Rabia Tugce Yazicigil Kirby

Curriculum Vitae

Boston University
ECE Department
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Professional Appointments

08/2018–Present **Assistant Professor**, Boston University (BU), Boston, MA.
Department of Electrical and Computer Engineering.

- Affiliated Faculty, Molecular Biology, Cell Biology & Biochemistry (12/2023–Present)
- Affiliated Faculty, Biomedical Engineering (04/2023–Present)
- Affiliated Faculty, Biological Design Center (05/2022–Present)
- Affiliated Faculty, Center for Information & Systems Engineering (02/2020–Present)

03/2020–Present **Network Faculty**, Sabanci University, Istanbul, Turkey.
Electrical Engineering Department.

09/2019–09/2023 **Visiting Scholar**, Massachusetts Institute of Technology (MIT), Cambridge, MA.
Electrical Engineering and Computer Science Department.

03/2016–07/2018 **Postdoctoral Research Associate**, MIT, Cambridge, MA.
Electrical Engineering and Computer Science Department.

Education

09/2011–02/2016 **Columbia University**, *NYC*, NY.
Ph.D., Electrical Engineering Department.

- **Dissertation:** Compressive Sampling as an Enabling Solution for Energy-Efficient and Rapid Wideband RF Spectrum Sensing in Emerging Cognitive Radio Systems
- **Thesis Advisor:** Prof. Peter R. Kinget
- **Thesis Co-Advisor:** Prof. John Wright

09/2009–02/2011 **Ecole Polytechnique Federale de Lausanne (EPFL)**, *Lausanne*, Switzerland.
M.S., Electrical and Electronics Engineering Department.

- **Thesis:** Analysis and Design of a Low-Power Phase ADC
- **Thesis Advisor:** Prof. Christian Enz
- **Program:** Platform Circuit Technology Underlying Heterogeneous Nano & Tera Systems

09/2004–06/2009 **Sabanci University**, *Istanbul*, Turkey.
B.S., Electronics Engineering Department.

Recognition

Awards, Honors, or Professional Recognition, Boston University

2024 **NSF Faculty Early Career Development (CAREER) Award**

2024 **Boston University College of Engineering Early Career Excellence in Research Award**

2024-2026 **IEEE Solid-State Circuits Society (SSCS) Distinguished Lecturer**

2024 Co-recipient of the "Best Poster and Demo Award" at the 2023 IEEE International Solid-State Circuits Conference (ISSCC) SRP

2024–2026 Elected Member-at-Large on the IEEE Solid-State Circuits Society (SSCS) AdCom

2023 IEEE Solid-State Circuits Directions (SSCD) Committee Adviser

2023 IEEE Senior Member

2022–2023 IEEE International Solid-State Circuits Conference (ISSCC) "Circuit Insights" Invited Lecturer

2023 Co-recipient of the "Best Demo Award" at the 15^{th} International Conference on COMmunication Systems & NETworkS (COMSNETS)

2023 Co-Recipient of the "Best Student Paper Candidate" Nomination at the 2023 IEEE Custom Integrated Circuits Conference (CICC)

2022–Present IEEE Council for RFID Advisory Committee as an SSCS representative

2022 Co-recipient of the "Best Research Demo Award" at the 14^{th} International Conference on COMmunication Systems & NETworkS (COMSNETS)

2021 Co-Recipient of the "Best Student Paper Award (1^{st} Place)" at the 2021 IEEE Radio Frequency Integrated Circuits Symposium1 (RFIC)

2021 Catalyst Foundation Award

2021 CISE Seed/ENG Dean Catalyst Award

2020/2021 Boston University ECE Outstanding Faculty Committee Service Award

2020–Present Sabanci University Engineering/Academy US Ambassador

2019 **Springer Nature Symposium Keynote Speaker, "Biomimetic sensors: Their use and potential in Medicine"**

Awards, Honors, or Professional Recognition, MIT

2018 Semi-finalist for 35 Innovators Under 35 List Sponsored by MIT Technology Review

Awards, Honors, or Professional Recognition, Columbia University

2016 Columbia University Electrical Engineering Collaborative Research Award

2015 MIT Rising Stars in Electrical Engineering and Computer Science

2015 Second Place at the Bell Labs Future X Days Student Research Competition

2015 Analog Devices Incorporation Outstanding Student Designer Award

2015 EE Ambassador of Columbia University

2014 Millman Teaching Assistant Award of Columbia University

2013 Qualcomm Innovation Fellowship Finalist (Acceptance Rate: 24%)

Fellowships, Sabanci University

2006–2007 Sabanci University Sakip Sabanci Encouragement Scholarship

2004–2009 Sabanci University Merit Scholarship

Grants

Status	Count	Budget	BU Exclusive	Yazicigil Group Exclusive
Pending	2	$\$20,150,000.00$	$\$1,089,992.00$ (5.4%)	$\$1,044,992.00$ (5.2%)
Awarded	13	$\$13,915,260.00$	$\$7,352,615.00$ (53%)	$\$4,834,236.00$ (35%)
Awarded Centers	2	$\$19,875,000.00$	N/A	N/A

Boston University Pending Grants (2)

Co-PI Wideband, Scalable 7GHz-24GHz Multibeam Dual-Use Arrays for NextG Networks, **Microelectronics Commons** , Total: $\$20,000,000$, BU Share: $\$999,992$, 2024-2027, Industrial Lead: Harish Krishnaswamy and Arun Natarajan - Sivers Semiconductors, Co-PIs: Muriel Medard - MIT, Ken Duffy - Northeastern University, Ericsson, RTX Technology Research Center (RTRC), Northrop-Grumman Corporation (NGC), Hualiang Zhang-University of Massachusetts Lowell.

Co-PI An improved point-of-care lead biosensor utilizing allosteric transcription factor sensing, Phase 1, Lead Detect Prize designed and administered by **Luminary Labs** under contract with **the National Aeronautics and Space Administration (NASA) Tournament Lab** and in collaboration with **the Centers for Disease Control and Prevention (CDC)**, Total: $\$150,000$, BU Share: $\$150,000$, 2024, Lead PI: James Galagan, BU.

Boston University Current Grants (10)

Sole PI CAREER: Secure Miniaturized Bio-Electronic Sensors for Real-Time In-Body Monitoring, **National Science Foundation (NSF)**, Total: $\$574,885$, 2024-2029.

22FDX University Program GRAND, **GlobalFoundries Inc. (GF)**, Silicon Donation for Chip Fabrication in 22FDX (2 free-of-charge tiles per year of a fixed size of $2.5 \times 2\text{mm}^2$), 2024-2026, Co-PIs: Muriel Medard, MIT, Ken Duffy, Northeastern University.

Lead PI Distributed Wastewater Surveillance Platform Leveraging Scalable Hybrid Microfluidic-CMOS Biosensors, **Semiconductor Research Corporation (SRC)**, Total: $\$315,000$, 2024-2026, Co-PI: Douglas Densmore, BU.

Sole PI Information-Centric Secure Conversion Interfaces for Energy-Efficient Wireless Systems, **Semiconductor Research Corporation (SRC)**, Total: $\$270,000$, 2023-2026.

Lead PI for BU Modular Biofilm Reactors to Convert Waste-Based Feedstocks to Vitamin A, **Bioindustrial Manufacturing and Design Ecosystem (BioMADE) and Schmidt Futures**, Total: $\$3,062,099$, BU Share: $\$1,158,316$, 2023-2024, Project Lead: Capra Biosciences Inc., Co-PIs: Douglas Densmore, DAMP Lab, BU, Ahmad Khalil, BU, Next Rung Technology.

Sole PI Security of IoT Sensors using Physical Layer Analog/RF Signals, **Analog Devices (ADI)**, Total: $\$90,000$, 2021-2024.

Lead PI Collaborative Research:SWIFT:Facilitating Spectrum Access by Noise Guessing, **National Science Foundation (NSF)**, Total: $\$724,935$, BU Share: $\$375,000$, 2021-2024, Co-PIs: Muriel Medard, MIT, David Starobinski, BU.

