching portfolios under transaction costs," *2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 5748 – 5751.
111. A.J. Bean and A.C. Singer, "Portfolio selection via constrained stochastic gradients," *2011 IEEE Statistical Signal Processing Workshop (SSP)*, pp. 37 – 40.
112. N. Kalantarova, K. Kim, S.S. Kozat, and A.C. Singer, "Nonlinear turbo equalization using context trees," *2011 Information Theory and Applications Workshop (ITA)*, pp. 1–5.
113. T.J. Riedl, T.P. Coleman, and A.C. Singer, "Finite block-length achievable rates for queuing timing channels," *2011 IEEE Information Theory Workshop (ITW)*, pp. 200-204.
114. A. Gupta, A.C. Singer, and N.R. Shanbhag, "Least squares approximation and polyphase decomposition for pipelining recursive filters," *2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 1661 – 1664.
115. N.R. Shanbhag and A.C. Singer, "System-assisted analog mixed-signal design," *Design, Automation & Test in Europe Conference & Exhibition (DATE)*, 2011, pp. 1 – 6.
116. A.J. Bean and A.C. Singer, "Cooperative Estimation in Heterogeneous Populations," *2011 Conference Record of the Forty Fifth Asilomar Conference on Signals, Systems and Computers (ASILOMAR)*, 2011.
117. A.J. Bean and A.C. Singer, "A deflection criterion for time-interleaved analog-to-digital converters," *2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 5748 – 5751.
118. R. Narasimha, G. Zeitler, N. Shanbhag, A.C. Singer, and G. Kramer, "System-driven metrics for the design and adaptation of analog to digital converters," *2012 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 5281-5284, 25-30 March 2012.
119. G. Pinero and A.C. Singer, "MMSE beamformer based on partial FFT demodulation for OFDM underwater acoustic communications," *2012 Proceedings of the 20th European Signal Processing Conference (EUSIPCO)*, pp.2308-2312, 27-31 Aug. 2012.
120. T.J. Riedl, A. Bean and A.C. Singer, "Broadband Doppler Compensation: Experimental Evaluation," *Proceedings UCOMMS*, 12-14 September, 2012.
121. A. Bean, P. Kairouz, and A.C. Singer, "Convergence rates for cooperation in heterogeneous populations," *2012 Conference Record of the Forty Sixth Asilomar Conference on Signals, Systems and Computers (ASILOMAR)*, pp.531-534, 4-7 Nov. 2012.
122. A.C. Singer, "Adaptive equalization, tracking, and decoding for high-rate underwater acoustic communications," 1pUWa5, Published Abstracts of the 163rd Meeting of the Acoustical Society of America, Hong Kong, 13 May - 18 May 2012.
123. A.J. Bean, and A.C. Singer, "The SGC: A simple architecture for gathering statistics in communication links," *2013 IEEE Workshop on Signal Processing Systems (SiPS)*, pp.306-311, 16-18 Oct. 2013.
124. P. Kairouz, A.Xu, N.R. Shanbhag, A.C. Singer, "A sphere decoding approach for the vector Viterbi algorithm," *Conference Record of the Forty Sixth Asilomar Conference on Signals, Systems and Computers (ASILOMAR)*, 2012, vol., no., pp.114-118, 4-7 Nov. 2012.
125. C. Radhakrishnan, A.C. Singer, "Stochastic adaptive filtering using model combinations," *2012 Conference Record of The Forty Sixth Asilomar Conference on Signals, Systems and Computers (ASILOMAR)*, pp.1792,1796, 4-7 Nov. 2012.
126. T. Riedl, A.C. Singer, "MUST-READ: Multichannel sample-by-sample turbo resampling equalization and decoding," *OCEANS - Bergen, 2013 MTS/IEEE*, pp.1-5, 10-14 June 2013.
127. C. Radhakrishnan, A.C. Singer, "Recursive least squares filtering under stochastic computational errors," *Signals, Systems and Computers (ASILOMAR)*, 2013 Conference Record of the Forty Seventh Asilomar Conference, pp.1529,1532, 3-6 Nov. 2013.

