



## EDUCATION

### University of Illinois at Urbana-Champaign

B.S. Computer Science, Minor in Statistics

May 2021

GPA: 3.95/4.00

**Coursework** Algorithms, Computational Photography, Deep/Machine/Reinforcement Learning

**Awards** \$5000 TechnipFMC & \$3000 TBP Hayward Scholarships, 2<sup>nd</sup> place at PygHacks, 2<sup>nd</sup> place at Clorox competition

## TECHNICAL SKILLS

**Languages** Python, C++, C, Java, Javascript, Typescript, Bash

**Frameworks** PyTorch, OpenCV, TensorFlow, Linux, Git

## PROFESSIONAL EXPERIENCE

### Amazon

May 2020 – Aug 2020

Software Development Engineer Intern

Seattle, WA

- Reduced aggregate **Javascript** asset build time by 18.5% and decreased memory usage by 11%
- Analyzed code syntax trees for unfavorable behavior, decreasing final asset size by 5%
- Designed a variant generation algorithm an **order of magnitude faster** for server built variants and client responsive variants

### Distributed Autonomous Systems Laboratory

Jan 2020 – May 2020

Undergraduate Research Assistant | Advisors: Dr. Girish Chowdhary, Dr. Saurabh Gupta

Urbana, IL

- Investigated vision-based robot heading estimation with an **self-supervised network** on **PyTorch** achieving 2 degrees error
- Devised a **supervised network** for autonomously calculate pose and drive a robot with distance to intervention of 30 meters
- Augmented video data with **homographic transformations** to simulate robot variance and increase dataset coverage

### EarthSense

Sep 2019 – Dec 2019

Computer Vision Research Intern | Advisor: Dr. Girsh Chowdhary

Champaign, IL

- Ascertained intrinsic camera matrix of Terrasentia robot cameras
- Achieved 92% accuracy for corn ear height estimation from video by fusing a **neural network** with **single view metrology**

### Northrop Grumman

May 2019 – Aug 2019

Software Engineering Intern

Rolling Meadows, IL

- Developed a **C# application** to configure and test missile warning algorithms and pulled in project schedule by 2 months
- Implemented an algorithm to calculate orientation from a set of points with singular value decomposition

### EarthSense

Sep 2018 – May 2019

Computer Vision Intern

Champaign, IL

- Trained a **convolutional neural network** with **TensorFlow** on a biased dataset to classify lodging of wheat with 80% accuracy
- Deployed a **TensorFlow ML** model to detect and count plant stems with 96% accuracy

### Swarm Robotix

May 2018 – Aug 2018

Software Engineering Intern

Naperville, IL

- Collaborated with 2 people to create vision algorithms with **OpenCV** to detect shipping container corner castings
- Applied known **SLAM** algorithms with A\* path planning on a TurtleBot for real-time navigation

## PROJECT HIGHLIGHTS

### HackIllinois Stock Analysis

- A python package discovering sentiment about a company from its tweets using NLTK and correlating it with stock price
- Linear, ridge regression**, and a **convolutional neural network** are used for prediction and compared against each other

### CU-Recycle

- Devised an Android application to report an item's recyclability status in the Urbana-Champaign area, **winning 2<sup>nd</sup>** at PygHacks
- Trained a convolutional neural network for **object recognition** with **Keras** to overcome lighting and object variance

## LEADERSHIP

### CS 374: Algorithms | Course Assistant

2020 – Present

- Assisting graduate TAs with office hours and grading student homework

### DGS Leader | Class Representative

2019 – Present

- Providing advice to Division of General Studies director on pre-engineering events and information

### Engineering Freshmen Council | IT Chair

2017 – 2018

- Redesigned Engineering Freshmen Council website

### iRobotics MRDC | Software Lead

2017 – 2018

- Managed a team of 3 to design and develop the robot's software stack