SAHIL MODI

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EDUCATION

B.S. Computer Science, Minor in Statistics — **May 2021**
University of Illinois at Urbana-Champaign — *GPA: 3.95/4.00*

- **Relevant Coursework:** Algorithms, Computational Photography, Deep/Machine/Reinforcement Learning
- **Awards:** $5000 TechnipFMC & $3000 TBP Hayward Scholarships, 2nd place at PygHacks, 2nd place at Clorox design 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

Distrubuted Autonomous Systems Laboratory — **Jan 2020 – May 2020**
Undergraduate Research Assistant | PI: Dr. Girish Chowdhary — *Urbana, IL*

- Investigated vision-based robot heading estimation with an **self-supervised neural network** on **PyTorch** achieving 72% accuracy
- Devised a **supervised network** for calculating robot position between rows autonomously with a binary accuracy of 75%
- Augmented video data with **homographic transformations** to simulate robot variance and increase dataset coverage

EarthSense — **Sep 2019 – Dec 2019**
Computer Vision Intern — *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 90-10 split dataset to classify lodging of wheat with 80% accuracy
- Deployed a **TensorFlow ML** model to detect and count plant stems with 96% accuracy
- Proposed additional data collection metrics to address overfitting

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 CNN 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 2nd** at PygHacks
- Trained a convolutional neural network for **object recognition** with **Keras** to overcome lighting and object variance

LEADERSHIP

DGS Leaders | Class Representative — **2019 – Present**

- Providing advice to Division of General Studies director on pre-engineering events and information
- Serving on engineering student panel for prospective and incoming students

Engineering Freshmen Council | IT Chair — **2017 – 2018**

- Redesigned Engineering Freshmen Council website

iRobotics MRDC | Software Lead — **2017 – 2018**

- Designed the robot's codebase for communication and control