128. A. Houmansadr, T. Riedl, N. Borisov, A.C. Singer, "I want my voice to be heard: IP over Voice-over-IP for unobservable censorship circumvention," *Proceedings of the 20<sup>th</sup> Annual Network & Distributed System Security Symposium (NDSS 2013)*.
129. A.J. Bean and A.C. Singer, "Statistics gathering converters: system level metrics, simulated performance, and process variation robustness," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 8365-8369, 2014.
130. R.M. Corey and A.C. Singer, "Scalar estimation from unreliable binary observations," *IEEE 8th Sensor Array and Multichannel Signal Processing Workshop (SAM)*, pp. 145-8, 2014.
131. R.M. Corey, A.C. Singer, S. Tao, and N. Verma, "A low complexity estimation architecture based on noisy comparators," *2014 IEEE Workshop on Signal Processing Systems (SiPS)*, pp. 1-6, 2014.
132. T. Riedl, and A.C. Singer, "Towards a video-capable wireless underwater modem: Doppler tolerant broadband acoustic communication," *2014 Underwater Communications and Networking (UComms)*, pp. 1-5 pp., 2014.
133. M.A. Donmez and A.C. Singer, "Sequential prediction of individual sequences in the presence of computational errors," *2014 48th Asilomar Conference on Signals, Systems and Computers*, pp. 1773 – 1778.
134. N. C. Sevüktekin and A. C. Singer, "I.I.D. stochastic analysis of PWM signals," *48th Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, 2014, pp. 1885-1889.
135. N. Sevuktekin and A.C. Singer, "A Performance Bound on Low-Pass Reconstruction From PWM Signals," *2015 IEEE International Conference on Communications (ICC)*, pp. 4931 – 4936, 2015.
136. T. Arikan, T.J. Riedl, A.C. Singer, and J. Younce, "Comparison of OFDM and Single-Carrier Schemes for Doppler Tolerant Acoustic Communications," *OCEANS 2015*.
137. J. Younce, A.C. Singer, T. Riedl, B. Landry, A. Bean and T. Arikan, "Experimental results with HF underwater acoustic modem for high bandwidth applications," *2015 49th Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, 2015, pp. 248-252.
138. R.M. Corey and A.C. Singer, "Detection of communication signals using stochastic quantization," *49<sup>th</sup> Asilomar Conference on Signals, Systems, and Computers*, pp. 1442-1446, Feb. 26, 2016.
139. N.C. Sevuktekin and A.C. Singer, "On Convergence Between Natural and Uniform Sampling for PWM Generation," *49<sup>th</sup> Asilomar Conference on Signals, Systems, and Computers*, pp. 903-907, Feb. 26, 2016.
140. G. Tabak and A.C. Singer, "Non-contact Heart Rate Detection via Periodic Signal Detection Methods," *49<sup>th</sup> Asilomar Conference on Signals, Systems, and Computers*, pp. 790-794, Feb. 26, 2016.
141. A. Singer, M. Oelze and A. Podkowa, "Mbps Experimental Acoustic Through-Tissue Communications: MEAT-COMMS," *The 17th IEEE International workshop on Signal Processing advances in Wireless Communications*, July 3rd - July 6th, 2016, Edinburgh, UK.
142. A. Singer, M. Oelze and A. Podkowa, "Experimental ultrasonic communications through tissues at Mbps data rates" *2016 IEEE International Ultrasonics Symposium*. Tours, France, September 18-21, 2016.
143. R.M. Corey and A.C. Singer, "Nonstationary source separation for underdetermined speech mixtures," *50th Asilomar Conference on Signals, Systems and Computers*, 2016, pp. 934 – 938.
144. M.A. Donmez, M. Raginsky, A.C. Singer and L.R. Varshney, "Cost-Performance Tradeoffs in Unreliable Computation Architectures," *50th Asilomar Conference on Signals, Systems and Computers*, 2016, pp. 215-219.
145. R.M. Corey and A.C. Singer, "A hypothesis testing approach for real-time

- multichannel speech separation using time-frequency masks," 2016 IEEE 26th International Workshop on Machine Learning for Signal Processing (MLSP), pp. 1-6.
146. R.M. Corey and A.C. Singer, "Spatial Sigma-Delta Signal Acquisition for Wideband Beamforming Arrays," WSA 2016; 20th International ITG Workshop on Smart Antennas, pp. 1-7.
  147. S. Yang and A.C. Singer, "Energy Efficient Ultrasonic Communication on Steel Pipes," *IEEE Workshop on Signal Processing Systems (SIPS)*, pp. 297-302, Dec. 2016.
  148. R.M. Corey and A.C. Singer, "Underdetermined Methods for Multichannel Audio Enhancement with Partial Preservation of Background Sources," WASPAA 2017, IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, Mohonk Mountain House, New Paltz, NY.
  149. R.M. Corey and A.C. Singer, "Dynamic Range Compression for Noisy Mixtures Using Source Separation and Beamforming," WASPAA 2017, IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, Mohonk Mountain House, New Paltz, NY.
  150. S. Tao, N. Verma, R.M. Corey, and A.C. Singer, "A 10-b statistical ADC employing pipelining and sub-ranging in 32 nm CMOS," 2017 *IEEE International Symposium on Circuits and Systems (ISCAS)*, p. 4, 2017.
  151. N. Sevuktekin and A.C. Singer, "Lossless Natural Sampling for PWM Generation," 51<sup>st</sup> *Asilomar Conference on Signals, Systems and Computers*, Oct. 29 – Nov. 1, 2017.
  152. C. Radhakrishnan and A.C. Singer, "Reliable Conjugate Gradient Method with applications in Adaptive Filtering and Machine Learning," 51<sup>st</sup> *Asilomar Conference on signals, Systems and Computers*, October 29 – November 1, 2017.
  153. R.M. Corey and A.C. Singer, "Real-World Evaluation of Multichannel Audio Enhancement Systems Using Acoustic Pilot Signals," 51<sup>st</sup> *Asilomar Conference on signals, Systems and Computers*, October 29 – November 1, 2017.
  154. R.M. Corey and A.C. Singer, "Wideband source localization using one-bit quantized arrays," *IEEE 7th International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, pp.1-5, 10-13 Dec. 2017.
  155. J.R. Buck, and A.C. Singer, "A performance-weighted blended dominant mode rejection beamformer." in 2018 *IEEE 10th Sensor Array and Multichannel Signal Processing Workshop, SAM 2018*. vol. 2018-July, 8448519, IEEE Computer Society, pp. 124-128, 10th IEEE Sensor Array and Multichannel Signal Processing Workshop, SAM 2018, Sheffield, United Kingdom, July 8, 2018.
  156. R.M. Corey, and A.C. Singer, "Relative transfer function estimation from speech keywords." In *Latent Variable Analysis and Signal Separation - 14th International Conference, LVA/ICA 2018, Proceedings* (pp. 238-247). (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); Vol. 10891 LNCS). Springer-Verlag.
  157. R.M. Corey, N. Tsuda, and A.C. Singer, "Delay-Performance Tradeoffs in Causal Microphone Array Processing," *International Workshop on Acoustic Signal Enhancement (IWAENC)*, September 2018.
  158. R.M. Corey and A.C. Singer, "Speech Separation Using Partially Asynchronous Microphone Arrays Without Resampling," *International Workshop on Acoustic Signal Enhancement (IWAENC)*, September 2018.
  159. S. Yang, O. Baltaji, Y. M. Hashash, and A. C. Singer, "SoilComm: A miniaturized through-soil wireless data transmission system," *The Journal of the Acoustical Society of America* 144.3 (2018): 1872-1872.
  160. Buck, J. R. & Singer, A. C., "A performance-weighted blended dominant mode rejection beamformer," Aug 27 2018, 2018 IEEE 10th Sensor Array and Multichannel Signal Processing Workshop, SAM 2018. IEEE Computer Society, p. 124-128 5 p. 8448519. (Proceedings of the IEEE Sensor Array and Multichannel Signal Processing Workshop; vol. 2018-July).

