Trevor Vannoy

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tvannoy

Education

Aug 2017 – Present **PhD Electrical Engineering**, *Montana State University*, Bozeman, MT.

Aug 2017 – May 2020 **M.S Electrical Engineering**, *Montana State University*, Bozeman, MT.
Thesis: *Enabling Rapid Prototyping of Audio Signal Processing Systems using System-on-Chip Field Programmable Gate Arrays*

Aug 2012 – May 2016 **B.S. Electrical Engineering**, *Montana State University*, Bozeman, MT.
Computer Engineering minor, 4.0 GPA, Highest Honors

Research Experience

May 2020 – Present **Graduate Research Assistant**, *Montana State University*, Bozeman, MT.
- Object detection with airborne lidar

Aug 2017 – May 2019 **Graduate Research Assistant**, *Montana State University*, Bozeman, MT.
- Development of an Open FPGA-based Speech Processing Platform

Aug 2015 – May 2016 **Undergrad Research Assistant**, *Montana State University*, Bozeman, MT.
- Development of an FPGA Platform for Automating Laboratory Equipment

June – Aug 2015 **Lee Teng Research Intern**, *Argonne National Lab*, Lemont, IL.
- Control system modeling and stability analysis of an adaptive noise suppression system for the Advanced Photon Source particle accelerator

Work Experience

May 2019 – Aug 2020 **Engineer**, *Flat Earth Inc.*, Bozeman, MT.
- SoC FPGA and microcontroller development
- Audio and radar signal processing
- Linux server administration

June 2016 – July 2017 **Embedded Software Engineer**, *Fluke Calibration*, Everett, WA.
- Developed a graphical application in Python to aid hardware bring-up
- Designed and wrote firmware for a multifunction electrical calibrator

May – Aug 2014 **Engineering Intern**, *Western Area Power Administration*, Billings, MT.
- Developed statistical data analysis software in Microsoft Excel VBA and Python to compare power system model parameters with historical data

Teaching Experience

Aug 2018 – Present **Graduate Teaching Assistant**, *Montana State University*, Bozeman, MT.
- SoC FPGAs I
- SoC FPGAs II
- Digital Signal Processing
- Circuits II

Aug 2015 – May 2016 **Undergrad Teaching Assistant**, *Montana State University*, Bozeman, MT.
- Introduction to Electrical Engineering

Journal Publications

Trevor C. Vannoy, Jackson Belford, Joseph N. Aist, Kyle R. Rust, Michael R. Roddewig, James H. Churnside, Joseph A. Shaw, and Bradley M. Whitaker. "Machine learning-based region of interest detection in airborne lidar fisheries surveys". In: *Journal of Applied Remote Sensing* 15.03 (July 2021). DOI: 10.1117/1.jrs.15.038503.

Conference Publications

Trevor Vannoy, Dylan Wickham, Dustin Sobrero, Connor Dack, Ross Snider, and Tyler Davis. "Design of Audio Processing Systems with Autogenerated User Interfaces for System-on-Chip Field Programmable Gate Arrays". In: *Audio Engineering Society Convention 149*. Oct. 2020. URL: http://www.aes.org/e-lib/browse.cfm?elib=20965.

Trevor Vannoy, Jacob Senecal, and Veronika Strnadova-Neeley. "Improved Subspace K-Means Performance via a Randomized Matrix Decomposition". In: *2019 IEEE Global Conference on Signal and Information Processing (GlobalSIP)*. IEEE, Nov. 2019. DOI: 10.1109/globalsip45357.2019.8969298.

Trevor Vannoy, Tyler Davis, Connor Dack, Dustin Sobrero, and Ross Snider. "An Open Audio Processing Platform Using SoC FPGAs and Model-Based Development". In: *Audio Engineering Society Convention 147*. Oct. 2019. URL: http://www.aes.org/e-lib/browse.cfm?elib=20623.

Conference Abstracts

Matthew Blunt, Hezekiah Austin, **Trevor Vannoy**, Tyler Davis, and Ross Snider. "Real-time implementation of an auditory nerve model using a system-on-chip field-programmable gate array". In: *The Journal of the Acoustical Society of America* 148.4 (Oct. 2020), pp. 2468–2468. DOI: 10.1121/1.5146826.

Ross Snider, Matthew Blunt, **Trevor Vannoy**, Dustin Sobrero, Dylan Wickham, and Tyler Davis. "Implementing the open master hearing aid on a system-on-chip field programmable gate array". In: *The Journal of the Acoustical Society of America* 148.4 (Oct. 2020), pp. 2508–2508. DOI: 10.1121/1.5146971.

Ross K. Snider, **Trevor Vannoy**, James Eaton, Matthew Blunt, E. Bailey Galacci, Justin Williams, and Tyler B. Davis. "Real-time audio signal processing using system-on-chip field programmable gate arrays". In: *The Journal of the Acoustical Society of America* 146.4 (Oct. 2019), pp. 2879–2879. DOI: 10.1121/1.5136987.

Service

2019 – 2020	Senior Design team advisor
2021 – 2018, 2016	Montana FIRST LEGO League Robotics volunteer
2021, 2019, 2018	Montana Science Olympiad event captain
2018	Presenter for Belgrade Library's youth summer program
2018	Mentor for Belgrade Library's Google CS-First program
2020, 2018	Montana State University Family Science Night volunteer

2017 Montana Science Olympiad volunteer

Honors and Awards

2020 Graduate Award in Teaching Excellence
2019 ECE Outstanding Teaching Assistant of the year
2017 College of Engineering Benjamin Fellowship
2016 Top Student in Electrical Engineering
2016 Outstanding Senior in Electrical and Computer Engineering
2015 Outstanding Junior in Electrical and Computer Engineering
2015 Kathryn S. & Walter L. Titus Jr. Memorial Scholarship
2014, 2013 Len G. Robbins Memorial Scholarship
2013 NorthWestern Energy Community Works Scholarship
2012 Montana University System Honors Scholarship