

Nicholas Borucki

Mechanical Engineer

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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, FEA, MATLAB/Simulink, LabVIEW

Professional Experience

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

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

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

- Led patrol platoon, delegated responsibilities, and managed emergency/ routine incident responses
- Served as a 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

Relevant Experience

Research Assistant, Wide Band Gap Semiconductor Research Lab – West Lafayette, In Jan 2016 – Aug 2019

- Through iterative design and prototyping, fabricated Schottky diodes with unique electrical properties suitable for high power/ temperature applications
- Developed a simulation tool in MATLAB and LabVIEW to model electromagnetic wave propagation in photonic crystals, reducing experimental trial time and optimizing lab resource use
- 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

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