SAHEJ SINGH

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Education

University of Illinois at Urbana-Champaign   **Expected: May 2025**
BS in Computer Engineering

Coursework: Algorithms and Models of Computation, Data Structures, Discrete Structures, Computer Systems & Programming, Linear Algebra with Computational Applications, Statistics and Probability

Skills

Languages: Strong in Python and C/C++, comfortable in Java, Kotlin, JavaScript, SQL, R, MATLAB
Software & Tools: ROS Linux, Arduino, Git, Docker, Kubernetes, Android Software Development Kit, React.js, Express.js, MongoDB, Node.js, Tailwind, Flask

Experience

Quant Illinois   **Sept 2023 – Present**
Quantitative Trader   *Urbana, IL*

- Developed robust and extensible backtesting framework for organizational use
- Optimized and developed engine, order, and trade classes

Autonomous and Unmanned Vehicle Systems Laboratory (AUVSL)   **May 2023 – Present**
Research Intern   *Urbana, IL*

- Used Robotic Operating System (ROS), Gazebo, and RVIZ along with Python to develop an obstacle avoidance system for the Jackal UGV series of robots using PointCloud computer vision data from an Intel Realsense Depth Camera
- Developed a CANBus hardware to ROS2 Embedded Systems Topic node that allows developers to subscribe for vehicle robotics data
- Worked closely with graduate students to test, validate, and process thousands of frames of real-world vehicle navigation into a JSON file using Python for use in the training of autonomous navigation of automobiles

Ekal Vidyalya   **Jan 2022 – Mar 2022**
Instructor   *Boston, MA*

- Developed an online Zoom course to teach high schoolers basic machine learning, deep learning, computer science, and data science concepts using standard Python packages (Numpy, PyTorch, TensorFlow, etc.)
- Advertised course through social media and word of mouth
- Raised upwards of $1000 to fund schools in rural India

Projects

EyeOweYou | *MongoDB, Express.js, React.js, Node.js, Tailwind.css Git*   **Jun – Aug 2023**

- Full stack web app designed to keep track of money the user owes or has lent out
- Backend is a RESTful API built using Node.js and Express.js for CRUD operations with a MongoDB database
- Frontend designed in React and Tailwind styling elements with robust state management and routing
- Allows users to create an always-accessible account to track and store their expenses

ToxiShield | *Flask, PubChemPy, RDKit, HyperOptSklearn Git*   **July – Sept 2022**

- Web app that allows users to input a chemical and returns whether or not that chemical is safe to use as a pesticide.
- Designed using a Flask backend
- Utilizes the PubChem and RDKit Python APIs to generate chemical descriptors from the chemical name
- Descriptors are then input into model generated from this preprint's decision tree model, which was created using Hyper-Opt SciKit Learn

ReadingEye | *ESP32 SoC, Arduino IDE Git*   **Mar – May 2021**

- Assistive technology that allows the visually impaired to hook device on to glasses and read back text at the push of a button
- Designed entirely in Arduino programming language (C++) on the ESP32 SoC
- On button push, connects to Wifi and uses OCR to scan and read text out loud on local web server

Homewards | *Android SDK, Firebase Git*   **Mar – May 2021**

- Object-oriented Android app developed to connect the unhoused with homeless shelters and their resources
- App developed entirely in Java in Android studio with a Firebase backend and Firestore database
- Allows for homeless shelters to display remaining resources to unhoused users