

Jackson Anderson

Curriculum Vitae, September 2025

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Education

- 2023 **Ph.D, Electrical and Computer Engineering**, Purdue University, Lafayette, IN
Dissertation: "CMOS Integrated Resonators and Emerging Materials for MEMS Applications."
- 2017 **MS, Microelectronic Engineering**, Rochester Institute of Technology, Rochester, NY
Thesis: "Measurement of Ferroelectric Films in MFM and MFIS Structures."
- 2015 **BS, Microelectronic Engineering**, Rochester Institute of Technology, Rochester, NY

Professional Appointments

- 2025-Present **Assistant Professor, Electrical and Biomedical Engineering**, University of Vermont and State Agricultural College, Burlington, VT
- 2023-2025 **Research Assistant Professor, Electrical and Biomedical Engineering**, University of Vermont and State Agricultural College, Burlington, VT

Journal Publications

- [1] A. Charnas, **J. Anderson**, J. Zhang, D. Zheng, D. Weinstein, and P. D. Ye, "Ultrathin indium oxide thin-film transistors with gigahertz operation frequency," *IEEE Transactions on Electron Devices*, vol. 70, no. 2, pp. 532–536, Feb. 2023, ISSN: 1557-9646. DOI: 10.1109/TED.2022.3231226.
- [2] U. Rawat, **J. D. Anderson**, and D. Weinstein, "Design and applications of integrated transducers in commercial CMOS technology," *Frontiers in Mechanical Engineering*, vol. 8, 2022, ISSN: 2297-3079.
- [3] **J. Anderson**, Y. He, B. Bahr, and D. Weinstein, "Integrated acoustic resonators in commercial fin field-effect transistor technology," *Nature Electronics*, vol. 5, no. 9, pp. 611–619, Sep. 2022, ISSN: 2520-1131. DOI: 10.1038/s41928-022-00827-6.
- [4] C. Huang, **J. Anderson**, S. Peana, X. Chen, S. Ramanathan, and D. Weinstein, "Perovskite nickelate actuators," *Journal of Microelectromechanical Systems*, pp. 1–6, 2021, ISSN: 1941-0158. DOI: 10.1109/JMEMS.2021.3067189.

- [5] M. Restaino, N. Eckman, A. T. Alsharhan, *et al.*, “In situ direct laser writing of 3d graphene-laden microstructures,” *Advanced Materials Technologies*, vol. 6, no. 8, p. 2100222, 2021, ISSN: 2365-709X. DOI: 10.1002/admt.202100222.
- [6] **J. D. Anderson**, J. Merkel, D. MacMahon, and S. K. Kurinec, “Evaluation of si:HfO₂ ferroelectric properties in MFM and MFIS structures,” *IEEE Journal of the Electron Devices Society*, vol. 6, pp. 525–534, 2018. DOI: 10.1109/JEDS.2018.2826978.

Conference Proceedings

- [1] M. Rogers and **J. Anderson**, “Automation of dielectric breakdown testing,” in *2025 Albany Nanotechnology Symposium*, Oct. 2025, to appear.
- [2] M. Sultana and **J. Anderson**, “Exfoliation process flow of 2d α -in₂se₂ for memory and acoustic devices,” in *2025 Albany Nanotechnology Symposium*, Oct. 2025, to appear.
- [3] I. Cassidy and **J. Anderson**, “Stepped idt design for snow water equivalent measurement,” in *2025 Albany Nanotechnology Symposium*, Oct. 2025, to appear.
- [4] E. Iverson and **J. Anderson**, “Commercial gan mems resonators for integrated power conversion,” in *2025 Albany Nanotechnology Symposium*, Oct. 2025, to appear.
- [5] P. Amngostar*, S. F. Hagh*, A. Fath*, *et al.*, “Summer program advancing robotics and knowledge in microelectronics for k-12 (spark),” in *AVS 71 International Symposium*, Sep. 2025.
- [6] U. Rawat, **J. Anderson**, and D. Weinstein, “Large-signal analysis and modeling of CMOS-MEMS ferroelectric resonators,” presented at the Hilton Head Sensors and Actuator Workshop, 2022, p. 1.
- [7] D. Zheng, A. Charnas, **J. Anderson**, *et al.*, “First demonstration of BEOL-compatible ultrathin atomic layer-deposited InZnO transistors with GHz operation and record high bias-stress stability,” in *2022 International Electron Devices Meeting (IEDM)*, Dec. 2022, pp. 4.3.1–4.3.4. DOI: 10.1109/IEDM45625.2022.10019452.
- [8] A. Charnas, **J. Anderson**, J. Zhang, D. Zheng, D. Weinstein, and P. D. Ye, “Record RF performance of ultra-thin indium oxide transistors with buried-gate structure,” in *2022 Device Research Conference (DRC)*, Jun. 2022, pp. 1–2. DOI: 10.1109/DRC55272.2022.9855782.
- [9] **J. Anderson** and D. Weinstein, “PyMeasRF: Automating RF device measurements using python,” Jul. 23, 2019. DOI: 10.25080/Majora-7ddc1dd1-014.

