

# TJ O'Connor

Oneonta, New York | (607) 434-0366 | tjoc013@vt.edu | www.linkedin.com/in/tjoc013

## EDUCATION

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**Virginia Tech**, Blacksburg, VA

Expected Graduation: May 2028

*B.S. in Electrical Engineering and Physics*

*Awards: President's List – 4.0 GPA*

*Relevant Coursework: Circuit Analysis II, Fund. Of Digital Sys., Quantum & Modern Phys, Phys II*

*Coursework Before Summer 2026: Embedded Systems, Electromagnetics & Circuit Design, Signals and Systems*

*Activities/Organizations: Physics Infused Vision for Onward Thinking, SPS at VT, IEEE at VT, Club Wrestling*

## EXPERIENCE

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**Harvest Power LLC**, *Electrical Engineer Intern*, Long Island, NY

May – August 2024-25

- Autonomously designed and developed, with heavy use of AutoCAD, electrical plan set for 105 KW solar system including Three-Line Diagram, Stringing plan, safety access, and more
- Contrived an original SCADA/Relay Protection industrial control panel from volage sensing setup to wiring and integration of components.
- Configured, Diagnosed, and Enhanced SCADA Systems to allow communication of data from previously unresponsive routers
- Performed Engineering and Physics calculations such as Voltage Drop, Apparent Power/VA Burden, and wire rating calculations (max Amps, safety margin, ambient temperature effects)
- Attended daily Operations meetings with Project Managers, assisting project progression, helping solve problems, and boosting my organization, communication, and teamwork skills
- Interacted with many different power system components, notably including transformers, switchgear/breakers, inverters, relay systems, and many different grounding components

**P.I.V.O.T.**, *Founder & President, Lead Electrical Engineer*, Virginia Tech Organization

Jan 2025 - Present

- Instituted an original student-led organization to showcase physics phenomena in various applications
- Recruited and managed a team of 20+ members, using strong communication skills and delegating responsibilities
- Experimented and prototyped often to improve understanding through hands-on practice
- Troubleshoot designs and physical prototypes through simulation and backtesting
- Organized and partook in the design and execution of high-level physics and engineering projects

**Dr. Limes Physics Laboratory**, *Undergraduate Research Assistant (incoming)*, Blacksburg, VA

Sep 2025 - Present

- Selected to assist in quantum sensing equipment research
- Will design, implement, and test PCBs (standard and flex), analog electronics, micro-controllers, and ADCs/DACs
- Will install final designs into atomic physics equipment to enhance performance
- Will learn laboratory skills, magnetic resonance, and atomic physics

## PROJECTS

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**Electromagnetic Levitating Display**

August 2025

- Repurposed the idea behind Magnetic Levitation to expand on current uses for the phenomenon
- Experimented and analyzed different approaches to magnetic levitation
- Manipulated Electromagnets, and their respective magnetic fields, to balance and stabilize a variety of objects
- Worked through many stages of production including planning, prototyping, assessing, and improving

**Multi-Dimensional Generator**

Jan 2025

- Studies Faraday's Law and electricity generation in linear and conventional generators
- Created a unique interpretation of a linear generator that works in multiple dimensions at any time
- Applied ideas to wearable power generation, currently a pivotal issue
- Designed, implemented, and prototyped the physical generator, with emphasis on the circuitry involved

## SKILLS

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- Circuit Analysis, AutoCAD, C++, LT Spice, Verilog, Quartus, MATLAB, SolidWorks, G/MS Suite