

# ANDREW THIBEAULT

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BEND, OR

PORTFOLIO: [AHTHIBEAULT.GITHUB.IO](https://github.com/AHThibault)

## EDUCATION

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**University of Colorado Boulder**

January 2021 – May 2023

**Master of Science in Electrical, Computer & Energy Engineering** Boulder, CO

- Relevant Coursework: Introduction to Power Electronics, Modeling and Control of Power Electronics Systems, Power Electronics and Photovoltaic Power Systems Lab, Control Systems, Practical PCB Design and Manufacture, Circuits as Systems, Electronics Design Lab, Distribution Systems, Power System Dynamics with Renewable Energy, Power System Operations
- In Power Electronics Lab, designed and constructed the power electronics for a standalone solar power system: a PV-to-battery stage consisting of a digitally controlled MPPT 17V-to-12V buck converter, and a battery-to-load stage consisting of an analog controlled 12V-to-180V cascaded boost converter in series with a 120V RMS/60Hz sine-wave H-bridge inverter. Digital control implemented as an embedded system using a C2000 TI microcontroller coded in C.
- GPA: 3.95

**Vanderbilt University**

May 2018

**Bachelor of Arts in Physics, Minor in Computer Science**

Nashville, TN

- Relevant Coursework: Electricity & Magnetism, Modern Physics, Multivariable Calculus, Differential Equations, Linear Algebra, Thermal & Statistical Physics, Stellar Astrophysics, Classical Mechanics, Quantum Mechanics, Intermediate Software Design, Program Design & Data Structures, Scientific Computing, Discrete Structures, Machine Learning
- Instructor and Lecture Chair for Wilderness Skills Organization (Fall 2015 – Spring 2018)
  - \* Planned, lead, and taught skills and safety on weekend caving, climbing, whitewater and backpacking trips
- GPA: 3.68, Cum laude

## PROFESSIONAL EXPERIENCE

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**Microgrid Labs**

May 2021 – May 2022

**Power Systems Software Engineer**

Boulder, CO

- Jointly developed OpenDSS-based power quality analysis of electric vehicle charging loads, with NREL: [A Framework to Evaluate the Grid Impacts of EV Fleet Charging Solutions](#)
- Developed Python-based optimization code for coordinated electric vehicle charging controller
- Refactored entire legacy controller module code into object-oriented design structure to aid future development and maintainability
- Designed charging system electrical layout including solar PV and ran simulations of energy requirements and optimized charging schedules for feasibility study of electrifying Hazelwood School District's (St. Louis) bus fleet

**CU Boulder EECE Department**

January 2021 – May 2021

**Power Systems Research Assistant**

Boulder, CO

- Developed optimization model in Python to optimize consumer electricity rate schedule to elicit more demand response from consumers connected to distributed solar.

**Boston University Astronomy Department**

February 2020 – November 2020

**Astrophysics Research Assistant Volunteer**

Boston, MA

- Analyzed gravitational lensing signals from the Illustris TNG100-1 cosmological simulation using Python

**U.S. Forest Service**  
**Wilderness Monitoring Intern**

May 2019 – September 2019  
Durango, CO

- Collected field data for forest surveys, performed junior ranger duties, and performed trailwork while on multi-day wilderness deployments
- Maintained personal and team safety while cutting hazardous deadfall with crosscut saws

**Zolo Technologies**  
**Software Engineer**

September 2018 – March 2019  
Louisville, CO

- Collaborated in a team of four to design high-level approaches to restructuring code architecture, adding new features, and fixing bugs on a C# codebase
- Developed APIs for interaction with laser spectroscopy hardware components, and integrated hardware into runtime engine
- Quickly learned JavaScript, HTML/CSS, and ASP.NET MVC framework and became the team web app developer with no prior web development experience

**Vanderbilt University Physics Department**  
**Nuclear Physics Research Assistant**

Jun. – Dec. 2016, Aug. – Dec. 2017  
Nashville, TN

- Analyzed gamma ray coincidence data from the Gammasphere experiment studying the spontaneous fission of  $^{252}\text{Cf}$
- Independently determined new high-accuracy relative yield matrix for Ba-Mo fission fragments, validating suggestions of new fission mode for high neutron yields (see Publications)
- Assisted in determination of new relative yield matrices for Ce-Zr and Te-Pd fragment pairs

**Vanderbilt University Physics Department**  
**Physics Tutor**

January – May 2016  
Nashville, TN

- Tutored students in introductory physics courses through one-on-one instruction

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**PUBLICATIONS**

**Peer Reviewed Journal Articles**

1. Musangu, B. M., Thibeault, A. H., Richards, T. H., Wang, E. H., Hamilton, J. H., Zachary, C. J., Eldridge, J. M., Ramayya, A. V., Luo, Y. X., Rasmussen, J. O., Ter-Akopian, G. M., Oganessian, Yu. Ts., & Zhu, S. J. (2020) Anomalous neutron yields confirmed for Ba-Mo and newly observed for Ce-Zr from spontaneous fission of  $^{252}\text{Cf}$ . *Phys. Rev. C*, 101(3), 034610. <https://doi.org/10.1103/PhysRevC.101.034610>

**Conference Proceedings**

1. Thibeault, A. H., Wang, E. H., Zachary, C. J., Hamilton, J. H., Ramayya, A. V., Musangu, B. M., Rasmussen, J. O., Luo, Y. X., Ter-Akopian, G. M., Oganessian, Yu. Ts., & Zhu, S. J. (2017) New Determination of the Mo-Ba Yield Matrix for  $^{252}\text{Cf}$ . *6<sup>th</sup> International Conference on Fission and Properties of Neutron-Rich Nuclei*, 619–623. [https://doi.org/10.1142/9789813229426\\_0106](https://doi.org/10.1142/9789813229426_0106)
2. Thibeault, A. H., Wang, E. H., Zachary, C. J., Hamilton, J. H., Ramayya, A. V., Luo, Y. X., Rasmussen, J. O., Ter-Akopian, G. M., Oganessian, Yu. Ts., & Zhu, S. J. (2016) New determination of the Ba-Mo yield matrix for  $^{252}\text{Cf}$ . *2016 Fall Meeting of the APS Division of Nuclear Physics*, 61(13), 170. <http://meetings.aps.org/link/BAPS.2016.DNP.EA.170>

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**SKILLS AND TECHNOLOGIES**

**Skilled in:** Power Electronics Design, PCB Design, Digital & Analog Control, LTSpice, Altium Designer, KiCAD, MATLAB, Python, Soldering, Component Selection, C#, Source Control (Git), Agile Methodology

**Experience in:** C, I2C, UART, Linux, Bash Scripting, Arduino, C++, Java, MongoDB,  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ , JavaScript, HTML/CSS, ASP.NET MVC