Grants and Fellowships

- 2024-Present **NSF, PI**, ERI: Leveraging 2D Ferroelectric Semiconductors Towards Acoustoelectric Circulators, \$199,980
- 2024-Present **NSF, Sr. Personnel**, Bridging Microelectronics Education Gap in Rural State through Partnerships with K-12 School Science Teachers, 2024 Supplement to RII Track-2 FEC: Advancing Research Towards Industries of the Future to Ensure Economic Growth for EPSCoR Jurisdictions - Advanced Wireless - Integration with Infrastructure System, \$294,949

Awards and Honors

- 2016 **NSF Graduate Research Fellowship**, *Honorable Mention*
- 2016 **RIT Turkman Scholar**
- 2015 **Tau Beta Pi Stabile Scholar**

Invited Talks

- 2024 **Beilstein Symposium on Sensing with Mechanical Systems**, Ferroelectric Materials for Reprogrammable and CMOS-Integrated Transducers

Teaching Experience

University of Vermont

- Instructor IC Fabrication (Fall '24, '25)
- Instructor Semiconductor Materials and Devices (Spring '24, '25)
- Co-Instructor IC Fabrication [Lab] (Fall '23)

Purdue University

- TA Electromagnetics (Fall '21 [In-Person])

Rochester Institute of Technology

- TA Microelectronic Engineering Senior Design (Fall '16/Spring '17)
- TA CMOS Processing (Spring '15/Fall '16)
- TA Introduction to Microelectronic Engineering (Fall '15)

Research Experience

University of Vermont

- 2024-Present Acoustoelectric Interactions in In₂Se₃ towards RF Circulators
- 2024-Present Commercially Integrable Gallium Nitride Resonators
- 2023-Present Multidisciplinary Semiconductor Curriculum Development

Purdue University, HybridMEMS Lab

- 2022-2023 Van der Waals MEMS Resonators
- 2017-2022 Commercially-Integrated finFET Acoustic Resonators

- 2019-2020 Nickelate-Based MEMS Actuators
- 2018-2019 Measurement of Injection Locking in Colpitts Oscillators
Rochester Institute of Technology
- 2014-2017 Ferroelectric HfO₂ Characterization
- 2016 Polysilicon Microbolometer Design and Fabrication

Professional Service

- 2025 **Review Panelist**, National Science Foundation
- 2019-2022 **Contributor**, scikit-*rf*
- 2021 **Manuscript Review**, IEEE Journal of the Electron Devices Society
- 2021 **Manuscript Review**, Frontiers in Materials
- 2016 **Conference Volunteer**, Emerging Technologies: Communications, Microsystems, Optoelectronics, Sensors

College & Departmental Service

- 2025 **Admitted Student Visit Days**, Organize lab visit for ASV events to highlight semiconductor learning opportunities at UVM to prospective engineering and science students
- 2024-Present **Certificate Research Advisor**, Serve as technical advisor in the area of semiconductor materials and devices for eight undergraduate student research projects/project proposals.
- 2024-Present **Project Advisor**, Work with two part-time EE graduate students to define and execute master's projects specialized to their interests
- 2024-Present **Committee Member**, Serve as part of ten PhD and MS students' exams (defense, comprehensive, and/or qualifying) in Electrical Engineering and Material Science programs.