161. R.M. Corey, N. Tsuda, and A.C. Singer, "Acoustic Impulse Responses for Wearable Audio Devices," *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May 2019.
162. R.M. Corey and A.C. Singer, "Motion-Tolerant Beamforming with Deformable Microphone Arrays," *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, October 2019. (Best paper award)
163. R.M. Corey, M.D. Skarha, and A.C. Singer, "Cooperative audio source separation and enhancement using distributed microphone arrays and wearable devices," *IEEE International Workshop on Computational Advances in Multisensor Adaptive Processing (CAMSAP)*, December 2019.
164. S. Yang and A.C. Singer, "Optimal replay-based channel simulation via dithering methods," *53rd Asilomar Conference on Signals, Systems, and Computers*, Nov. 3-6, 2019.
165. N.C. Sevuktekin, A.G. Schwing, and A.C. Singer, "Distributed Estimation via Opinion Dynamics," Aug 2019, *2019 IEEE 62nd International Midwest Symposium on Circuits and Systems, MWSCAS 2019*. Institute of Electrical and Electronics Engineers Inc., p. 476-480. (Midwest Symposium on Circuits and Systems; vol. 2019-August).
166. N.C. Sevuktekin, and Singer, "The Good, the Bad, Algorithmic Noise Tolerance (ANT), the Ugly," May 2019, *2019 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2019*, p. 5366-5370; vol. 2019-May.
167. Meehan, C. L., Kumar, S., Pando, M. A., Coe, J. T., Baltaji, O., Yang, S., Hashash, Y. M. A. & Singer, A. C., "Through-Soil Wireless Communication System for Embedded Geotechnical Instrumentation," *Geotechnical Special Publication*. Meehan, C. L., Kumar, S., Pando, M. A. & Coe, J. T. (eds.). GSP 313 ed. American Society of Civil Engineers (ASCE), p. 200-208 (Geotechnical Special Publication; vol. 2019-March, no. GSP 313).
168. N. C. Sevüktekin, M. Raginsky and A. C. Singer, "Linear Noisy Networks with Stochastic Components," *2019 IEEE 58th Conference on Decision and Control (CDC)*, Nice, France, 2019, pp. 5386-5391.
169. R.M. Corey and A.C. Singer, "Dynamic range compression of sound mixtures," *179th Meeting of the Acoustical Society of America*, December 2020.
170. R.M. Corey, U. Jones, and A.C. Singer, "Acoustic effects of face masks on speech signals," *179th Meeting of the Acoustical Society of America*, December 2020.
171. R.M. Corey and A.C. Singer, "Binaural Audio Source Remixing with Microphone Array Listening Devices." *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2020* (pp. 561-565). Vol. 2020-May.
172. G. Tabak, and A.C. Singer, "Uncoded Binary Signaling through Modulo AWGN Channel." *Conference Record of the 54th Asilomar Conference on Signals, Systems and Computers, ACSSC 2020* (pp. 511-515); Vol. 2020-November. IEEE Computer Society.
173. R.M. Corey and A.C. Singer, "Adaptive binaural filtering for a multiple-talker listening system using remote and on-ear microphones," *IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, October 2021.
174. R.M. Corey and A.C. Singer, "High/low model for scalable multimicrophone enhancement of speech mixtures," *European Signal Processing Conference (EUSIPCO)*, August 2021.
175. Yang, S., and Singer, A. C. (2021). "HB-DTW: Hyperdimensional Bayesian Dynamic Time Warping for Non-uniform Doppler." In *29th European Signal Processing Conference, EUSIPCO 2021 - Proceedings* (pp. 2020-2024); Vol. 2021-August.
176. Tabak, G., Lin, X. E., and Singer, A. C. (2021). "High Data Rate Near-Ultrasonic Communication with Consumer Devices". In *29th European Signal Processing Conference, EUSIPCO 2021 - Proceedings* (pp. 1681-1685); Vol. 2021-August.
177. J.W. Choi, A.C. Singer, and J.T. Ludwig, "Online Segmented Recursive Least Squares (OSRLS)," *Conference Record of the 55th Asilomar Conference on Signals, Systems and Computers, ACSSC 2021*; Vol. 2021-November. IEEE Computer Society.

