Shivam Singh

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EDUCATION

California Polytechnic University, Pomona | Pomona, CA

B.S. in Computer Science | GPA: 3.79 ***2021 - 2025***

Relevant Courses: Intro to Data Science, Systems Programming, Computer Networks, Operating Systems, Big Data Analytics and Cloud Computing, Data Structures and Algorithms, Design and Analysis of Algorithms, Object Oriented Design and Programming

TECHNICAL SKILLS

Programming Languages: C++ (advanced), C (advanced), Python (advanced), **Golang (medium)**, JS (medium), Java (medium)
Tools & Frameworks: Node.js, React, p5.js, Three.js, Express.js, REST API, **Tensorflow/Keras**, Numpy, Pandas, Scikit-Learn, OpenCV, **AWS**, Google Cloud Platform, Snowflake SQL, Bash/Zsh Scripting, Linux, Network Programming (TCP/IP)

PROFESSIONAL EXPERIENCE / LEADERSHIP

Software Engineer Intern | Procyon.ai ***Summer 2024***

- Developed an extensible **Golang** script utilizing **REST APIs** to manage users, roles, and permissions across multiple platforms, including **Snowflake**, for our just-in-time Identity Governance and Administration (IGA) service.
- Contributed to the creation of a platform enabling clients to integrate their services for IGA management and manage access and privileges to cloud services such as **AWS**, **GCP**, and **Azure**.

Research Assistant | California Polytechnic University, Pomona ***Summer 2024***

Objective: Provide high-resolution, easily available images of the Eskisehir province to monitor bioethanol production.

Current results: Generate high resolution images from low resolutions using ECLSTARFM, a modified STARFM algorithm that integrates IoT devices and machine learning with LapSRN. Achieved over a **42% reduction in computation** costs by leveraging the computations divided between IoT devices and the cloud.

Ongoing Work: Further reduce cloud computing costs by enhancing image compression techniques, integrate STARFM with spectral unmixing to improve accuracy, and optimize hyperparameters to minimize loss for the LAPSRN model.

Programming Tutor | TheCoderSchool | Yorba Linda, CA ***Winter 2023 - Current***

- Tutoring children ages 9-17 in programming basics (Python, C++) and advanced topics (machine learning, web development, cybersecurity).
- Assisting students in creating personal portfolios using React and integrating LLMs like ChatGPT. Guiding students through Kaggle competitions for data science and machine learning fundamentals, and helping them practice Linux commands and cybersecurity strategies using HackTheBox labs.

Treasurer at ./script | California Polytechnic University, Pomona ***Fall 2021 - Spring 2022***

- Managed a $3,000 budget, increased club membership by 20%, and led collaborations with four computer science clubs to enhance knowledge-sharing and coordinate tech-focused activities, including scripting, cryptography, and penetration testing labs.

PROJECTS

Handwritten-AI *(Machine Learning)* ***Spring 2023***

- Collected and processed over 800,000 images of letters, numbers, and characters using OpenCV from the NIST Special Database 19. Using **Tensorflow**/**Keras**, I trained a **computer vision model** to predict images of handwritten characters.
- Achieved a final loss of 0.4810 and an accuracy of 0.8452 after extensive hyperparameter tuning. Tested various configurations including the number of hidden layers, number of nodes per layer, various activation functions, and training epochs to identify the optimal setup for improved model accuracy and efficiency.

Big Data Analytics and Cloud Computing *(Cloud Computing)* ***Summer 2023***

- Hands-on experience with **AWS** (**Lambda, S3, IAM**) and **GCP** (**Compute Engine, Kubernetes Engine**) through labs involving bash commands, query searches, and multi-cluster computations.
- Studied the **Hadoop** ecosystem (**MapReduce**, **Bigtable**, HDFS) and cluster management, gaining practical skills in deploying, managing, and optimizing cloud resources.

Personal Portfolio Website *(Full Stack)* ***Spring 2024***

- **Front-end:** Created using **React**/**JavaScript**, featuring a unique interface with generative art via p5.js and 3D elements using Three.js.
- **Back-end:** Implemented **REST APIs** for GitHub and LinkedIn integration, utilizing CORS and a backend server using **Express.js**. Currently developing an email system to handle inquiries, further enhancing the interactive experience.