

203 S. Sixth Street | Champaign, IL 61820 | Room 102 smodi9@illinois.edu | (847) 890-3506

#### **EDUCATION**

**University of Illinois at Urbana-Champaign** 

College of Engineering: **Computer Science** 

CS 225 (Data Structures) | James Scholar Honors

May 2021

GPA | 4.00/4.00

### **PROFESSIONAL EXPERIENCE**

Distributed Autonomous Systems Laboratory, Undergraduate Research Assistant

Collaborated on a fully-autonomous robotic solution to phenotype a plot of crops

• Developed tests that simulate real-time performance in the field

• Developing **vision** algorithms to detect plant characteristics

Aug 2018 – Present

Jan 2018 – May 2018

Urbana, IL

Naperville, IL

Swarm Robotix, Software Engineering Intern

• Designed software architecture for an autonomous swarm of MACJAC robots

Wrote vision algorithms with OpenCV that detected and tracked corner castings

Researched Convolutional Neural Networks to improve vision accuracy

• Implemented SLAM with A\* path planning for real-time navigation in the environment

May 2018 – Aug 2018

**Knowles Electronics,** Software Engineering Intern

Fully built and configured a Linux cluster to be used as a database

Tested microcontrollers against rated specifications with an oscilloscope

Researched IC chips to be implemented in microphone testing PCBs

June 2016

Itasca, IL

# **PROJECT HIGHLIGHTS**

## ADA Sidewalk Compliance Software | Software Developer

Software that detects and analyses sidewalk panels

- Mask RCNN used to isolate sidewalk panels in image
- Developing faster segmentation techniques
- Developing point cloud analysis to detect vertical faults

## FaceTunes | Lead Developer

An app that plays a song based on current mood

- Machine learning detects emotions in an image
- Strongest emotion picked to play a song
- Spotify integration with specific mood playlists

#### **LEADERSHIP AND ACTIVITIES**

ACM SIGBot | 2017 - Present

## Software Team

- Used ROS with vision to recognize game objects
- Researched KCF and other tracking algorithms

#### **Engineering Freshmen Council** | 2017 – 2018

IT Chair, 2017 – Present

Redesigned the EFC main website

iRobotics MRDC | 2017 - 2018

### Subsystem Lead, Software Team

- Designed and built the robot's intake system
- Developed code to control various subsystems

### **SKILLS**

**Proficient** C++, Python, Java, ROS, Android Development

Intermediate OpenCV, CAD (Autodesk, SolidWorks)

Beginner Convolutional Neural Networks







