# SAHIL MODI

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## EDUCATION

### B.S., Computer Science

**University of Illinois Urbana-Champaign**

Aug 2017 – May 2021 | GPA: 4.00/4.00

## EXPERIENCE

### Research & Data Analysis Intern

**EarthSense**

Sep 2018 – Present | Champaign, IL

- Research and development of Computer Vision to recognize key plant traits through an autonomous robot platform (TerraSentia).
- Retrained a CNN that categorizes the heading of wheat into 3 classes with 90% accuracy.
- Trained a CNN on a 90-10 split dataset that classifies the lodging of wheat with 80% accuracy. Also I determined additional data collection needs to address shortcomings of the model.
- Trained and deployed a TensorFlow model to detect and count plant stems with 96% accuracy.
- Constructed a data visualization prototype for efficient delivery of analysis to customers.

### Software Engineering Intern

**SwarmRobotix**

May 2018 – Aug 2018 | Naperville, IL

- Worked in a team of 5 people to design software architecture for an autonomous swarm of robots.
- Collaborated with 2 people to develop vision algorithms with OpenCV that detected corner castings.
- Researched Convolutional Neural Networks to improve vision accuracy.
- Implemented SLAM with A* path planning on a TurtleBot for real-time navigation in the environment.

### Undergraduate Research Assistant

**Distributed Autonomous Systems Laboratory**

Jan 2018 – May 2018 | Urbana, IL

- Improved a fully-autonomous robotic system that phenotypes a plot of crops (TerraSentia).
- Wrote scripts to automatically update individual robots to the latest software.
- Developed a user-facing configuration page on Android that sets the data mode of the robot.

## COURSES

- Data Structures, Algorithms, Architecture
- Calculus, Linear Algebra, Discrete Structures

## PROJECTS

### CU-Recycle

- Developed a convolutional neural network to determine if an item is recyclable in the Urbana-Champaign area. The network was trained with Keras and then ported to TensorFlow Lite.
- Different lighting, object variety, and recyclability were the major challenges.
- Android App launched on the Google Play Store under my developer name, smApps.

### FaceTunes

- An Android application that plays music based on detected mood.
- Microsoft Machine Learning API determines emotions present in a selfie.
- Strongest emotion correlated to a playlist on Spotify.

## LEADERSHIP

### Engineering Freshmen Council

2017 – 2018 | IT Chair

- Redesigned the EFC main website.
- Helped coordinate Freshmen-Week events.

### iRobotics MRDC

2017 – 2018 | Software Lead

- Fully designed the robot's intake system in CAD.
- Developed and implemented the robot's codebase for communication and control.

## HONORS & ACHIEVEMENTS

- CU-Recyle won 2nd place at a Research Park Hackathon (PygHacks)
- James Scholar academic honors
- Tau Beta Pi engineering honors society member

## SKILLS

C++, Python, Java, Android

OpenCV, Keras, ROS

TensorFlow