James Oubre

oubrejames@gmail.com 337-257-3119 linkedin.com/in/james-oubre github.com/oubrejames

Portoflio: oubrejames.github.io

EDUCATION

Northwestern University **Evanston, IL**

M.S. in Robotics - Expected Graduation Aug. 2023

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.
- Used Python and OpenCV to detect surface defects in fiber glass and autonomously polish it with a UR5e 6 DoF robot arm

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 with Siemens Capital Electric Systems
- 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
- Used circuit diagrams to solder PCBs, assemble box builds, wire power and communication lines, and debug electrical issues
- 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

7 Dof Robot Arm Making Hot Chocolate *Dec 2022*

- Programmed a Franka Emika robot arm using ROS2 and Python to autonomously make hot chocolate
- Used fiducial markers and the ROS2 TF2 package to find the location of the hot chocolate components relative to the robot
- Developed a Python API for the ROS2 Moveit package and used it to control the robot's movements

Electromyography (EMG) Controlled Robotic Manipulator *Dec 2022*

- Manufactured and programmed a robotic manipulator in C to open and close based on opening or closing of a user's hand
- Used EMG muscle sensors to sense user hand position and force sensitive resistors to detect that objects were properly grasped

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 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

Extended Kalman Filter (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

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

SKILLS

- **Programming:** Python, C++, C, Git, Linux, Unit Testing, 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