Co-PI GRAND - Guessing Random Additive Noise, **Defense Advanced Research Projects Agency (DARPA)**, Total: $\$5,332,511$, BU Share: $\$2,343,568$, 2021 -2026, Lead PI: Muriel Medard, MIT, Co-PIs: Anantha Chandrakasan, MIT (2021-2023), Ken Duffy, Northeastern University (2023-2026).

Lead PI Secure Bio-Engineered Sensors for Healthcare and Environmental Monitoring, **Catalyst Foundation**, Total: $\$320,000$, BU Share: $\$304,016$, 2021-2025, Co-PIs: Timothy K. Lu, MIT (2021-2023), Douglas Densmore, BU (2023-2025).

Co-PI SemiSynBio-II: Hybrid Bio-Electronic Microfluidic Memory Arrays for Large Scale Testing and Remote Deployment, **National Science Foundation (NSF)**, Total:$\$1,497,580$, 2020-2024, Lead PI: Douglas Densmore, BU, Co-PIs: Wilson Wong, BU, Ahmad Khalil, BU.

Boston University Center-Level / Large-Scale Grants (2)

5G/6G Institutional Lead for BU Northeast Microelectronics Coalition (NEMC) 5G/6G Technology Proposal, **DoD Microelectronics Commons Request for Solution for the Hubs**, Total: $\$19,700,000$, BU Share: $\$0$, Leads: Muriel Medard, MIT, Harish Krishnaswamy, Columbia University, Dragan Samardzija, Nokia Bell Labs, Hualiang Zhang, UMass Lowell, 2023. Funding apportionment will be based on a competitive in-center process for the Northeast Microelectronics Coalition.

Senior Personnel SII Planning: Escaping Gravity: The End of Gs, **National Science Foundation (NSF)**, Total: $\$175,000$, BU Share: $\$0$, 2020-2021, **Lead of the Integrated Circuits Effort**, Participating Institutions: OSU, MIT, BU, UCSD, UIUC, UPenn.

Boston University Completed Grants (3)

Lead PI Securing Wireless Ingestible Medical Devices, **CISE/ENG DCA Seed Award**, Total: $\$50,000$, 2021-2023, Co-PI: David Starobinski.

Sole PI Security Evaluation Platform for a Ranging Measurement System, **Analog Devices (ADI)**, Total: $\$74,250$, 2019-2021.

Co-PI Advancing an Ingestible Micro-bio-electronic Device (IMBED) to Diagnose and Monitor Crohn's Disease, **The Leona M. and Harry B. Helmsley Charitable Trust**, Total: $\$1,604,000$, BU Share: $\$300,000$, 2018-2021, Lead PI: Timothy K. Lu, MIT, Co-PI: Giovanni Traverso, MIT.

Publications

- The names of advised students/postdocs at Boston University are underlined.
- The names of co-advised/co-mentored students at MIT and Columbia University are indicated with *.
- Total number of peer-reviewed publications: 42
- Total number of citations (Google Scholar, April 14, 2024): 708
- H-index (Google Scholar, April 14, 2024): 16

Book Chapters

[B1] D. Malak, **R. T. Yazicigil**, M. Medard, X. Zhang, and Y. Eldar, *Hardware-Limited Task-Based Quantization in Systems*, Women in Telecommunications, Women in Engineering and Science, Springer Books, January 2023.

Magazine Articles

[M3] S. Mulleti, T. Zirtiloglu, A. Tan, **R. T. Yazicigil**, Y. Eldar, *Power-Efficient Sampling*, under review, **Feature Article** in IEEE Signal Processing Magazine, 2023.

[M2] **R. T. Yazicigil** et al., *Beyond Crypto: Physical-Layer Security for Internet of Things Devices*, **Invited Feature Article**, IEEE Solid-State Circuits Magazine, vol. 12, no. 4, pp. 66-78, Fall 2020.

[M1] **R. T. Yazicigil**, T. Haque, P. R. Kinget, and J. Wright, *Taking Compressive Sensing to the Hardware Level: Breaking Fundamental Radio-Frequency Hardware Performance Tradeoffs*, **Feature Article** in IEEE Signal Processing Magazine, vol. 36, no. 2, pp. 81-100, March 2019.

Journal Articles

[J11] A. Yasar, **R. T. Yazicigil**, *Physical-Layer Security for Latency- and Energy-Constrained Integrated Systems*, **Invited for a Submission** in IEEE Open Journal of the Solid-State Circuits Society, vol. 3, pp. 262-273, 2023.

[J10] E. Lee*, M. I. W. Khan, X. Chen, U. Banerjee, N. Monroe, **R. T. Yazicigil**, R. Han, and A. P. Chandrakasan, *A 1.54-mm^2, 264-GHz Wake-Up Receiver With Integrated Cryptographic Authentication for Ultra-Miniaturized Platforms*, **Invited for a Submission** in IEEE Journal of Solid-State Circuits, vol. 59, no. 3, pp. 653-667, March 2024.

[J9] M. E. Inda, M. Jimenez, Q. Liu, N. Phan, J. Ahn, C. Steiger, A. Wentworh, A. Riaz, T. Zirtiloglu, K. Wong, K. Ishida, N. Fabian, J. Jenkins, J. Kuosmanen, W. Madani, R. McNally, Y. Lai, A. Hayward, M. Mimee, P. Nadeau, A. Chandrakasan, G. Traverso$^+$, **R. T. Yazicigil**$^+$, T. K. Lu$^+$, *Sub-1.4 cm^3 Capsule for Detecting Labile Inflammatory Biomarkers In Situ*, **Nature** 620, 386–392, 2023. $^+$= Co-corresponding authors.

[J8] Q. Liu, M. Jimenez, M. E. Inda, A. Riaz, T. Zirtiloglu, A. Chandrakasan, T. K. Lu, G. Traverso, P. Nadeau, and **R. T. Yazicigil**, *A Threshold-based Bioluminescence Detector with a CMOS-Integrated Photodiode Array in 65nm for a Multi-Diagnostic Ingestible Capsule*, in IEEE Journal of Solid-State Circuits, vol. 58, no. 3, pp. 838-851, March 2023.

[J7] A. Riaz, D. Nash, J. Ngo, C. Juvekar, P. Nadeau, T. Yu, and **R. T. Yazicigil**, *Security Assessment of Phase-Based Ranging Systems in a Multipath Environment* in ACM Journal on Emerging Technologies in Computing Systems, Special Issue on Secure Radio-frequency (RF)-Analog Electronics and Electromagnetics, vol. 18, issue 4, article no.: 66, pp. 1–19, October 2022.

[J6] M. I. W. Khan, J. Woo*, X. Yi, M. I. Ibrahim, **R. T. Yazicigil**, A. P. Chandrakasan, and R. Han, *A 0.31-THz Orbital-Angular-Momentum (OAM) Wave Transceiver in CMOS with Bit-to-OAM Mode Mapping*, **Invited for a Submission** for the RFIC 2021 Special Issue in IEEE Journal of Solid-State Circuits, vol. 57, no. 5, pp. 1344-1357, May 2022.

[J5] X. Yi, C. Wang, Z. Hu, J. Holloway, M. I. W. Khan, M. I. Ibrahim, M. Kim, G. C. Dogiamis, B. Perkins, M. Kaynak, **R. T. Yazicigil**, A. P. Chandrakasan, and R. Han, *Emerging Terahertz Integrated Systems in Silicon*, **Invited feature article** in IEEE Transactions on Circuits and Systems I, vol. 68, no. 9, pp. 3537-3550, September 2021.

[J4] M. I. Ibrahim, M. I. W. Khan, C. S. Juvekar, W. Jung, **R. T. Yazicigil**, A. P. Chandrakasan, and R. Han, *CMOS THz-ID: A 1.6mm^2 Package-Less Identification Tag Using Asymmetric Cryptography and 260-GHz Far-Field Backscatter Communication* in IEEE Journal of Solid-State Circuits, vol. 56, no. 2, pp. 340-354, February 2021.

