# Jackson Anderson

*Curriculum Vitae, August 2024*

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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

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

## Journal Publications

[1] 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].

[2] 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.

[3] 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.

[4] **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.

[5] 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.

[6] 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. 2 100 222, 2021, ISSN: 2365-709X. DOI: 10.1002/admt.202100222.

[7] **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] **J. Anderson**, J. Frolik, M. Gallagher, and R. Headrick, "Wip: An experiential undergraduate certificate in semiconductor engineering and physics," presented at the IEEE Frontiers in Education Conference, 2024, to appear.

[2] 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.

[3] 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.

[4] 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.

[5] **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**, ERI: Leveraging 2D Ferroelectric Semiconductors Towards Acoustoelectric Circulators, $199,980

## Awards and Honors

2016 **NSF Graduate Research Fellowship**, *Honorable Mention*

2016 **RIT Turkman Scholar**

2015 **Tau Beta Pi Stabile Scholar**

## Teaching Experience

### University of Vermont

Instructor Semiconductor Materials and Devices (Spring '24)

Co-Developer IC Fabrication (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)

## Graduate Research Experience

### 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

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

## Other Publications


[1] **J. Anderson**. "Skrf network viewer," Plotly Dash Application Gallery. (), [Online]. Available: `https://dash.gallery/dash-skrf-viewer/` (visited on 04/16/2023).

[2] 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.

[3] J. C. Damle, **J. Anderson**, M. Storey, and D. Weinstein, "Automated measure-

ment of acoustoelectric RF MEMS for wireless communication applications," *Purdue SURF Symposium*, p. 9, 2021.

[4] H.-M. Tran, **J. Anderson**, and D. Weinstein, "Modeling ferroelectric domain switching kinetics," *Purdue SURF Symposium*, p. 3, 2020.

[5] **J. Anderson**, "Ferroelectric hafnium dioxide thin films," *Annual Microelectronic Engineering Conference*, May 1, 2015.

## Professional Skills

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|---|---|
| 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

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.

## Languages

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

## Professional Memberships

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| 2019-Present | IEEE Electron Devices Society | *Member* |
| 2019-Present | IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society | *Member* |
| 2014-Present | IEEE | *Member* |