

Andrew S. Van Horn

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(314) 546-6228 | a.vanhorn@mst.edu | [linkedin.com/in/andrewvanhorn](https://www.linkedin.com/in/andrewvanhorn) | github.com/andrewvh4
1655 Legend Ln. St. Louis, MO 63146
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EDUCATION

Missouri University of Science and Technology

Rolla, MO

Bachelor of Science Electrical Engineering

Aug. 2017 – May 2021

Bachelor of Science Computer Engineering

GPA – 3.837/4.0

Minor in Mathematics and Physics

PROFESSIONAL EXPERIENCE

Sandia National Laboratories

Livermore, CA

Intern Year Round - R&D Undergraduate

June 2020 – Present

- Developed Monte-Carlo simulation to model and characterize position sensor error for system improvement
- Developed automated PCB Unit Test for functional verification
- Researched and reported on high-density memory devices for R&D projects
- Collaborated to define project requirements and review completed work from a remote environment

DE Design Works

Earth City, MO

Electrical Engineering Intern

Jan. 2019 – Aug. 2019

- Developed motor control interface software to expedite production and testing
- Developed control GUIs for production systems
- Assisted in hardware verification unit tests
- Worked directly with DE customers to fulfill project requirements

Mars Rover Design Team – Missouri S&T

Rolla, MO

Chief Technical Officer

June 2019 – May 2020

- Managed technical efforts for the 100-member Mars Rover Design Team
- Led a team of 14 subsystem leaders in managing the design, assembly, and verification of the Rover project
- Coordinated with other Executive Officers and the University to create an environment for success
- Ensured team was 2 weeks ahead on meeting program deliverable before the program was terminated due to COVID 2020 pandemic
- Managed team activities through early months of COVID 2020 pandemic

Electrical Architect

June 2018 – May 2019

- Developed and taught training course to teach embedded hardware design to new team members
- Managed and maintained Electrical Lab space, including components stock, tool maintenance, and procurement
- Implemented unit test procedures to verify systems before release
- Reviewed and approved all designs for electrical systems
- Documented standards and best practices to ensure efficient production of all electrical systems

Active Member - Electrical Subteam

August 2017 – May 2019

- Developed numerous embedded systems to control Rover functions including sensor interface and motion control
- Developed a Charged-Coupled Device interface for a custom UV Raman Spectrometer

RESEARCH EXPERIENCE

Missouri S&T – Electrical and Computer Engineering

Dr. C. H. Wu

Undergraduate Researcher

Sept. 2019 – Present

- Developed programs to assist in discovery of properties in the Theoretical Quantum Cellular Automata framework
- Assisted in drafting, formatting, and compiling numerous manuscripts for submission
- Contribute to and analyzed theories on general-purpose Quantum Computing

Quantum Mechanics 1 Physics 6201, Spring 2021
Linear Algebra II Mathematics 5108, Spring 2021
Introduction to Quantum Computing Computer Science 5001, Spring 2020 – A
Partial Differential Equations Mathematics 5325, Fall 2019 – B
Embedded Processor System Design Electrical Engineering 5160, Fall 2019 – A
Introduction to Complex Variables Mathematics 5351, Fall 2018 – A

CERTIFICATIONS

US Department of Energy: Q-Clearance (2020)
ARRL: General Class License (2015)

TECHNICAL SKILLS

Programming Languages

Experienced: C • C++ • C# .Net • Git • Python • MatLab • L^AT_EX

Familiar: Assembly • LabView • VB .Net • HTML • JS • Qt • Linux • APL

Programming Skills: Data Manipulation • GUI Development • Embedded Control • Hardware Interface

Other Skills: PCB Design • Circuit Simulation

PUBLICATIONS

C. H. Wu, **Andrew Van Horn** "Space-Time Crystals and the Relation to Quantum Computing", Phys. Rev. Letters (In Review)

C. H. Wu, **Andrew Van Horn** "Irreversibility in Quantum Computing and the Relation to Space-Time Crystals", Research Inventy: International Journal of Engineering and Science, 10, 2 (2020)

Jacob Lipina, **Andrew Van Horn**, Judah Schad, Kurt Kosbar "Wireless Soil Sensor Pods for Long-Term Data Collection", International Telemetry Conference Proceedings, 54 (2018)

PRESENTATIONS

Andrew Van Horn, "Space-Time Mixing of Quantum Computing in an Entangled Atomic Chain and Time Crystals", American Physical Society March Meeting, Denver CO (2020 – Cancelled)

Jacob Lipina, **Andrew Van Horn**, Judah Schad, "Wireless Soil Sensor Pods for Long-Term Data Collection", International Telemetry Conference, Phoenix AZ (2018)

PRESENTATIONS

Missouri Department of Higher Education – University Scholarship (2017–2020)

Missouri University of Science and technology – Bright Flight Scholarship (2017–2020)

COMPETITIONS

University Rover Challenge: – Competition Team, 5th International (2019)

University Rover Challenge: – Competition Team, 2nd International (2020)

TEACHING EXPERIENCE

PCB Design – A 3-week course on schematic design, PCB layout, and assembly, (2018)