[J3] **R. T. Yazicigil**, T. Haque, M. Kumar*, J. Yuan*, J. Wright, and P. R. Kinget, *How to Make Analog-to-Information Converters Work in Dynamic Spectrum Environments With Changing Sparsity Conditions* in IEEE Transactions on Circuits and Systems I: Regular Papers, vol. 65, no. 6, pp. 1775-1784, June 2018.

[J2] **R. T. Yazicigil**, T. Haque, M. R. Whalen*, J. Yuan*, J. Wright, and P. R. Kinget, *Wideband Rapid Interferer Detector Exploiting Compressed Sampling With a Quadrature Analog-to-Information Converter*, **Invited for a Submission** for the ISSCC 2015 Special Issue in IEEE Journal of Solid-State Circuits, vol. 50, no. 12, pp. 3047-3064, December 2015.

[J1] T. Haque, **R. T. Yazicigil**, K. J. Pan, J. Wright, and P. R. Kinget, *Theory and Design of a Quadrature Analog-to-Information Converter for Energy-Efficient Wideband Spectrum Sensing* in IEEE Transactions on Circuits and Systems I: Regular Papers, vol. 62, no. 2, pp. 527-535, February 2015.

Conference Papers (Peer-reviewed)

[C30] A. Riaz, Z. E. Kizilates, M. Medard, K. Duffy, and **R. T. Yazicigil**, *An Ultra-low Energy Soft-Detection Decoder using ORBGRAND*, accepted to be published at the IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN) Demo, 2024.

[C29] Q. Liu, D. Arguijo Mendoza, A. Yasar, D. Caygara, Aya Kassem, D. Densmore, and **R. T. Yazicigil**, *Droplet Microfluidics Co-Designed with Real-Time CMOS Luminescence Sensing and Impedance Spectroscopy of 4nL Droplets at a 67mm/s Velocity*, **with a Live Hardware Demonstration**, accepted to be published at the IEEE International Solid-State Circuits Conference (ISSCC), San Franscisco, CA, USA, 2024.

[C28] T. Zirtiloglu, P. Crary, E. Tasci, Y. Eldar, N. Shlezinger, and **R. T. Yazicigil**, *Task-Specific Low-Power Beamforming MIMO Receiver Using 2-Bit Analog-to-Digital Converters*, IEEE Asian Solid-State Circuits Conference (A-SSCC), Haikou, China, pp. 1-3, 2023.

[C27] Z. E. Kizilates, A. Riaz, G. F. Coraluppi, M. Medard, K. Duffy, and **R. T. Yazicigil**, *Leveraging Noise Recycling in Soft Detection Decoding Using ORBGRAND*, **invited**, Special Session: IEEE International Symposium on Information Theory (ISIT), Taipei, Taiwan, pp. 1085-1089, 2023.

[C26] F. Ercan, K. Galligan, D. Starobinski, M. Medard, K. Duffy, and **R. T. Yazicigil**, *GRAND-EDGE: A Universal, Jamming-resilient Algorithm with Error-and-Erasure Decoding*, 2023 IEEE International Conference on Communications (ICC), Rome, Italy, pp. 4501-4507, 2023.

[C25] A. Riaz, Z. E. Kizilates, A. Yasar, F. Ercan, W. An, J. Ngo, K. Galligan, M. Medard, K. Duffy, and **R. T. Yazicigil**, *Demo: Universal Soft-Detection Decoder with Ultra-Low Energy Consumption Using ORBGRAND*, IEEE 24^{th} International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), Boston, MA, USA, pp. 337-339, 2023.

[C24] E. Lee*, M. I. W. Khan, X. Chen, U. Banerjee, N. Monroe, **R. T. Yazicigil**, R. Han, and A. P. Chandrakasan, *A 1.54 mm^2 Wake-up Receiver Based on THz Carrier Wave and Integrated Cryptography Authentication*, **Best Student Paper Candidate**, 2023 IEEE Custom Integrated Circuits Conference (CICC), San Antonio, TX, USA, pp. 1-2, 2023.

[C23] A. Riaz, A. Yasar,F. Ercan, W. An, J. Ngo, K. Galligan, M. Medard, K. Duffy, and **R. T. Yazicigil**, *A Sub-0.8pJ/b 16.3Gbps/mm^2 Universal Soft-Detection Decoder Using ORBGRAND in 40nm CMOS*, **with a Live Hardware Demonstration**, IEEE International Solid-State Circuits Conference (ISSCC), San Francisco, CA, USA, pp. 432-434, 2023.

[C22] A. Riaz, A. Solomon, F. Ercan, M. Medard, **R. T. Yazicigil**, and K. R. Duffy, *Noise Recycling using GRAND for Improving the Decoding Performance,* **Best Demo Award**, 15^{th} International Conference on COMmunication Systems & NETworkS (COMSNETS), Bangalore, India, pp. 171-173, 2023.

[C21] R. Agrawal, L. de Castro, G. Yang, C. Juvekar, **R. T. Yazicigil**, A. Chandrakasan, V. Vaikuntanathan, and A. Joshi, *FAB: An FPGA-based Accelarator for Bootstrappable Homomorphic Encryption*, 29^{th} IEEE International Symposium on High-Performance Computer Architecture (HPCA), Montreal, QC, Canada, pp. 882-895, 2023.

[C20] A. Yasar, Q. Liu, M. Mao, D. Starobinski, and **R. T. Yazicigil**, *Live Demonstration: Cyber Attack Against an Ingestible Medical Device*, IEEE Biomedical Circuits and Systems Conference (BioCAS), Taipei, Taiwan, pp. 250-250, 2022.

[C19] F. Ercan, K. Galligan, K. R. Duffy, M. Medard, D. Starobinski, and **R. T. Yazicigil**, *A General Security Approach for Soft-information Decoding against Smart Bursty Jammers*, IEEE Global Communications Conference (GLOBECOM - GC) Workshops, Rio de Janeiro, Brazil, pp. 245-251 2022.

[C18] J. Woo*, M. I. Khan, M. I. Ibrahim, R. Han, A. Chandrakasan, and **R. T. Yazicigil**, *Physical-Layer Security for THz Communications via Orbital Angular Momentum Waves*, IEEE Workshop on Signal Processing Systems (SiPS), Rennes, France, pp. 1-6, 2022.

[C17] T. Zirtiloglu, N. Shlezinger, Y. Eldar, and **R. T. Yazicigil**, *Power-Efficient Hybrid MIMO Receiver with Task-Specific Beamforming using Low-Resolution ADCs*, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Singapore, Singapore, pp. 5338-5342, 2022.

[C16] A. Riaz, A. Solomon, F. Ercan, M. Medard, **R. T. Yazicigil**, and K. R. Duffy, *Interleaved Noise Recycling using GRAND*, IEEE International Conference on Communications (ICC), Seoul, Republic of Korea, pp. 2483-2488, 2022.

[C15] A. Riaz, M. Medard, K. R. Duffy, and **R. T. Yazicigil**, *A Universal Maximum Likelihood GRAND Decoder in 40nm CMOS*, **Best Research Demo Award**, 14^{th} International Conference on COMmunication Systems & NETworkS (COMSNETS), Bangalore, India, pp. 421-423, 2022.

[C14] A. Riaz, V. Bansal, A. Solomon, W. An, Q. Liu, K. Galligan, K. Duffy, M. Medard, and **R. T. Yazicigil**, *Multi-Code Multi-Rate Universal Maximum Likelihood Decoder using the Guessing Random Additive Noise Decoding (GRAND)*, **Invited for Submission**, IEEE 47^{th} European Solid-State Circuits Conference (ESSCIRC), Grenoble, France, pp. 239-246, 2021.