178. M. Donmez, M. Raginsky, A.C. Singer, J.T. Ludwig, "EE-Grad: Exploration and Exploitation for Cost-Efficient Mini-Batch SGD," *Conference Record of the 55th Asilomar Conference on Signals, Systems and Computers, ACSSC 2021*, Vol. 2021-November. IEEE Computer Society.
179. R.M. Corey and A.C. Singer, "Modeling the effects of dynamic range compression on signals in noise", *The Journal of the Acoustical Society of America* 150, 159-170 (2021).
180. K. Sarkar, R.M. Corey, A.C. Singer, "Utilizing laser distance sensors for audio recovery and acoustic source localization," *The Journal of the Acoustical Society of America* 149(4), A43 (2021).
181. G. Tabak, M. Oelze, A.C. Singer, "Effects of acoustic nonlinearity on through-tissue communication performance," *The Journal of the Acoustical Society of America* 149, A142 (2021).
182. Jae Won Choi, Aseem Borkar, Andrew Singer, and Girish Chowdhary. "Broadband Acoustic Communication Aided Underwater Inertial Navigation System." 2022 ICRA.
183. J. W. Choi, G. Chowdhary, A.C. Singer, H. Vishnu, A. Weiss, G.W. Wornell, G. Deane., "Online Segmented Recursive Least-Squares for Multipath Doppler Tracking," 2022 Sixth Underwater Communications and Networking Conference (UComms), 2022, pp. 1-5.
184. Corey, R. M., Mittal, M., Sarkar, K., & Singer, A. C. (2022). Adaptive Crosstalk Cancellation and Spatialization for Dynamic Group Conversation Enhancement Using Mobile and Wearable Devices. In International Workshop on Acoustic Signal Enhancement, IWAENC 2022 - Proceedings (International Workshop on Acoustic Signal Enhancement, IWAENC 2022 - Proceedings). Institute of Electrical and Electronics Engineers Inc.
185. Corey, R. M., Mittal, M., Sarkar, K., & Singer, A. C. (2022). Cooperative Speech Separation With a Microphone Array and Asynchronous Wearable Devices. Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH, 2022-September, 5398-5402.
186. Lu, A., Moore, E., Nallanthighall, A., Sarkar, K., Mittal, M., Corey, R. M., Smaragdis, P., & Singer, A. (2022). Mechatronic Generation of Datasets for Acoustics Research. In International Workshop on Acoustic Signal Enhancement, IWAENC 2022 - Proceedings (International Workshop on Acoustic Signal Enhancement, IWAENC 2022 - Proceedings). Institute of Electrical and Electronics Engineers Inc.
187. Measuring and Exploiting the Locally Linear Mapping Between Relative Transfer Functions and Array deformations. Proceedings of Meetings on Acoustics, 2023, in press.
188. Austin Lu, Ethaniel Moore, Arya Nallanthighall, Mankeerat S. Sidhu, Kanad Sarkar, Manan Mittal, Ryan M. Corey, Paris Smaragdis, and Andrew C. Singer, "Mechatronic acoustic research system for generating real large- scale dynamic datasets." *J. Acoust. Soc. Am.*, Vol. 152, No. 4, Pt. 2, October 2022
189. Manan Mittal, Kanad Sarkar, Ryan M. Corey, and Andrew C. Singer, "Group conversation enhancement using distributed microphone arrays with adaptive binauralization." *J. Acoust. Soc. Am.*, Vol. 152, No. 4, Pt. 2, October 2022
190. Kanad Sarkar, Manan Mittal, Ryan M. Corey, and Andrew C. Singer, "Manifold learning for dynamic array geometries," *Proceedings of Meetings on Acoustics*, (5) December 2022; 50(1):055001. Best Student Paper Award.

PATENTS GRANTED AND PENDING

1. Singer and R. Koetter. "Iterative MMSE equalization-decoder soft information exchange decoding method and device." US Patent Number 7,016,440, Filed on Aug. 16, 2000, Issued on March 21, 2006.
2. R. Hegde, A.C. Singer, and J. Janovetz, "Method and apparatus for delayed recursion decoder," Filed on June 24, 2003, issued April 17, 2007, US Patent Number 7,206,363.
3. H.M. Bae, N. Shanbhag, A. Singer, J. Ashbrook, "Phase Detector Utilizing Analog-to-Digital Converter Components," Granted 2008. US Patent Number 7,750,831, Filed Feb. 28, 2008, Granted July 6, 2010.
4. D. Mahgerefteh; X. Zheng; Y. Matsui; P. Tayebati and A. Singer, "Chirped Laser with Passive Filter Element for Differential Phase Shift Keying Generation," US Patent Number 7,991,297, Filed January 15, 2008, Granted Aug. 2, 2011.
5. C. Cole, D. Mahgerefteh, T. Nguyen, A. Singer, N. Shanbhag, "Phase Shift Keyed Modulation of Optical Signal Using Chirp Managed Laser," Filed 2008, US Patent Number 8,068,742, Filed July 10, 2008, Granted Nov. 29, 2011.
6. R. Hegde, A.C. Singer, and J. Janovetz, "Method and apparatus for delayed recursion decoder," Filed on April 17, 2007, continuation from June 24, 2003, issued December 27, 2011, US Patent Number 8,085,883.
7. J.B. Ashbrook, A.C. Singer, N.R. Shanbhag, R.J. Drost, "Tuning System and Method Using a Simulated Bit Error Rate for Use in an Electronic Dispersion Compensator," US Patent Number 8,102,938, Filed April, 2008, issued, Jan. 24, 2012.
8. A.C. Singer and N.R. Shanbhag, "Method and System Having Adjustable Analog-To-Digital Conversion Levels," Filed May 19, 2011, issued June 11, 2013, US Patent Number 8,462,037.
9. H.M. Bae, N.R. Shanbhag, A.C. Singer, "Baseband Phase-Locked Loop," Filed 2007, issued Jan. 22, 2013. US Patent number US8358729 B2.
10. T.J. Riedl, A.C. Singer, "System and method for broadband Doppler compensation," US Patent number 9,608,738, issued Mar 28, 2017.
11. A.C. Singer and R.M. Corey, "Space-time oversampling and error shaping for coarsely quantized arrays" U.S. Patent No. 10,623,212, Issue date: April 14, 2020.
12. M. Oelze, T.J. Riedl, and A.C. Singer, "Method and apparatus for ultra high bandwidth acoustic communication and power transfer", U.S. Patent Number 11,139,899. Filed May 26, 2015. Issued October 5, 2021.
13. R.M. Corey and A.C. Singer, "Multisource Audio Dynamic Range Compression." This application was filed on Jan 26, 2018 and assigned serial number 62/622,417.
14. R.M. Corey and A.C. Singer, "Audio Enhancement Using Acoustic Pilot Signals." This application was filed on Jan 26, 2018 and assigned serial number 62/622,447.
15. R.M. Corey and A.C. Singer, "Adaptive Binaural Filtering For Listening System Using Remote Signal Sources And On-Ear Microphones," filed March, 2022 and assigned serial number 63/324,983.
16. R.M. Corey and A.C. Singer, "Separating Space-Time Signals with Moving and Asynchronous Arrays," filed May, 2022 issued January 9, 2024, U.S. Patent Number 11,871,190.

