Nicholas Borucki

boruckin@gmail.com | (765) 637- 8810 | nborucki.github.io

Profile

Mechanical engineering graduate transitioning from law enforcement, motivated by a long-standing interest in engineering and a drive to build a rewarding, high-impact career in innovative industry. Hands-on experience in lab research, mechanical design, and interdisciplinary team collaboration. Proficient in CAD tools, with a strong foundation in core engineering principles, critical thinking, and real-world problem solving.

Skills

CAD: SolidWorks, AutoCad, Autodesk Inventor, Fusion 360
Analysis: ANSYS Fluent, Autodesk CFD, MATLAB/Simulink, LabVIEW

Professional Experience

Police Officer / Supervisor (Corporal), East Cleveland Police Department – Ohio Oct 2021 – Oct 2024

- Led patrol platoon, delegated responsibilities, and managed emergency and routine incident responses
- Served as Field Training Officer, mentoring and onboarding five new hires to departmental standards
- Assigned as School Resource Officer, demonstrating strong communication, conflict resolution, and public engagement skills
- Applied critical thinking and situational awareness to make high-stakes decisions in dynamic environments
- Maintained detailed reports and testified in court proceedings as needed

Research Assistant, Wide Band Gap Semiconductor Research Lab – West Lafayette, In Oct 2024 – present

- Through iterative design and prototyping, fabricated Schottky diodes with unique electrical properties suitable for high power/ temperature applications
- Programmed a simulation tool in MATLAB/ LabVIEW for data modeling electromagnetic wave propagation in photonic crystals
- Managed lab inventory and budgeting; enforced chemical safety compliance
- Mentored students and maintained research continuity
- Collaboratively authored two peer reviewed papers published in the American Institute of Physics journal

Additional Experience

Manager, Chipotle – West Lafayette, In Oct 2024 – present

- Supervise 40+ employees and manage daily operations, scheduling, and team training

Projects

NASA Robotic Mining Competition – Team Lead

- Founded and led a 6-member interdisciplinary engineering team to design and build an autonomous mining robot
- Placed 22nd out of 52 teams nationally, competing against top engineering programs
- Developed the robot's LIDAR-based sensing system for terrain mapping
- Designed and implemented custom obstacle navigation algorithms to guide autonomous movement

Ti/SiC Schottky Barrier Diode Research – Published Work

- Contributed to research on titanium-stabilized Schottky barrier diodes fabricated on n-type 4H-SiC substrates under varying deposition conditions
- Studied electrical characteristics and effects of post-deposition annealing and magnetron sputtering
- Co-authored peer-reviewed paper: *"Effects of deposition temperature on the electrical properties of Ti/SiC Schottky barrier diodes,"* published in 2017

Education

Youngstown State University – BS in Mechanical Engineering May 2025
Kent State University – Ohio Peace Officer Certificate Jan 2021