Ethan Carter

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EDUCATION

University of Illinois at Urbana-Champaign — Urbana, IL
Bachelor of Science in Mechanical Engineering — Aug 2024 – May 2028
Relevant Coursework: Thermodynamics, Fluid Mechanics, Robotics, Control Systems, Materials Science, CAD Design
GPA: 3.82/4.0

TECHNICAL SKILLS

Languages and Tools: Python, MATLAB, C++, SolidWorks, ANSYS, AutoCAD, LabVIEW
Frameworks and Platforms: ROS, Arduino, Raspberry Pi, Git, Docker, AWS, TensorFlow

PROJECTS

Robotic Arm Control System | *C++, ROS, Arduino*
- Designed and implemented a robotic arm control system for precision tasks
- Developed inverse kinematics algorithms for smooth motion control
- Integrated computer vision for object detection and manipulation

Wind Turbine Optimization | *MATLAB, ANSYS, SolidWorks*
- Optimized wind turbine blade design for maximum energy efficiency using CFD simulations
- Developed predictive maintenance algorithms to reduce downtime by 20%
- Created 3D models and performed stress analysis using ANSYS

Autonomous Underwater Vehicle (AUV) | *Python, ROS, OpenCV*
- Designed and built an AUV for underwater exploration and data collection
- Implemented navigation algorithms for obstacle avoidance and path planning
- Integrated sensors for real-time environmental monitoring

RESEARCH EXPERIENCE

Research Assistant - Robotics Lab — Jan 2022 – May 2023
University of Illinois at Urbana-Champaign — *Urbana, IL*
- Conducted research on swarm robotics and multi-agent systems
- Developed algorithms for autonomous coordination of robotic fleets
- Published findings in IEEE Robotics and Automation Letters

WORK EXPERIENCE

Mechanical Engineering Intern — Jun 2023 – Aug 2023
Boeing — *Seattle, WA*
- Designed and tested components for next-generation aircraft systems
- Conducted structural analysis using ANSYS and SolidWorks
- Collaborated with senior engineers to optimize designs for weight and performance

Robotics Intern — May 2022 – Aug 2022
Boston Dynamics — *Boston, MA*
- Developed control algorithms for bipedal and quadrupedal robots
- Optimized motion planning for dynamic environments
- Conducted performance testing and validation of robotic systems