#### UNIVERSITY SERVICE (past 5 years)

Faculty Fellow, Research, Entrepreneurship, Innovation and Strategy, within the Office of the Vice Chancellor for Research and Innovation. Lead program committees for \$100M translational research capital projects, develop campus strategy for integrating research and innovation ecosystem.

University of Illinois Presidential Fellow, broadening participation of women and underrepresented groups in the innovation ecosystem of the campus, system, and state.

Interim Director of the Siebel Center for Design. Campus Core Committee Chair, Design Center Initiative and Building. Oversaw \$48MM project for the development, design, and construction of a new campus-wide design center.

Innovation, Leadership, and Engineering Entrepreneurship (ILEE) degree and academic unit founding Director, Unit Executive Officer, and Head.

Innovation Thread Lead, Carle-Illinois College of Medicine

Sensors and Alarms Emergency Ventilator Project Lead for COVID response team

Associate Dean for Innovation and Entrepreneurship, College of Engineering, Unit Executive Officer and Head, ILEE degree program and academic unit, providing undergraduate and graduate curricula and activities in engineering entrepreneurship and innovation for COE students, faculty, and staff, with over 5,000 students enrolled in courses and programs annually.

Oversee annual Illinois Innovation Prize, Cozad New Venture Challenge, and NSF I-Corps Site, Student Innovation Incubator, and the Innovation Living Learning Community.

Departmental Committees: ECE Advisory, ECE Faculty Representative to the Faculty Senate, Chair, ECE Conflict Management Oversight committee.

Campus Committees: Chair, Center for Innovation and Design; Co-Chair Provost's Roundtable on Entrepreneurship; Named Faculty Appointments Committee, Chancellor's Advisory Committee on the Urbana Campus participation in the \$500M Discovery Partner's Institute.

University System Committees: Academic Advisory Committee on the \$500M Discovery Partner's Institute; President's Fellow and Liaison to DPI focusing on enhancing participation by women and underrepresented groups in the innovation and entrepreneurship ecosystems of the University of Illinois, the state, and the nation.

National Science Foundation Innovation Corps (NSF I-Corps) Program (PI for Illinois I-Corps Site and co-PI for Illinois-Michigan-Purdue-Toledo Regional Node, Faculty Lead for I-Corps Hub: Great Lakes Region).

## PROFESSIONAL SOCIETY SERVICE

Founder, Director of Engineering Innovation Leadership Council (EILC), an NSF-funded national community of practice for Associate Deans of Innovation and Entrepreneurship and similar faculty administrators across the country to strengthen the role of academic institutions in the national innovation ecosystem.

IEEE Ocean Engineering Society, IEEE Fellow evaluation committee member, chair.

*Computing in Science and Engineering*, past Editorial board member, IEEE Signal Processing Society liaison.

Inaugural Curation Board Member of the National Center for Engineering Pathways to Innovation (Epicenter), an initiative funded by the National Science Foundation.

Invited participant on National Science Foundation review panels for Information Technology Research, Signal Processing, Mathematical Foundations, Career Award, Small Business Innovative Research, Engineering, Innovation and Industrial Partnerships, Partnerships for Innovation, and Computer Communications Research.

Invited reviewer for science funding agencies from the United States, Canada, Israel, Switzerland, and the European Union.

Invited external reviewer of graduate thesis research and served as Doctoral dissertation outside international expert for theses in Norway on Underwater Acoustic Communications and Turbo Equalization (Norwegian University of Science and Technology, Trondheim), Germany on Turbo Equalization (Technical University of Munich) and Information-Theoretic Quantization and Analog/Digital Conversion (Technical University of Munich), Israel on Generalized Sampling Theory (Tel Aviv University) and Switzerland on Digital Estimation (ETH).

MIT Educational Council Regional Chair, 2017-present, Educational Council member, 1994-present.

Associate Editor, *IEEE Transactions on Signal Processing* (2 terms), Guest Editor-In-Chief, *IEEE Transactions on Signal Processing -- Special Issue on Machine Learning Methods in Signal Processing*, Guest Associate Editor *IEEE Transactions on Information Theory – Special Issue on Facets of Coding Theory: From Algorithms to Networks*, 2010. Guest Editor-In-Chief, *IEEE Journal on Special Topics in Signal Processing – Special Issue on Soft Detection for Wireless Transmission*, 2011.

Program committee for *Underwater Communications and Networking Conference* 2018-2022, *IEEE DSP Workshop*, annually 2004-2012, *IEEE Statistical Signal Processing Workshop*, annually 2003-2012, *IEEE International Conference on Acoustic Speech and Signal Processing*, annually 2003-2012, *IEEE International Symposium on Information Theory*, 2008, 2011, 2012.

Member of IEEE Signal Processing Society, IEEE Communications Society, IEEE Information Theory Society, IEEE Oceanic Engineering Society.

Conference organizing committee and Publicity Chair, *IEEE International Symposium on Information Theory*, 2004, Technical Co-Chair *Allerton Conference on Communications, Computing, and Control*, 2005, General Co-Chair, *Allerton Conference on Communications, Computing, and Control*, 2006, Publicity Chair, *IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2008.

Member of the Signal Processing Theory and Methods (SPTM) technical committee of the IEEE Signal Processing Society, 2004-2011, and the IEEE Machine Learning for Signal Processing technical committee of the IEEE Signal Processing Society, 2007-2012. Distinguished Lecturer, IEEE Signal Processing Society, 2014-2015.

Regularly review articles for *IEEE Transactions on Signal Processing*, *IEEE Signal Processing Letters*, *IEEE Journal on Special Topics in Signal Processing*, *IEEE Transactions on Information Theory*, *IEEE Transactions on Circuits and Systems*, *IEEE Transactions on Communications*, *IEEE Journal of Oceanic Engineering*, *Journal of the Acoustical Society of America*, *Signal Processing*, and others.