[C13] K. Galligan, A. Solomon, A. Riaz, M. Medard, **R. T. Yazicigil**, and K. Duffy, *IGRAND: decode any product code*, IEEE Global Communications Conference (GLOBECOM), Madrid, Spain, pp. 1-6, 2021.

[C12] S. Maji*, U. Banerjee, S. Fuller, M. Abdelhamid, P. Nadeau, **R. Yazicigil**, and A. Chandrakasan, *Securing Embedded Medical Devices using Dual-Factor Authentication*, IEEE 34^{th} Computer-based Medical Systems (CBMS) in the Special Track: Security of e-Health Systems and Connected Medical Devices, Aveiro, Portugal, 2021, pp. 574-579, 2021.

[C11] M. I. W. Khan, Jongchan Woo*, M. I. Ibrahim, Xiang Yi, **R. T. Yazicigil**, A. P. Chandrakasan, and R. Han, *A 0.31THz CMOS Uniform Circular Antenna Array Enabling Generation/Detection of Waves with Orbital-Angular Momentum*, **Best Student Paper Award - 1^{st} Place**, IEEE Radio Frequency Integrated Circuits Symposium (RFIC), Atlanta, GA, USA, pp. 203-206, 2021.

[C10] Q. Liu, A. Riaz, T. Zirtiloglu, M. E. Inda, M. Jimenez, Y. Lai, C. Steiger, E. Diamond, G. Traverso, T. K. Lu, A. Chandrakasan, P. Nadeau, and **R. T. Yazicigil**, *Zero-Crossing-Based Bio-Engineered Sensors*, IEEE Custom Integrated Circuits Conference (CICC), Austin, TX, USA, pp. 1-2, 2021.

[C9] S. Maji*, U. Banerjee, S. Fuller, M. Abdelhamid, P. Nadeau, **R. Yazicigil**, and A. Chandrakasan, *A Low-Power Dual-Factor Authentication Unit for Secure Implantable Devices*, IEEE Custom Integrated Circuits Conference (CICC), Boston, MA, USA, pp. 1-4, 2020.

[C8] M. I. Ibrahim, M. I. W. Khan, C. S. Juvekar, W. Jung, **R. T. Yazicigil**, A. P. Chandrakasan, and R. Han, *THzID: A $1.6mm^2$ Package-Less Cryptographic Identification Tag with Backscattering and Beam-Steering at 260GHz*, IEEE International Solid-State Circuits Conference (ISSCC), San Francisco, CA, USA, pp. 454-456, 2020.

[C7] **R. T. Yazicigil**, D. Gopalan, and D. Starobinski, *Security Assessment of Wideband Spectrum Sensors*, IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN), Newark, NJ, USA, pp. 1-10, 2019.

[C6] **R. T. Yazicigil**, P. Nadeau, D. Richman*, C. Juvekar, K. Vaidya*, and A. P. Chandrakasan, *Ultra-Fast Bit-Level Frequency-Hopping Transmitter for Securing Low-Power Wireless Devices*, IEEE Radio Frequency Integrated Circuits Symposium (RFIC), Philadelphia, PA, USA, pp. 176-179, 2018.

[C5] P. Nadeau, **R. T. Yazicigil**, and A. P. Chandrakasan, *Single-BAW Multi-Channel Transmitter with Low Power and Fast Start-Up Time*, 43^{rd} IEEE European Solid State Circuits Conference (ESSCIRC), Leuven, pp. 195-198, 2017.

[C4] **R. T. Yazicigil**, T. Haque, J. Wright, and P. R. Kinget, *Band-Pass Compressive Sampling as an Enabling Technology for Rapid Wideband RF Spectrum Sensing*, **Invited Paper**, 50^{th} Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, USA, pp. 1032-1036, 2016.

[C3] **R. T. Yazicigil**, T. Haque, J. Zhu, Y. Xu, and P. R. Kinget, *RF Circuit and System Innovations for a New Generation of Wireless Terminals*, **Invited Paper**, IEEE International Symposium on Circuits and Systems (ISCAS), Montreal, QC, pp. 2783-2786, 2016.

[C2] **R. T. Yazicigil**, T. Haque, M. Kumar*, J. Yuan*, J. Wright, and P. R. Kinget, *A Compressed-Sampling Time-Segmented Quadrature Analog-to-Information Converter for Wideband Rapid Detection of Up to 6 Interferers with Adaptive Thresholding*, IEEE Radio Frequency Integrated Circuits Symposium (RFIC), San Francisco, CA, USA, pp. 282-285, 2016.

[C1] **R. T. Yazicigil**, T. Haque, M. R. Whalen*, J. Yuan*, J. Wright, and P. R. Kinget, *19.4 A 2.7-to-3.7GHz Rapid Interferer Detector Exploiting Compressed Sampling with a Quadrature Analog-to-Information Converter*, **with a Live Hardware Demonstration**, IEEE International Solid-State Circuits Conference (ISSCC), San Francisco, CA, USA, pp. 1-3, 2015.

Preprints

[Pre7] S. Mulleti, T. Zirtiloglu, A. Tan, **R. T. Yazicigil**, and Y. Eldar, *Power-Efficient Sampling*, arXiv, 2023.

[Pre6] F. Ercan, K. Galligan, D. Starobinski, M. Medard, K. Duffy, and **R. T. Yazicigil**, *GRAND-EDGE: A Universal, Jamming-resilient Algorithm with Error-and-Erasure Decoding*, arXiv, 2023.

[Pre5] E. Tasci, T. Zirtiloglu, Y. Eldar, N. Shlezinger, and **R. T. Yazicigil**, *Robust Task-Specific Beamforming with Low-Resolution ADCs for Power-Efficient Hybrid MIMO Receivers*, arXiv, 2022.

[Pre4] F. Ercan, K. Galligan, K. R. Duffy, M. Medard, D. Starobinski, and **R. T. Yazicigil**, *A General Security Approach for Soft-information Decoding against Smart Bursty Jammers*, arXiv, 2022.

[Pre3] R. Agrawal, L. de Castro, G. Yang, C. Juvekar, **R. Yazicigil**, A. Chandrakasan, V. Vaikuntanathan, and A. Joshi, *FAB: An FPGA-based Accelerator for Bootstrappable Fully Homomorphic Encryption*, arXiv, 2022.

[Pre2] M. E. Inda, M. Jimenez, Q. Liu, N. Phan, J. Ahn, C. Steiger, A. Wentworh, A. Riaz, T. Zirtiloglu, K. Wong, K. Ishida, N. Fabian, J. Jenkins, J. Kuosmanen, W. Madani, R. McNally, Y. Lai, A. Haywaed, M. Mimee, P. Nadeau, A. Chandrakasan, G. Traverso^{+}, **R. T. Yazicigil**$^{+}$, and T. K. Lu^{+}, *Ingestible Capsule for Detecting Labile Inflammatory Biomarkers in Situ*, BioRxiv, Feb. 2022. $^{+}$= Co-corresponding authors.

[Pre1] L. de Castro, R. Agrawal, **R. T. Yazicigil**, A. Chandrakasan, V. Vaikuntanathan, C. Juvekar, and A. Joshi, *Does Fully Homomorphic Encryption Need Compute Acceleration*, arXiv, 2021.

Posters and Demos (Peer-Reviewed)

[D8] A. Riaz, Z. E. Kizilates, A. Yasar, F. Ercan, W. An, J. Ngo, K. Galligan, M. Medard, K. Duffy, and **R. T. Yazicigil**, *Demo: Universal Soft-Detection Decoder with Ultra-Low Energy Consumption Using ORBGRAND*, **Poster with a Live Hardware Demonstration**, IEEE 24th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), 2023.

[D7] Q. Liu, D. Arguijo, A. Yasar, D. McIntyre, D. Caygara, D. Densmore, and **R. T. Yazicigil**, *Hybrid Bio-electronic Microfluidic Memory Arrays*, **Poster with a Live Hardware Demonstration**, **Best Poster and Demo Award**, IEEE International Solid-State Circuits Conference (ISSCC) SRP, 2023.

