Ansh Sharma

609-375-5451 | anshgs2@illinois.edu | linkedin.com/in/anshgs | anshgs.me | github.com/anshgs

Education

University of Illinois at Urbana-Champaign, GPA: 4.0/4.0 — Expected May 2024
B.S. in Computer Science, Minor in Mathematics, Chancellor's Scholar — *Champaign, IL*

Work Experience

Amazon — May 2022 - Present
Incoming Software Development Engineer Intern — *Seattle, Wa*

AbbVie — Jan. 2022 – May 2022
Machine Learning Intern — *Chicago, IL*

- Conducted research on precision medicine using Deep Learning and Image Segmentation with the Pharma Discovery team
- Transfer learned CV models to segment kidneys from MRI scans to quantify disease progression in PKD-infected mice
- Trained unsupervised models with multiomic data to create a novel quantitative imaging biomarker to predict drug response

Molecule Maker Lab Institute — Dec. 2021 – May 2022
Undergraduate Research Assistant — *Champaign, IL*

- Utilized language models for biomedical entity relationship extraction to mine reaction information from 500 research papers
- Worked with computer vision models to detect and extract structural diagrams and convert into SMILES representations

NJ Governor's School in the Sciences — July 2020 – Aug. 2020
Quantum Computing Researcher — *Madison, NJ*

- Published a research paper on the Qiskit quantum computing framework's ability to execute various quantum algorithms.
- Tested the frameworks accuracy with molecular simulation using the Variational Quantum Eigensolver algorithm
- Designed an original probabilistic oracle to pair with Grover's algorithm in order to optimize solving a partitioning problem

Activities & Honors

NeuroTech@UIUC — Aug. 2021 – Present
Software Developer — *Champaign, IL*

- Collected data and implemented ML models to control an RC Car using through readings from a brain computer interface
- Reached 87% live accuracy in classifying facial expressions as instructions using engineered features from the EEG data

Olympiad Awards: Putnam Top 500 - Winter 2020, USA Math Olympiad (USAJMO) Qualifier - Spring 2019, USA Computing Olympiad (USACO) Gold Division - Spring 2019, USA Physics Olympiad (USAPhO) Top 50 - Spring 2021

Research Awards: Regeneron International Science and Engineering Fair Finalist (2021), North Jersey Regional Science Fair 1st Place Computer Science (2021), Nokia Bell Labs Distinguished Research Award (2021)

Selected Projects

Style Share | *React, Redux, three.js, Tensorflow.js, Flask, Firebase Firestore, Google OAuth*

- Created website that allows users to generate 3D scenes and stylize them according to the style of another image using ML
- Used quantization and distillation to reduce TF.js model size and improve speed by 4x while running within browser
- Included authentication with Google OAuth and a gallery to upload and share photos using a cloud storage bucket

Infected & Detected | *TFLite, OpenCV, Flask, MongoDB*

- **HackIllinois 2022: Best Community & Sustainability Track Project**
- An ML based edge computing tool to help farmers get analytics on their crop health and invasive weed growth over time
- Trained an image classifier using transfer learning on MobileNetV2 to identify different types of plant diseases and weeds
- Used pruning and quantization to shrink model size further by 10x to run quickly on a Rasberry Pi with a Coral Edge TPU

Improved Quantum Cryptography with Entanglement & Signatures | *Python, Qiskit*

- Presented at the 2021 Regeneron International Science and Engineering Fair and the North Jersey Regional Science Fair
- Designed a modification of the BB84 QKD Algorithm to improve on qubit efficiency and prevent man-in-the-middle attacks
- Implemented and tested the algorithm using the Qiskit library to run algorithm on IBM cloud quantum computers

Technical Skills

Proficient: Java, Python, C++, LaTeX, SQL, Linux Shell, Git, Pytorch, Pandas, Numpy, MatPlotLib, OpenCV, Qiskit

Familiar: JavaScript, HTML/CSS, Node.js, Express, Bootstrap, Sass, Catch2, Flask, OpenGL, Tensorflow, Keras