Ansh Sharma

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EDUCATION

University of Illinois at Urbana-Champaign, GPA: 4.0/4.0   May 2025
B.S. in Computer Science, Minor in Mathematics, Chancellor's Scholar   *Champaign, IL*

WORK EXPERIENCE

AbbVie   Sept. 2022 – Present
Machine Learning Intern   *Chicago, IL*
- Working on representation learning for cell painting in a collaboration between Abbvie and Calico Life Sciences (Alphabet)

HCESC Jump ARCHES   Jun. 2022 – Sept. 2022
Undergraduate Student Researcher   *Champaign, IL*
- Researched methods to provide a standardized concussion diagnosis method using augmented reality and machine learning
- Designed and trained a transformer based deep learning architecture to learn from physician-annotated time series data
- Created visualizations with Open3D to model patient trajectories during testing and assist with generating annotations
- Submitted paper to IEEE/ACM CHASE 2022 Workshop on XR + AI Integration for Healthcare Applications

Amazon   May 2022 - Aug. 2022
Software Development Engineer Intern   *Seattle, WA*
- Developed and deployed a full-stack prototype for an upcoming greenfield AWS product using Java, TypeScript, and React
- Implemented internal authentication protocols and multi-origin CORS handling to allow call access to a Lambda API
- Designed and integrated an interactive front end into an existing AWS product to demonstrate functionality for stakeholders

AbbVie   Jan. 2022 – May 2022
Machine Learning Intern   *Chicago, IL*
- Transfer learned a 3D U-NET deep learning model to segment kidneys from MRI scans for tracking PKD in 63 mice
- Utilized multiomic data to create an imaging biomarker for predicting treatment response and cluster mice by performance
- Used Gene Ontology on SSGEA differences between groups to suggest potential pathways to explain a proprietary treatment
- 2nd author on abstract accepted as a presentation at The World Molecular Imaging Congress (WMIC) 2022

ACTIVITIES & HONORS

NeuroTech@UIUC, *Software Developer – Champaign, IL*   Aug. 2021 – May 2022
- Collected data and implemented ML models to control an RC Car using 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 (ISEF) 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*
- A 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, IBM Q*
- 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, React, Express, Bootstrap, Sass, Catch2, Flask, OpenGL, Tensorflow, Keras