[D6] A. Riaz, A. Solomon, F. Ercan, M. Medard, **R. T. Yazicigil**, and K. Duffy, *Noise Recycling using GRAND for Improving the Decoding Performance*, **Live Hardware Demonstration**, **Best Demo Award**, International Conference on COMmunication Systems & NETworkS (COMSNETS), 2023.

[D5] A. Riaz, F. Ercan, M. Medard, K. Duffy, and **R. T. Yazicigil**, *Improving the Performance using Noise Recycling for Single Communication Channels*, **Live Hardware Demonstration**, IEEE Future Networks World Forum (FNWF), October 2022.

[D4] A. Riaz, M. Medard, K. R. Duffy, and **R. T. Yazicigil**, *A Universal Maximum Likelihood GRAND Decoder in 40nm CMOS*, **Live Hardware Demonstration**, **Best Research Demo Award**, International Conference on COMmunication Systems & NETworkS (COMSNETS), 2022.

[D3] A. Riaz, M. Medard, K. Duffy, and **R. T. Yazicigil**, *Multi-code Multi-rate Universal Maximum Likelihood Decoder using GRAND*, **Live Hardware Demonstration**, IEEE 5G World Forum, October 2021.

[D2] Q. Liu, T. Zirtiloglu, M. E. Inda, M. Jimenez, Y. Lai, C. Steiger, E. Diamond, G. Traverso, T. K. Lu, A. Chandrakasan, P. Nadeau, and **R. T. Yazicigil**, *Zero-Crossing-Based Bio-Engineered Sensors*, **Poster**, IEEE International Solid-State Circuits Conference (ISSCC) SRP, 2021.

[D1] A. Riaz, V. Bansal, Q. Liu, A. Solomon, W. An, K. Duffy, M. Medard, and **R. T. Yazicigil**, *Universal Maximum Likelihood Decoder using the Guessing Random Additive Noise Decoding (GRAND)* **Poster with a Live Hardware Demonstration**, IEEE International Solid-State Circuits Conference (ISSCC) SRP, 2021.

Conference Tutorials

[T4] **R. T. Yazicigil**, *Physical-Layer Security for Latency- and Energy-Constrained Integrated Systems*, 2023 IEEE International Solid-State Circuits Conference (ISSCC).

[T3] **R. T. Yazicigil**, *The Basics of Low-Noise Amplifiers*, 2023 IEEE International Solid-State Circuits Conference (ISSCC) Circuit Insights, In-person event and live-streamed to additional 300 attendees across the globe.

[T2] M. Medard, K. Duffy, and **R. T. Yazicigil**, *Universal Decoding by Guessing Random Additive Noise Decoding*, 2022 IEEE Future Networks World Forum (FNWF).

[T1] M. Medard, K. Duffy, and **R. T. Yazicigil**, *Universal Decoding by Guessing Random Additive Noise Decoding*, 2021 IEEE Global Communications Conference (GLOBECOM).

Patents

[P4] Y. Eldar, N. Shlezinger, **R. T. Yazicigil Kirby**, T. Zirtiloglu, *Multiple-Input Multiple-Output Antenna Receiver with Hybrid Analog/Digital Beamforming*, PCT/IL2023/050466, Filing Date: 05/08/2023.

[P3] T. K. Lu, **R. T. Yazicigil Kirby**, C. G. Traverso, J. Ahn, M. E. Inda, M. Jimenez, Q. Liu, P. Nadeau, C. W. J. Steiger, A. Wentworth, *Systems and Devices for Detecting Biomarker In Situ and Related Methods*, U.S. Appl. No.: 17/730,075, Filing Date: 04/26/2022.

[P2] A. Solomon, M. Medard, K. R. Duffy, **R. T. Yazicigil Kirby**, V. Bansal, W. An, *Universal Guessing Random Additive Noise Decoding (GRAND) Decoder*, Patent Number:US11870459B2, Issue Date: 01/09/2024.

[P1] P. R. Kinget, J. Wright, **R. T. Yazicigil**, *Circuits and Methods for Detecting Interferers*, Patent Number: US09762273, Issue Date: 09/12/2017.

Professional Activities and Service

Professional Recognition and Membership

2024–2026 **Distinguished Lecturer**, IEEE Solid-State Circuits Society (SSCS) Distinguished Lecturer (DL) Program

2024–2026 **Elected Member-at-Large**, IEEE Solid-State Circuits Society (SSCS) AdCom

2023–Present **Adviser**, IEEE Solid-State Circuits Directions (SSCD) Committee

2023 **IEEE Senior Member**

2022–2023 **Invited Lecturer**, IEEE International Solid-State Circuits Conference (ISSCC), “Circuit Insights"

2022–Present **SSCS Representative**, IEEE Council for RFID Advisory Committee

2016–Present **Initiative Committee Member**, IEEE Solid-State Circuits Society (SSCS) Women in Circuits (WiC)

Conference / Workshop Organization

2024–Present **Workshop Co-Chair**, IEEE European Solid-State Electronics Conference (ESSERC)

2024–Present **Demo and Poster Co-Chair**, 3^{rd} edition of the International Conference on 6G Networking (6GNet 2024)

2023–2024 **Workshop Co-Organizer**, IEEE International Solid-State Circuits Conference Rising Stars Workshop

2022–2023 **Panel Co-Organizer**, IEEE International Solid-State Circuits Conference (ISSCC), "Integrated Circuits in an Interconnected World"

2021–2022 **Educational Event Co-Organizer**, IEEE International Solid-State Circuits Conference (ISSCC), "Circuit Insights"

2021–2022 **Forum Co-Organizer**, IEEE International Solid-State Circuits Conference (ISSCC), "Chip Design for Low-Power, Robust, and Secure IoT Devices"

2021–2022 **Forum Co-Organizer**, IEEE International Solid-State Circuits Conference (ISSCC), "Computer Systems Under Attack - Paying the Performance Price for Protection"

2020–2021 **Panel Co-Organizer**, IEEE International Solid-State Circuits Conference (ISSCC), "Making a Career Choice?"

2019–2020 **Workshop Vice Chair**, IEEE International Solid-State Circuits Conference (ISSCC), Women in Circuits Rising Stars Workshop

2019–2020 **Panel Co-Organizer**, IEEE International Solid-State Circuits Conference (ISSCC), "Is an Open-Source Hardware Revolution on the Horizon?"

2018–Present **Co-Organizer**, IEEE International Solid-State Circuits Conference (ISSCC), Women in Circuits Workshops

2016 **Co-Organizer and Chair**, IEEE European Solid-State Circuits Conference (ESSCIRC): RF Spectrum Sensing Workshop

2016 **Co-Organizer**, IEEE Solid-State Circuits Society (SSCS) Mini-Workshop: Recent Advances in Analog Circuit Design

Editorial Positions

2024–Present IEEE Transactions on Circuits and Systems for Artificial Intelligence (TCASAI) Associate Editor

2024–2025 IEEE Journal of Solid-State Circuits (JSSC) Guest Associate Editor for the IEEE International Solid-State Circuits Conference (ISSCC) Special Issue

2022–Present IEEE Transactions on Circuits and Systems I (TCAS-I) Associate Editor

2021–2022 IEEE Journal of Solid-State Circuits (JSSC) Guest Associate Editor for the IEEE European Solid-State Circuits Conference (ESSCIRC) Special Issue

Consultant Positions

2023–Present BioSens8, Inc. (www.biosens8.com) - Scientific Advisor, Hardware Engineering

Technical Program Committee

2024–Present IEEE Design Automation Conference (DAC), AI/ML, Digital, and Analog Circuits

2023–Present IEEE Radio Frequency Integrated Circuits Symposium (RFIC), Front-End Circuits

2021–2022 IEEE International Electron Devices Meeting (IEDM), Microwave, Millimeter Wave and Analog Technology

2019–Present IEEE International Solid-State Circuits Conference (ISSCC), Technology Directions

