

Joseph G. McGrath

EDUCATION

University of Notre Dame

Bachelor of Science, Electrical Engineering
with Honors Thesis

Notre Dame, Indiana, May 2019

GPA 3.96

Summa cum laude

University of Oxford Visiting Student Program

Electrical Engineering

Oxford, England, 2017 – 2018

EXPERIENCE

Epic Systems

Software Developer

Madison, Wisconsin

August 2019 – Present

- Designed strategy to merge questionnaire frameworks with the goal of reducing maintenance by 50%
- Developed rapid solutions to support COVID-19 workflows in MyChart

Notre Dame Computer Vision Research Lab

Research Assistant

Notre Dame, Indiana

June 2018 – June 2019

- Created open source presentation attack detection baseline for iris recognition using OpenCV and C++
- Trained and optimized SVM, random forest, and MLP models for cross dataset testing

Professor Tsung-Yi Ho, National Tsing Hua University

Research Assistant

Hsinchu, Taiwan

May 2017 – July 2017

- Explored methods to produce 3D cell images from low resolution CMOS sensors
- Designed a system for cell recognition using holographic cell imaging and extreme learning machines

PROJECTS

Row Tracker

Senior Design

Notre Dame, Indiana

Spring 2019

- Implemented I2C connection in C to send data from inertial measurement unit to BLE microcontroller
- Used a state machine to send notifications over Bluetooth when certain threshold values were met

Road Scene Segmentation

Artificial Intelligence

Notre Dame, Indiana

Fall 2018

- Programmed a system for lane detection using OpenCV and Python
- Implemented object identification in road scene images using DarkNet neural network framework

Lego Football

Control Systems

Oxford, England

Spring 2018

- Created a control loop based on Lego NXT dynamics to allow the robot to stand on two wheels

Memory Architecture

Microelectronics

Oxford, England

Spring 2018

- Designed memory schematics for use with an 8-bit microprocessor in Cadence Virtuoso

SKILLS

C, C++, OpenCV, MATLAB, Python, NoSQL, Control theory, Oscilloscope

HONORS

Boeing Engineering Scholarship Recipient

Eta Kappa Nu

Brennan Scholar, University of Notre Dame

Dean's List, University of Notre Dame

Tau Beta Pi

Engineering Scholars Program, University of Notre Dame