## RESIDENT INSTRUCTION

1. ECE 451, Advanced Digital Signal Processing, Fall 1998
2. ECE 310, Digital Signal Processing Spring 1999
3. ECE 451, Advanced Digital Signal Processing Fall 1999
4. ECE 310, Digital Signal Processing, Spring 2000
5. ECE 451, Advanced Digital Signal Processing, ECE 497ESD Fall 2000,
6. ECE 313, Probability with Engineering Applications, Spring 2001
7. ECE 451, Advanced Digital Signal Processing Fall 2001
8. ECE 451, Advanced Digital Signal Processing, Spring 2002
9. ECE 434, Random Processes, Fall 2002
10. ECE 451, Advanced Digital Signal Processing, Spring 2003
11. ECE 451, Advanced Digital Signal Processing, Fall 2003
12. ECE 451, Advanced Digital Signal Processing, Spring 2004



13. ECE 451, Advanced Digital Signal Processing, Fall 2004,
14. ECE 310 Digital Signal Processing, ECE 451 Advanced Digital Signal Processing (online), Spring 2005
15. ECE 465/466 Optical Communication Systems / Optical Communication Systems Laboratory, Fall 2005
16. ECE 410 Digital Signal Processing and ECE 451 Advanced Digital Signal Processing (online), Spring 2006
17. Development of Course and Instructional Laboratory materials using LabView for ECE 410 Fall 2006
18. ECE 410, Digital Signal Processing, Spring 2007
19. ECE 410, Digital Signal Processing, Fall 2009
20. ECE 410, Digital Signal Processing, Spring 2010
21. ECE 551, Advanced Digital Signal Processing, Fall 2010
22. ECE 410 Digital Signal Processing, Spring 2011
23. ECE 420, Digital Signal Processing Laboratory, Fall 2011
24. ENG 491 SSD, ARTD 445, Design Thinking in Teams, Spring 2012
25. ECE 310, Digital Signal Processing, Fall 2012
26. ENG 398/498, Grand Challenges in Engineering, Spring 2013
27. ENG 298, Introduction to Engineering Entrepreneurship, Fall 2013
28. ECE 445, Electrical and Computer Engineering Senior Design, Spring 2014
29. ECE 310, Digital Signal Processing, Fall 2014
30. ECE 398 PSC, Innovation and Engineering Design, Spring 2015
31. ECE 398 PSC, Innovation and Engineering Design, Fall 2015
32. TE/ENG 398 PSC, Innovation and Engineering Design, Spring 2016
33. TE/ENG 365 / 465, Lectures in Engineering Entrepreneurship, Fall 2016
34. TE/ENG 365 / 465, Lectures in Engineering Entrepreneurship, Spring 2017
35. TE 401 SC4D Siebel Center for Design, TE 401, Augmented Listening Systems, Fall 2017
36. TE 401 SC4D Siebel Center for Design, TE 401, Augmented Listening Systems, E365 / ENG 365, Lectures in Engineering Entrepreneurship, Spring 2018
37. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Fall 2018
38. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Spring 2019
39. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Fall 2019
40. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Spring 2020
41. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Fall 2020
42. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Spring 2021
43. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Fall 2021
44. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Spring 2022
45. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Fall 2022
46. TE 360 CS, Engineering City Scholars, TE 401, Augmented Listening Systems, Spring 2023

#### GRANTS AND GIFTS

1. Wireless network communications, National Science Foundation, \$60,000, 1999

2. Tomographic and statistical imaging of underwater LIDAR Office of Naval Research, \$542,000, 1999
3. Multi-user detection for the cochannel interference problem Sanders, A Lockheed-Martin Co., \$20,000, 1999
4. ONR Special Research Award in Ocean Acoustics, Universal Methods for Signal Processing and Communication, Office of Naval Research, \$300,000, 2000-2003
5. Enhanced Equalization and Decoding for EDGE, 3G and Beyond, Motorola, \$90,000, 2000-2004
6. National Science Foundation CAREER Award, CAREER: A Unified Approach to Iterative and Universal Methods for Signal Processing and Communications, National Science Foundation, \$300,000, 2001-2005
7. Miniaturized Antennas in Random Sensor Arrays for Planetary Surface and Atmosphere Exploration, NASA, \$150,000, 2003-2006
8. Communication-Centric Design for Sensor Networks, US Defense Advanced Research Projects Agency, \$100,000, 2005
9. Digital Antennas, DARPA, \$60,000, 2005-2006
10. DSP-Enhanced Mixed Signal Processing, DARPA/ARO, \$50,000, 2005-2006
11. Gift for Course and Laboratory Development using LabVIEW, National Instruments, \$40,000, 2006
12. Joint development of forward error correction, channel and data estimation algorithms for reliable underwater acoustic communications, Office of Naval Research, \$566,375, 2006-2011
13. Signal Processing to the Rescue of Moore's Law, National Science Foundation, \$238,131 (\$476,262), 2007-2012
14. Underwater Acoustic Propagation and Communications: A Coupled Research Program, ONR/Woods Hole Oceanographic Institute, \$513,600, 2007-2013
15. Alternative Theme in the MARCO Focus Center Research Program, MARCO (SRC/DARPA), \$300,000, 2009-2011
16. Giga-scale Systems Research Center, Systems and Reliable Systems Thrust, Princeton University, \$865,000 (\$2,525,002), 2009-2012,
17. Facets of Coding Theory: From Algorithms to Networks: A Tribute to the Work of Ralf Koetter, National Science Foundation, \$45,327, 2010-2011
18. Solar Powered Water Collection Containment and Self-Regulating Distribution System, US Environmental Protection Agency, \$10,000, 2010-2011
19. Funding a Dormcubator at the University of Illinois at Urbana-Champaign Innovation LLC, NCIIA, \$8,000, 2010-2011
20. Gift for Advanced Signal Processing Algorithms and Architectures for LTE, Futerwei, \$12,500, 2011-2012
21. Alternative Theme in the MARCO Focus Center Research Program, MARCO, (SRC/DARPA), \$100,000, 2011-2012
22. Collaborative Research Modulation and Statistical Detection Methods for Underwater Acoustic Communications, National Science Foundation, \$119,497, 2011-2014
23. Technology and Value Proposition, National Collegiate Inventors & Innovators Alliance, \$5,000, 2012-2013
24. E-Teams: OceanComm, NCIIA, \$20,000, 2012-2013
25. Strategic Research Initiative: Cognitive and Algorithmic Decision Making, UIUC College of Engineering, \$200,000, 2012-2014
26. I-Corps TEAMS: OceanComm: Reliable, High Data Rate Underwater Communications and Positioning, National Science Foundation, \$50,000, 2013
27. University of Illinois I-Corps Sites Program: Enhancing Technology Commercialization at a World-Class Research Institution, National Science Foundation, \$299,982, 2013-2016