2019–2023 IEEE European Solid-State Circuits Conference (ESSCIRC), Analog Circuits

2019–Present IEEE International Solid-State Circuits Conference (ISSCC), Student Research Preview

Reviewer

- IEEE Journal of Solid-State Circuits (JSSC)
- IEEE International Solid-State Circuits Conference (ISSCC)
- IEEE European Solid-State Circuits Conference (ESSCIRC)
- IEEE Radio Frequency Integrated Circuits Symposium (RFIC)
- IEEE International Electron Devices Meeting (IEDM)
- IEEE International Symposium on Circuits and Systems (ISCAS)
- IEEE Transactions on Circuits and Systems - I (TCAS - I)
- IEEE Transactions on Microwave Theory and Techniques (TMTT)
- IEEE Transactions on Biomedical Circuits and Systems (TBioCAS)
- IEEE Transactions on Vehicular Technology (TVT)
- IEEE Transactions on Big Data
- Microelectronics Journal

Session Chair Duties

2023–2024 **Session Chair**, IEEE International Solid-State Circuits Conference (ISSCC), Emerging Sensing and Computing Technologies

2021 **Session Co-Chair**, IEEE International Electron Devices Meeting (IEDM), Innovative RF technologies for low power and RF/mmW applications

2020–2021 **Session Chair**, IEEE International Solid-State Circuits Conference (ISSCC), Biomedical Devices, Circuits, and Systems

2019–2020 **Session Chair**, IEEE International Solid-State Circuits Conference (ISSCC), Biomedical Sensing, Stimulation, & Harvesting

2019–2020 **Session Chair**, IEEE International Solid-State Circuits Conference (ISSCC), CRYO-CMOS for Quantum Technologies

2019–2021 **Poster and Session Co-Chair**, IEEE International Solid-State Circuits Conference (ISSCC) Student Research Preview

2017–2018 **Circuits and Systems Session Chair**, MIT Microsystems Annual Research Conference (MARC)

University Service

2024 Host, Chief Editor of Nature Biotechnology (Dr. Barbara Cheifet) Visit

2021–2022, 2023–2024 Convergent Theme Faculty Search Committee for Energy and Sustainability, Boston University, College of Engineering

2023 Organizer, CISE and BDC Co-Organized Special Event for Interuniversity Microelectronics Centre (IMEC)

2023 Host, Lockheed Martin, General Manager for Microelectronics Research & Development Laboratory (Keith Lynn) Visit

2022 Ph.D. Open House Organizing Committee Member, Boston University ECE Department

2021 Chair, Ph.D. Open House Organizing Committee, Boston University ECE Department

2020–2022 Co-Lecturer, ECE Ph.D. Seminar Series (ENG EC890) - Scientific Writing Lectures

2019–2022 Publicity Committee Member, Boston University, ECE Department

2019 Host, ECE Distinguished Lecture by Prof. Peter Kinget from Columbia University, Boston University

2018–2021 Host, Several ECE Colloquium Series Events, Boston University

2018–Present Doctoral Program Committee Member, Boston University, ECE Department

2018 Mentor, Responsible Conduct of Research (RCR) Workshop on Collaborative Research, Boston University, College of Engineering

2018 Committee Member of The Engine Working Group, MIT's Innovation Ecosystem

2017 Chair of the Postdoctoral Committee, MIT EECS Visiting Committee

2016 Steering Committee Member, MIT EECS Postdoctoral Group

Teaching

Boston University Courses

EC571 Digital VLSI Circuit Design, (2019, 2020, 2021, 2022), 4.90/5.00 Instructor Rating

EC580 Analog VLSI Circuit Design, (2019, 2020, 2023), 4.86/5.00 Instructor Rating

EC410 Introduction to Electronics, (2021, 2023), 4.50/5.00 Instructor Rating

EK100 Freshman Seminar, (2019, 2023), 4.64/5.00 Instructor Rating

Mentoring and Supervision

Postdoctoral Researcher Associates at Boston University

2021–2022 **Furkan Ercan**, *Current Position:* Research Scientist at Intel Labs

Ph.D. Students at Boston University

- Awards received only during their Ph.D. studies at Boston University are listed.

2022–Present **Zeynep Ece Kizilates**, *Student Awards:* **2024 IEEE SSCS Rising Stars**, 2^{nd} place at the BU CISE Graduate Student Workshop 10.0, 2023 IEEE ISIT Student Travel Grant, 2023 IEEE ComSoc School Cohort, 2023 IEEE ISSCC Circuit Insights Travel Award

2022–Present **Arman Tan**, *Student Awards:* 2023 IEEE ComSoc School Cohort, 2023 IEEE ISSCC Circuit Insights Travel Award

2022–Present **Dilara Caygara**, Co-Advised with Douglas Densmore, *Student Awards:* 2023 IEEE ISSCC Student Travel Grant Award

2021–Present **Alperen Yasar**

2019–Present **Timur Zirtiloglu**, *Student Awards:* 2022 IEEE ISSCC Student Travel Grant Award, 2020 IEEE IMS/RFIC NSF Student Conference Registration Award, 2020 IEEE CICC Student Education Grant Award

2019–Present **Arslan Riaz**, *Student Awards:* 1^{st} place at the BU CISE Graduate Student Workshop 10.0, **2023 COMSNETS Best Demo Award**, 2022 IEEE ISSCC Travel Grant Award, 2022 IEEE ICC NSF Travel Grant Award, 2022 **COMSNETS Best Research Demo Award**, 2022 COMSNETS Student Travel Grant Award, 2^{nd} place at the 2022 BU CISE Graduate Student Workshop 8.0, 2020 IEEE IMS/RFIC NSF Student Conference Registration Award, 2020 IEEE CICC Student Education Grant Award

2018–2024 **Qijun (Mandy) Liu**, *Current Position:* Ultrasound ASIC Engineer at Philips Research NA, *Student Awards:* **2024 IEEE SSCS Rising Stars**, **2023 IEEE ISSCC SRP Best Poster/Demo Award**, **2023 IEEE SSCS Predoctoral Achievement Award**, 2022 IEEE ISSCC Next Gen Circuit Designer Workshop Participant, 2021 Catalyst Foundation Award, 2020 IEEE ISSCC Student Travel Grant Award, 1^{st} place in the IMS 2019 Graduate Student Challenge, 2019 IEEE IMS/RFIC Ph.D. Student Sponsorship

M.S. Students at Boston University

- Awards received only when affiliated with my group at Boston University are listed.

2023–Present **Abigail Skerker**

2023–Present **Constantine (Dean) Pappademos**

2023–Present **Noah Markowitz**

2022–Present **Akshaya Bali**

2022 **Saraja Kadambari**, Now SoC Physical Design Engineer at Apple, *Student Awards:* SWE'22 Cohort

2021 **Kevin Vogt-Lowell**, Now Artificial Intelligence Engineer at MIT Lincoln Laboratory

2019–2020 **Vaibhav Bansal**, M.S. Thesis Student, Now Senior Silicon Design Engineer at AMD

B.S. Students at Boston University

- Awards received only when affiliated with my group at Boston University are listed.

