David Null

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EDUCATION

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN (MS/PHD)   Urbana, IL
Expected Graduation, May 2024

- Electrical and Computer Engineering (ECE) Department.

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN (BS)   Urbana, IL
Graduated, May 2019

- Majored in Computer Engineering (GPA 3.72)

EXPERIENCE

ECE 445 Senior Design Lab (ECE Department Capstone Course)   Urbana, IL
Head Teaching Assistant   *Aug. 2019 – Present*

- Managed team of 10-15 Teaching Assistants to guide 100-200 students through department's capstone course.
- Guided many teams of students through the entrepreneurial process of identifying a problem, designing a solution, implementing and testing the first prototype, and finally communicating and demonstrating the results.
- Managed logistics of course to coordinate assignments, team presentations/demonstrations, and lectures.

Milwaukee Electric Tool Corporation   **Brookfield, WI**
Concept Engineering Intern   *May 2019 – Aug. 2019*

- Developed novel feature engineering and machine learning algorithms for R&D projects.

Massachusetts Institute of Technology, Lincoln Laboratory   **Lexington, MA**
Intern   *May 2018 – Aug. 2018*

- Developed a fast algorithm for the purpose of storing and querying features in a real time Visual Inertial Odometry solution for a quadrotor running a NVIDIA TX2. Increased performance by 30%. (ROS, ORB SLAM, VIO, C++)
- Created a modular and streamlined RQT Plugin for simultaneous camera and IMU calibration. (QT, ROS, Python)

U.S. Naval Research Laboratory   **Stennis Space Center, MS**
NREIP Intern   *June 2017 – Aug. 2017*

- Worked with mentor to develop a small form factor underwater ROV with enhanced endurance and sensing capabilities for special scientific Naval missions in 10 weeks. (ROS, Python, C++, Linux devices, Robotics)
- Integrated CV hardware and software into the ROV platform for advanced navigation and measurement abilities.
- Worked with IVER 3 autonomous underwater vehicles to develop SOPs for navigation correction and advanced bathymetry acquisition.
- Null, W. D., and Landry, B. J., "Use of an UROV to Develop 3D Optical Models of Submarine Environments", Poster session presented at AGU Fall Meeting, New Orleans, LA, December 14th, 2017.

Technology Start-Up, RedC Robotics   **Urbana, IL**
Organizing CEO   *Aug. 2015 – present*

- Organized 9-person team to develop an underwater robotic ROV platform for scientific research.
- Carried out custom design specifications for Department of Defense clients. (Robotics, rapid prototyping, Python)
- Featured in The News-Gazette. http://www.news-gazette.com/news/business/2016-08-28/wired-w-david-null.html
- Null, W. D., Surti, R. V., and Landry, B. J., "Development of an Underwater Remotely Operated Vehicle (ROV) for Research and Education", Naval Research Laboratory, Stennis Space Center, MS, invited seminar May 16th, 2016.

HONORS + LEADERSHIP

- Recipient of Leung Student Venture Fund Award 2019.
- The Aurelian Honor Society of Yale University award for Character, Leadership, and Scholarship.
- University of Illinois Engineering Open House (EOH) 1st place 2016/2017/2018, SeaPerch Underwater Robots Exhibit.
- Teaching Assistant, ECE 445 Senior Design Project Lab, Spring 2019, Fall 2019.
- President of the Illini Life Student Fellowship RSO (2017-2019).

TECHNICAL SKILLS

- High Proficiency: C, C++, Python, x86 assembly, Java, Robotics, Robot Operating System (ROS), rapid prototyping, Linux based microcontrollers, Bash Linux scripting, operating system development, LaTeX.
- Moderate Proficiency: C#, FPGA Design, System Verilog, OpenCV, Structure From Motion (SFM), IOS app design/development for personal projects, data analysis, 3-D CAD design and modeling (designed and printed parts for multiple robotic applications), MATLAB.