28. Systems On Nanoscale Information FabriCs SONIC Center, MARCO (SRC/DARPA), \$1,485,879 (\$35,000,000), 2013-2018
29. Increasing Illinois SBIRs for Women and Underrepresented Groups, Illinois Department of Commerce and Economic Opportunity, \$50,000, 2014-2015
30. OTM Illinois Proof of Concept (I-POC) Grant for Video-Capable Underwater Acoustic Communication, UIUC, \$50,000, 2014-2015
31. Gift for HF Communication via Ionospheric Bounce Channels, Jump Laboratories, \$35,000, 2015-2016
32. Gift for Data Analytics for Market Prediction via Time-Scale Adaptation, Jump Laboratories, \$35,000, 2015-2016
33. Gift for HF Communications and Data Analytics, Jump Laboratories, \$75,000, 2016-2017
34. Gift for Ultrasonic Communication over Metallic Structures, Texas Instruments, \$28,239, 2016-2017
35. Hybrid Ultrasound 5G Millimeter Wave (UT-5G) Gb/s Wireless Communication Network, Argonne National Laboratory (US Department of Energy), \$164,000, 2016-2018
36. Development and Deployment of Acoustic Wireless Sensors Communications in Soils, National Science Foundation, \$142,288 (\$284,576), 2016-2018
37. High speed ultrasonic communications for implanted medical devices, National Institutes of Health, \$205,003 (\$410,005), 2017-2019
38. I-Corps Node: Activating the Midwest I-Corps Network, National Science Foundation (University of Michigan), \$324,000, 2017-2021
39. Type II: University of Illinois I-Corps Site, National Science Foundation, \$409,000, 2017-2022
40. Array Signal Processing for Augmented Listening, Microsoft, \$19,500, 2018-2019
41. I-Corps Node: Activating the Midwest I-Corps Network, National Science Foundation, \$95,000, 2018-2021
42. Gift for Alexa Innovation Faculty Support-Singer, Amazon, \$22,113, 2019
43. Gift Funds for research in signal processing systems, Silicon Laboratories, \$25,000, 2019
44. Technip FMC Gift to Singer Research Group, Technip FMC, \$67,052, 2019
45. Audio @ UIUC, UIUC College of Engineering, \$37,500, 2019
46. National Workshop for Associate Deans for Innovation and Entrepreneurship, National Science Foundation, \$46,790, 2019-2020
47. Listening Through Hundreds of Ears: Acoustic Monitoring with Ad Hoc Sensor Arrays, US Department of Energy, \$204,000, 2019-2021
48. Signals in the Soils and Signals Through the Soils, UIUC ACES, \$30,000, 2019-2021
49. PFI-TT Cooperative Listening with Networked Audio Devices, National Science Foundation, \$266,000, 2019-2022
50. Data-Driven Methods for Structure Learning in Underwater Acoustic Modeling, Office of Naval Research, \$750,000, 2019-2022
51. Gift for Singer Research Group, Silicon Labs, \$35,000, 2020
52. Technip FMC gift for Singer Research Group, Technip FMC, \$81,000, 2020
53. Type II: University of Illinois I-Corps Site, National Science Foundation, \$60,000, 2020-2021
54. I-Corps Node: Activating the Midwest I-Corps Network, University of Michigan, \$38,309, 2020-2021
55. MAGIC: Mechatronic Acoustic Generation and Interactive Collaboratorium, Discovery Partners Institute, \$125,000, 2021-2022
56. Research Experiences for Undergraduates, National Science Foundation, \$16,000, 2021
57. Gift for Singer Research Group, Silicon Labs, \$35,000, 2021

58. Gift for Singer Research Group, Technip FMC, \$81,000, 2021
59. PFI-TT Cooperative Listening with Networked Audio Devices (Supplement), National Science Foundation, \$50,000, 2021-2022
60. Audio @ UIUC SRI Phase II UIUC COE, \$75,000, 2021-2022
61. Listening Through Hundreds of Ears: Acoustic Monitoring with Ad Hoc Sensor Arrays (Laboratory Supplement), US Department of Energy, \$7,000, 2021-2022
62. Stirling Bridge, Raytheon Technologies Corporation, \$1,694,825, 2021-2024
63. NSF I-Corps Hub: Midwest Region, University of Michigan, \$1,827,046, 2021-2025
64. Gift for Singer Research Group, Silicon Labs, \$35,000, 2022
65. PFI-TT Cooperative Listening with Networked Audio Devices, APEX Supplement, National Science Foundation \$50,000, 2022-2023
66. Universal Adaptive Beamformers, Office of Naval Research, \$373,464, 2022-2025 (approved, pending)
67. Physics Inspired Noise Cancellation Systems, Foxconn Interconnect Technology, \$399,999 (\$197,976), 2023-2025, (under review, pending)
68. SONICAM: Improved Diagnostics for Capsule Endoscopy Using Ultrasonic Communications, US Department of Defense, \$1,445,524 (\$2,891,048), 2023-2026 (under review, pending)
69. Data-Driven Methods for Structure Learning in Underwater Acoustic Modeling, Office of Naval Research, \$360,000, 2023-2026
70. Underwater Acoustic Communications, Building a University Accessible Repository of Standard Channel Models, Office of Naval Research, \$600,000 2023-2026