2024–Present **Yash Patel**, BME Student, *Student Awards:* Spring 2024 STEM Pathways Cohort

2023–Present **Ananya Pemaraj**, BME Student, *Student Awards:* Fall 2023 BU UROP Award, Summer 2023 STEM Pathways Cohort

2023–Present **George Cicero**, *Student Awards:* Fall 2023 STEM Pathways Cohort

2023–Present **Houjie Xiong**

2022–2023 **Peter Crary**, Now Ph.D. Student at University of Michigan, *Student Awards:* Spring 2023 BU UROP Award, 2023 IEEE ComSoc School Cohort

2022–2023 **Yidi Wu**, Now M.S. Student at Georgia Tech, *Student Awards:* Spring 2023 STEM Pathways Cohort

2022–2023 **Eric Cho**, Now Associate Product Engineer at Analog Devices (ADI), *Student Awards:* Fall 2022 BU UROP Award

2022–2023 **Seifallah Ibrahim**, Now Design Engineer for Superconducting Electronics Research at IMEC

2022–2023 **Yumin Wei**, Now Field Application Engineer at Texas Instruments

2022–2023 **Sunwoo Park**, Now Associate Product Applications Engineer at at Analog Devices (ADI)

2023 **Giacomo Coraluppi**, Now Engineer at Innovatech Associates

2021–2022 **Christianna Roggeveen**, BME Student, Now Research Specialist at Emory University School of Medicine

2021–2022 **Zachary Capone**, Now Electrical Engineer at Wolf Creek Federal Services

2021–2022 **Daniel Kao**, Now Application Engineer at TRUMPF Hüttinger

2021–2022 **Jonathan Ngo**, Now Intelligence and Space Engineer at Raytheon, *Student Awards:* Spring 2022, Fall 2020 BU UROP Award, Summer 2021 BU Federal-Work Study Award

2019–2021 **Elizabeth Diamond**, Now FPGA Verification Engineer at Trend Micro, *Student Awards:* 2022 IEEE ISSCC Next Gen Circuit Designer Workshop Participant, Fall 2021, Spring 2021, Fall 2020, Spring 2020, Fall 2019 BU UROP Award

2019–2020 **Dylan Nash**, Now RFIC Layout Design Engineer at Anokiwave, *Student Awards:* Spring 2020, Fall 2019 BU UROP Award, Summer 2019 Joseph Healey Distinguished Summer Research Fellowship

Visiting B.S. Researchers at Boston University

2021–Present **Eyyup Tasci**, B.S. Student at Bosphorus University, Turkey

2019 **Deepak Gopalan**, Now Ph.D. Student at Stanford University

High-School Researchers at BU

Summer 2022 **Alessandro Manganaro**, Now Student at Winchester High School

Summer 2022 **Matthew Mao**, BU RISE Program, Now B.S. Student at CMU

Summer 2022 **Vivek Sandrapaty**, BU RISE Program, Now B.S. Student at MIT

Ph.D. Students at MIT

2020–2023 **Eunseok Lee**, Collaborated and Co-Mentored with Anantha Chandrakasan

2019–2023 **Jongchan Woo**, Co-Advised with Anantha Chandrakasan and Muriel Medard

2018–2020 **Saurav Maji**, Collaborated and Co-Mentored with Anantha Chandrakasan

B.S. Researchers at MIT (Co-Mentored with Anantha Chandrakasan)

2017–2018 **Mengyuan Sun**, Now Ph.D. Student at UIUC

2017–2018 **Natalie Mionis**, Now Product Manager 2 at Microsoft

2017 **Wendy Fernandez (Visiting)**, Now Analog SoC Designer at Intel Corporation

2017 **Kapil Vaidya (Visiting)**, Now Ph.D. Student at MIT

2016–2017 **Daniel Richman**, Now Ph.D. Student at Stanford University

M.S. Students at Columbia University (Co-Mentored with Peter Kinget)

2014–2015 **Manoj Kumar**, Now A&MS Design Engineer at Synopsys Inc.

2014 **Ethan (YiChen) Zhu**, Now Software Engineer at Google

2011–2012 **Michael Whalen**, Analog Circuit Designer at IBM

B.S. Students at Columbia University (Co-Mentored with Peter Kinget)

2015–2016 **Christopher J. Kunkel**, Now Founder and Start-Up Leader at Monarch Enterprises

2012–2013 **Allison Duh**, Client Engagement Manager at Logicworks

2012–2016 **Jeffrey Yuan**, Now ASIC RTL Design Engineer at Google

Ph.D. Thesis Committees

Fall 2023 Qijun (Mandy) Liu (BU ECE), Diana Arguijo Merdoza (BU BME Prospectus), Stefan Gvozdenovic (BU ECE), Ashley Gomez (BU ECE Prospectus)

Summer 2023 Pouya Haghi (BU ECE)

Spring 2023 Zahra Azad (BU ECE), Manuj Kumar Singh (BU ECE Prospectus), Deniz Onural (BU ECE Prospectus)

Fall 2022 David McIntrye (BU BME), Rashmi Agrawal (BU ECE), Timur Zirtiloglu (BU ECE Prospectus)

Summer 2022 Zihao Yuan (BU ECE), Marcia Sahaya Louis (BU ECE)

Spring 2022 Guillaume Tochou (University of Lille), Arslan Riaz (BU ECE Prospectus)

Fall 2021 Radhakrishna Sanka (BU ECE), Amit Solomon (MIT EECS)

M.S. Thesis Committees

Summer 2021 Jongchan Woo (MIT EECS)

Spring 2020 Vaibhav Bansal (BU ECE)

Spring 2019 Nikhil Ranjan (BU ECE)

Invited Talks and Technical Presentations

Keynotes

- *The Future is Now! – Secure Computing Platforms for Energy-Constrained Applications*, **Invited Keynote Speaker** at the Computing Symposium, University of Wyoming, September 2023.
- *How We'll Communicate & Who's Listening: The Future of Wireless Communications*, **Invited Keynote Speaker**, IEEE Circuits and Systems (CAS) International Seminar, Virtual, December 2020.
- *Ingestible Micro-Bio-Electronic Devices for Crohn's Disease Diagnosis and Monitoring*, **Invited Keynote Speaker**, **Nature Symposium on Biosensors and their Medical Potential**, February 2020.

Conferences and Workshops (Excluding Paper Presentations)

- R. T. Yazicigil, *Cyber-Secure Biological Systems*, SynBioBeta 2024, Schmidt Sciences Invited Panelist, May 2024.
- R. T. Yazicigil, *Cyber-Secure Biological Systems*, BioMADE Member Meeting 2024, Invited Speaker, May 2024.
- R. T. Yazicigil and D. Densmore, *Cyber-Secure Biological Systems*, BioMADE Teaming Member Meeting, Virtual, December 2023.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, IEEE CASS Rio Grande do Sul Chapter, Live Streamed on Youtube, October 2023.
- *Physical-Layer Security for Latency- and Energy-Constrained Integrated Systems*, IEEE International Solid-State Circuits Conference (ISSCC) Tutorial, February 2023.

- *The Basics of Low-Noise Amplifiers*, IEEE International Solid-State Circuits Conference (ISSCC) Circuit Insights, In-person event and live-streamed to additional 300 attendees across the globe, February 2023.
- M. Medard, K. Duffy, and R. T. Yazicigil, *Universal Soft-detection decoding using ORBGRAND*, Advanced Television Systems Committee (ATSC) Meeting, Virtual, October 2023.
- M. Medard, K. Duffy, and R. T. Yazicigil, *Tutorial: Universal Decoding by Guessing Random Additive Noise Decoding*, 2022 IEEE Future Networks World Forum (FNWF) Tutorial, Virtual, October 2022.
- M. Medard, K. Duffy, and R. T. Yazicigil, *Universal Decoding using GRAND*, Advanced Television Systems Committee (ATSC) Meeting, Virtual, March 2021.
- M. Medard, K. Duffy, and R. T. Yazicigil, *Tutorial: Universal Decoding by Guessing Random Additive Noise Decoding*, 2021 IEEE Global Communications Conference (GLOBECOM) Tutorial, Virtual, December 2021.
- *Panelist at the IEEE Virtual World Forum on Internet of Things (WF-IoT)*, Virtual, September 2020.
- *System-Level Solutions for Wireless Security*, NSF Workshop on Security in RF/Analog Microelectronics and Engineering, October 2019.
- *System-Level Solutions for Wireless Security*, Cyber Week, International Cyber Event - Academic Conference, Tel-Aviv University, June 2019.
- *System-Level Solutions for Wireless Security*, Cyber Week, International Cyber Event - IoT Conference, Tel-Aviv University, June 2019.
- *Rapid and Wideband RF Interferer Detectors Exploiting Compressed Sampling*, IEEE European Solid-State Circuits Conference (ESSCIRC), 2016.