Other Publications

- [1] **J. Anderson**. "Skrf network viewer," Plotly Dash Application Gallery. (), [On-line]. Available: <https://dash.gallery/dash-skrf-viewer/> (visited on 04/16/2023).
- [2] U. Rawat, **J. Anderson**, and D. Weinstein, *Large-signal behavior of ferroelectric micro-electromechanical transducers*, Apr. 12, 2023. DOI: 10.48550/arXiv.2304.05975. arXiv: 2304.05975[physics].
- [3] A. Arsenovic, J. Hillairet, **J. Anderson**, *et al.*, "Scikit-*rf*: An open source python package for microwave network creation, analysis, and calibration [speaker's corner]," *IEEE Microwave Magazine*, vol. 23, no. 1, pp. 98–105, Jan. 2022, ISSN: 1557-9581. DOI: 10.1109/MMM.2021.3117139.

- [4] J. C. Damle, **J. Anderson**, M. Storey, and D. Weinstein, "Automated measurement of acoustoelectric RF MEMS for wireless communication applications," *Purdue SURF Symposium*, p. 9, 2021.
- [5] H.-M. Tran, **J. Anderson**, and D. Weinstein, "Modeling ferroelectric domain switching kinetics," *Purdue SURF Symposium*, p. 3, 2020.
- [6] **J. Anderson**, "Ferroelectric hafnium dioxide thin films," *Annual Microelectronic Engineering Conference*, May 1, 2015.

Professional Skills

Programming	Python, MATLAB, Perl, C
Fabrication	CMOS Processing, Electron Beam Lithography, Design of Experiments, Soldering, Hardware Assembly
Metrology	On-wafer Electrical Probing [S-Parameter, IV, CV, PV], Circuit Test, AFM, Ellipsometry, Reflectometry, SEM, FIB, EDS
Simulation	COMSOL, Silvaco Atlas, Silvaco Athena, SLURM
EDA	Keysight ADS, Cadence Virtuoso, Spectre, KiCad, LTSpice
Design	Fusion360, Blender, Affinity Designer, GNU Image Manipulation Program

Community Outreach

- 2025 **Developing materials for summer workshop training K-12 teachers in microelectronics concepts.**
- 2019 **Imagination Station**
Demonstrate cardiac anatomy of cow hearts to K-12 students at Halloween science event.
- 2015-2017 **Imagine RIT**
Explain microelectronics processing and MEMS technologies at STEM festival attended by thousands.

Media Coverage

<https://www.wcax.com/2023/10/19/uvm-partnership-with-globalfoundries-bolster-new-degree-program/>

Additional Work History

- 2022 **College of Engineering Tutor**, Purdue University
1-on-1 tutoring of underrepresented student in graduate-level finite element analysis coursework.
- 2012-2015 **Microelectronic Engineering Tutor**, Rochester Institute of Technology
1-on-1 and group tutoring in Engineering Learning Center.
- 2015 **Co-Op Engineer, Manufacturing Technology**, GLOBALFOUNDRIES
Data Analysis Solutions for 14 nm yield engineering using Perl, Python, and Tibco Spotfire.

- 2014 **Co-Op Engineer, In-Line Test**, IBM Microelectronics
Speed debugging of test hardware via correlation of failing test paths.
- 2013 **Co-Op Engineer, Yield Enhancement**, GLOBALFOUNDRIES
Classify yield-loss signatures in 28 nm product using WET, inline, sort, CFM, and tool/chamber data.

Languages

English Native - C2
ASL Basic - A1
French Basic - A1

Professional Memberships

2025-Present	American Vacuum Society	<i>Member</i>
2019-Present	IEEE Electron Devices Society	<i>Member</i>
2019-Present	IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society	<i>Member</i>
2014-Present	IEEE	<i>Member</i>