#### MS THESIS STUDENTS

1. Lloyd David D'Souza., M. Engineering Thesis, Department of EECS, MIT, Implementation of Soliton Communication Circuits, 1996.
2. Michael Tuechler (co-supervised with R. Koetter), Iterative Equalization Using Priors, 2000
3. Christopher McGahey (co-supervised with U. Madhow), BAD: A Bidirectional Arbitrated Decision Feedback Equalizer, 2000
4. Suleyman Serdar Kozat, Multistage adaptive filters, 2001
5. Jill Nelson, Linear Iterative Turbo-Equalization (LITE), 2001
6. Xuan Denise Zhang, Iterative Soft Interference Cancellation and Decoding for Coded CDMA in Oversaturation, 2001
7. Robert Drost, Factor Graph Methods for 3D Shape Reconstructions, 2002
8. Peter Shargo, Methods and Analysis of Image Formation and Classification, 2002
9. Chun Wei (Jethro) Lam, Bayesian Adaptive Beamforming with Parametric Uncertainty, 2003
10. Neerav Mehta, Minimum Bit Error Rate Analog to Digital Conversion, 2006
11. Georg Zeitler, Topics in Piecewise Universal Prediction, 2007
12. Michael Callahan, SEMG-Based Unvocalized Speech Recognition and Motor Control, 2007
13. Andrew Bean, Universal Portfolios, 2009
14. Erica Lynn, Inter-Carrier Interference Mitigation for Underwater Acoustic Communications, 2010
15. Thomas Reidl, A Graphical Model for the Communications Channel, 2010
16. Peter Kairouz, MIMO Communications over Multi-Mode Optical Fiber, 2012
17. Ryan Corey, ADC Architectures Over Stochastic Fabrics, 2014
18. Noyan Cem Sevuktekin, Analysis of Time-Based Signal Representation and Circuits, 2015

19. Gizem Tabak, Noncontact Heart Rate Measurement via Period Detection Methods of Periodic Signals, 2016
20. Toros Arikan, Minimum-Delay HF Communications, 2017
21. Sijung Yang, Design of Energy-Efficient Ultrasonic Communication Systems on Steel Pipes, 2017
22. Jae Won Choi, Modeling of Acoustic Power Transfer via Piezo-Electric Transducers, 2019
23. Austin Lu, in progress

#### PHD THESIS STUDENTS (placement)

1. Seongwook Song, Channel Estimation in Single-Carrier and Multi-Carrier Communication Systems, 2004, (Samsung Corporation)
2. Suleyman Kozat, Topics in Competitive Signal Processing, 2004, (Bilkent University)
3. Seok-Jun Lee (Joint with Prof. N. Shanbhag), Algorithms and Architectures for Joint Equalization and Decoding, 2004, (Texas Instruments)
4. Yibo Jiang, (Joint with Prof. R. Koetter) An Information Theoretic Study on Linear Dispersion Codes and Low-Density Parity-Check Codes, 2005, (Qualcomm)
5. Jill Nelson, Mitigating the Effects of Intersymbol Interference: Algorithms and Analysis, 2005, (George Mason University)
6. Ananya Sen Gupta, A Constellation Structure Approach to Multiuser Detection, 2006, (University of Iowa)
7. Karen Guan, Opportunistic Sampling by Level-Crossing, 2012, (TRW)
8. Robert Drost, Graphical Algorithms for Equalization, 2007, (Army Research Laboratory)
9. Chun-Wei (Jethro) Lam, A Bayesian Approach to Beamforming for Unknown Direction of Arrival, 2008, (ViaSat Corporation)
10. Jun-Won Choi, Digital Communication Receiver Algorithms and Architectures for Reduced Complexity And High Throughput, 2010, (Hanyan University)
11. Thomas Riedl, Communication and Time Distortion, 2014, (OceanComm, Inc.)
12. Andrew Bean, Message Passing Algorithms - Methods and Applications, 2015, (Twitter)
13. Mehmet Ali Donmez, Robust and Reliable Decision-Making Systems and Algorithms, 2017, (IMC)
14. Ryan Corey, Augmented Listening, 2019, (University of Illinois Chicago)
15. Noyan Sevuktekin, Decision aggregation systems, 2021, (Apple)
16. Sijung Yang, Acoustic Communication Systems for Geotechnical and Infrastructural Applications, 2021, (Apple)
17. Gizem Tabak, Acoustic Communications in Nonlinear Media, 2022, (Amazon)
18. Jae Won Choi, Acoustic Localization and Tracking for Subsea Systems, 2023, (Apple)
19. Dariush Kari, Nonlinear Feature Extraction for Machine Learning in Underwater Acoustic Systems, in progress
20. Manan Mittal, in progress
21. Kanad Sarkar, in progress
22. Masayoshi Sakakura, in progress

#### POSTDOCTORAL ASSOCIATES AND VISITING SCIENTISTS

1. Remy Tumber, Postdoctoral Researcher, 2001
2. Nail Cadalli, Postdoctoral Researcher, 2001
3. Ananya Sen Gupta, Postdoctoral Scholar, 2008

4. Guo Ying, Visiting Scholar, 2008
5. Kyeongyeon Kim, Postdoctoral Scholar, 2009-2010
6. Chintan Shah, Postdoctoral Scholar, 2011
7. Chandra Radhakrishnan, Postdoctoral Scholar, 2011-2012
8. Gema Pinero, Visiting Professor, University of Valencia, 2014-2015
9. Ryan Corey, Postdoctoral Scholar, DOE / ORISE Postdoctoral Fellowship, 2019-2022
10. Yongjie Zhuang, Postdoctoral Scholar, ONR / SBU, 2023 -

#### BACKGROUND AND OTHER INTERESTS

United States citizen. Married. Active TS/SCI Security Clearance. Enjoy swimming, biking, running, triathlon, ultra-marathon running and ironman triathlon.