Industry / Industrial Research Lab Talks

- *The Future is Now! ASICs for Biosensing and Wireless Communications*, Lockheed Martin, In-person at BU, December 2023.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, MediaTek, November 2023.
- M. Medard, K. Duffy, and R. T. Yazicigil, *Universal Low-Power Decoding - GRAND*, GlobalFoundries Inc. (GF), Virtual, September 2023.
- *Cyber-Secure Biological Systems*, IMEC, In-person at BU CISE/BDC Co-Organized Event, September 2023.
- R. T. Yazicigil and A. Chandrakasan, *Physical-Layer Security for Latency- and Energy-Constrained Integrated Systems*, Lockheed Martin CTO Team, In-person at MIT, May 2023.
- *Integrated Circuits for Cyber-Biological Systems and Secure Wireless Communications*, Semiconductor Research Corporation, Virtual, February 2023.
- *How We'll Communicate & Who's Listening: The Future of Wireless Communications*, Invited, Facebook Silicon Research Team, Virtual, February 2021.
- *Secure and Spectrum-Aware Wireless Communications: Opportunities and Challenges*, NXP Semiconductor, Virtual, March 2019.
- *Secure and Spectrum-Aware Wireless Communications: Opportunities and Challenges*, Analog Devices Incorporation / Analog Garage, October 2018.

- *Energy-Efficient Integrated Circuits and Wireless Systems for Secure IoT*, Analog Devices Incorporation, June 2017.
- *Compressive Sampling as an Enabling Technology for Energy-Efficient Wideband RF Spectrum Sensing*, Analog Devices Incorporation, September 2016.

University Seminars

- *The Circuit Frontier: Innovating and Expanding ASIC Solutions for Enhanced Biosensing and Seamless Wireless Communication*, Stanford University, May 2024.
- *The Circuit Frontier: Innovating and Expanding ASIC Solutions for Enhanced Biosensing and Seamless Wireless Communication*, University of Michigan, March 2024.
- *Celebrating Women in Research: International Women's Day Panel*, Boston University, March 2024.
- *The Circuit Frontier: Innovating and Expanding ASIC Solutions for Enhanced Biosensing and Seamless Wireless Communication*, Caltech, February 2024.
- *Cyber-Secure Biological Systems*, Biological Design Center Symposium at Boston University, October 2023.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, Brown University, March 2023.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, Berkeley Wireless Research Center, UC Berkeley, February 2023.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, Princeton University, October 2022.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, Columbia University, September 2022.
- *The Future is Now! ASICs for Biosensing and Environmental Monitoring*, Biological Design Center at Boston University, April 2022.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, Sabanci University, Virtual, November 2021.
- *The Future is Now! ASICs for Biosensing and Wireless Communications*, Boston University ECE Seminar, November 2021.
- *Ingestible Bio-Engineered Sensors for Disease Monitoring*, Invited, Giovanni Traverso Group, MIT, Virtual, March 2021.
- *Presenter at the Research Soundbites*, Invited, Howard University NSBE Chapter, Virtual, October 2020.
- *Ingestible Biomimetic Sensors for Disease Monitoring*, Invited, CICS Seminar, MIT, Virtual, May 2020.
- *How We'll Communicate & Who's Listening: The Future of Wireless Communications*, Invited, Sabanci University, March 2020.
- *Secure and Spectrum-Aware Wireless Communications: Opportunities and Challenges*, Communications, Information theory, Networks, Circuits and Signal Processing (CINCS) Seminar, MIT, December 2019.
- *Energy-Efficient Algorithm-Hardware Co-Design for Next-Generation Wireless Communications*, Workshop on Guesswork & Applications, Maynooth University and Hamilton Institute, Ireland, July 2019.

- *Secure and Spectrum-Aware Wireless Communications: Opportunities and Challenges*, Electrical Engineering Seminar, Tel-Aviv University, June 2019.
- [SystemX Seminar] *Secure and Spectrum-Aware Wireless Communications: Opportunities and Challenges*, Stanford University, February 2019.
- *Innovating Secure IoT Solutions for Extreme Environments*, The Future of Nanoscale Electronics, April 2018.
- *A System-Level Approach to Secure and Spectrum-Aware Wireless Communications*, Columbia University, November 2017.
- *Cryptographically Secure Bit-Level Frequency Hopping for Next-Generation Wireless Communications*, MIT Center for Integrated Circuits and Systems, November 2017.
- *Cryptographically Secure Bit-Level Frequency Hopping for Next-Generation Wireless Communications*, MIT Media Lab, November 2017.
- *Invited lecture on Interconnect*, MIT, Analysis and Design of Digital Integrated Circuits Class (6.374), October 2017.
- *Compressive Sampling as an Enabling Solution for Rapid Wideband RF Spectrum Sensing in Emerging Cognitive Radio Systems*, Sabanci University, December 2016.
- *Compressive Sampling as an Enabling Solution for Rapid Wideband RF Spectrum Sensing in Emerging Cognitive Radio Systems*, MIT, High-Speed Communication Circuits Class (6.776), May 2016.
- [Summer at SEAS 2015] *Enabling 5/Next-G Wireless Communications with Energy-Efficient Rapid Spectrum Sensors*, Undergraduate Research Workshop, Columbia University and NSF, 2015.

In the Press (Selected Media Coverage)

External Media Coverage

10/18/2023 **This microbe-filled pill could track inflammation in the gut**, MIT Technology Review, https://www.technologyreview.com/2023/10/18/1081842/this-microbe-filled-pill-could-track-inflammation-in-the-gut/

09/08/2023 **Smart pill can track key biological markers in real-time**, MIT News, https://news.mit.edu/2023/smart-pill-can-track-biological-markers-real-time-0908

09/09/2023 **Listening to Your Gut Feelings**, hackster.io, https://www.hackster.io/news/listening-to-your-gut-feelings-e9fd9d58b800

08/16/2023 **A blueberry-sized pill can improve the diagnosis and treatment of intestinal disorders**, WorldTimeTodays, https://worldtimetodays.com/a-blueberry-sized-pill-can-improve-the-diagnosis-and-treatment-of-intestinal-disorders/

08/16/2023 **A Smart Pill That Diagnoses Gastrointestinal Disease**, Labroots, https://www.labroots.com/trending/clinical-and-molecular-dx/25759/smart-pill-diagnoses-gastrointestinal-disease

08/15/2023 **Smart pill could be game changer in diagnosis, treatment of bowel diseases**, Life Technology, https://www.lifetechnology.com/blogs/life-technology-medical-news/smart-pill-could-be-game-changer-in-diagnosis-treatment-of-bowel-diseases

08/15/2023 **Smart pill could be game changer in diagnosis, treatment of bowel diseases**, MedicalXpress (Ranked as a top MedicalXpress story for the week of August 14), https://medicalxpress.com/news/2023-08-smart-pill-game-changer-diagnosis.html

08/14/2023 **Smart pill could be game changer in diagnosis, treatment of bowel diseases**, MIT Materials Research Laboratory (This story appeared in more than 48 media from around the world, and was reported on in many languages, including Portuguese, Chinese, Spanish, and French.), https://mrl.mit.edu/articles

02/22/2023 **A new chip for decoding data transmissions demonstrates record-breaking energy efficiency**, MIT News, https://news.mit.edu/2023/new-chip-demonstrates-energy-efficiency-decoding-0222

09/09/2021 **A universal system for decoding any type of data sent across a network**, MIT News, https://news.mit.edu/2021/grand-decoding-data-0909

International Media Coverage

08/16/2023 **Ingestible Smart Pill Tracks Key Biological Markers of Bowel Diseases in Real Time**, HospiMedica International, https://www.hospimedica.com/critical-care/articles/294798255/ingestible-smart-pill-tracks-key-biological-markers-of-bowel-diseases-in-real-time.html

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