James Oubre

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EDUCATION

Northwestern University **Evanston, IL**
M.S. in Robotics

Louisiana State University **Baton Rouge, LA**
B.S. in Electrical Engineering - Minor in Robotics Engineering

PROFESSIONAL EXPERIENCE

LSU Innovation in Control and Robotics Engineering Lab **Baton Rouge, LA**
Undergraduate Researcher *Jan 2021 - May 2022*

- Researched human collaborative mobile robotic manufacturing in uncertain scenarios
  - J. P. Oubre, I. Carlucho, and C. Barbalata, "Towards a fully autonomous robotic system for detection and removal of surface defects in fiber glass panels," in *Overview | 1st Advanced Marine Robotics TC Workshop: Active Perception*, 2021.
- Created vision systems in Python, using OpenCV, to detect surface defects in fiber glass, relay defect positions to a UR5e 6 DoF robotic arm, and autonomously polish the surface

L3Harris: Intelligence, Surveillance and Reconnaissance **Greenville, TX**
Electrical Engineering Co-Op *Jan 2020 - June 2020*

- Modernized and maintained electrical systems on military and commercial aircraft
- Acted as liaison to aircraft production to provide engineering solutions for various electrical manufacturing problems
- Designed electrical schematics in Capital Electrical Systems

L3Harris: Autonomous Surface Vehicles **Broussard, LA**
Electrical Engineering Intern *May 2019 – Aug 2019*

- Worked in a production environment producing power, controls, and communications electronics for autonomous boats
- Communicated with mechanical, electrical, and systems engineers to coordinate integration

Ernest P. Breaux Electrical **New Iberia, LA**
Electrician's Assistant *May 2018 - July 2018*

- Assisted a journeyman electrician alongside electrician apprentices in a commercial environment
- Installed and serviced lighting fixtures, receptacles, and other general electrical wiring

PROJECTS

FSAE Electric Vehicle Capstone Project *Aug 2020 - April 2021*

- Converted an internal combustion FSAE race car to be fully electric
- Collaborated with teammates to build a custom battery pack, powertrain, and safety system
- Created an analog PCB with op-amps and logic gates to detect different faults related to braking and accelerating
- Acted as treasurer, managed a $12,000 budget, acquired additional funding, and completed the project $1,000 under budget

EKF Slam with TurtleBot *May 2021*

- Programmed TurtleBot to navigate through a maze, detect a red brick placed randomly in the maze, and save its location
- Implemented EKF SLAM in Python to localize the robot and create a map of the maze

ActivityBot Grid Localization *Dec 2020*

- Programmed an ActivityBot in C++ to navigate an obstacle course and create a map of the area using ultrasonic sensors
- Utilized the generated map to navigate through the obstacle course without using any sensors

Tech Mission Trip to Haiti *June 2017*

- Brought 60 laptops to Respire Haiti School, set up a computer classroom/lab at the school, and set up a Wi-Fi network
- Taught faculty and students how to use computers and maintain the system set in place

SKILLS

- **Programming:** Python, C++, C, Git, Linux, Bash
- **Robotics:** Robot Operating System ROS2/ROS, Computer Vision, MoveIt, Gazebo, SLAM, CoppeliaSim
- **Manufacturing:** Circuit design, 3D Printing, Eagle PCB, Power Systems, Siemens Capital Electrical Systems, Fusion 360

Relevant Coursework

- **Current Courses:** ME 495: Embedded Systems in Robotics (ROS2), ME 449: Robotic Manipulation, COMP ENG 446: Microprocessor System Design
- **Future Courses:** ME 495: Sensing, Navigation and Machine Learning for Robotics, COMP ENG 495: Connected and Autonomous Vehicles: Challenges and Design, ME 455: Active Learning in Robotics, ME 333: Intro to Mechatronics