Simarjeet Singh

509-432-4159 | simarjeetss509@gmail.com | in simarjeetss529 | ⌗ simarjeetss | 🌐 simarjeetsingh

EDUCATION

Washington State University — Pullman, WA
Masters in Computer Science - GPA 3.91 — *January 2024 – May 2025*
Coursework: Machine Learning, Neural Network, Data Science, Computer Vision, Artificial Intelligence, Distributed Systems

JECRC University — Jaipur, India
Bachelor of Technology in Computer Science — *August 2019 – May 2023*

TECHNICAL SKILLS

Languages: Python, R, Java, JavaScript, TypeScript, C#, C/C++, SQL, HTML/CSS
Frameworks & Libraries: PyTorch, TensorFlow, Sci-kit learn, Spring Boot, .NET Core, React, Material-UI, Node.js
Tools: Azure Blob Storage, Azure CosmosDB, AWS S3, GCP, MongoDB, MySQL, Docker, CloudFlare
Design & Architecture: Object Oriented Programming, Software Development Life Cycle, Distributed Systems, Operating Systems

PROJECTS

AgAid Digital Hackathon – Snowpack Prediction Challenge (Honorable Mention) | *Python, PyTorch, React Native, Flask*
- Developed a Transformer Neural Network model to predict Snow Water Equivalent (SWE) with 87.8% accuracy, supporting data-driven water resource management decisions in the Western U.S.
- Preprocessed and integrated 9M+ rows of spatio-temporal meteorological data from 8 unstructured datasets, leveraging chunked loading, spatial joins, and KNN imputation to enhance data consistency and model accuracy.
- Engineered and deployed a full-stack web application with React & Flask, allowing users to upload CSV files and generate real-time SWE predictions with interactive data visualizations.
- Earned an Honorable Mention for ranking in the top 3, recognized for innovative AI-driven solutions and real-time prediction capabilities.

FlavorBlend: AI-powered Fusion Recipe Generation App | *Python, Flask, Llama, Stable Diffusion, JavaScript, Node.js, Express.js*
- Built FlavorBlend, an AI-powered fusion recipe generation app in 24 hours, utilizing Meta Llama 3-8B Instruct for text generation and Stability AI Stable Diffusion XL Base 1.0 for image generation, providing real-time AI-driven recipe creation.
- Implemented a Node.js and Express.js backend for handling user inputs, generating fusion recipes, and managing data storage with MongoDB, while integrating Firebase authentication for secure, real-time sharing.
- Developed a Flask web app with HTML, CSS, and JavaScript, ensuring cross-platform accessibility on both web and mobile devices.
- Added Firebase authentication and real-time sharing to enable secure recipe generation and cross-platform sharing.
- Won "Best Gen AI App on Cloudflare" and Swire Coca-Cola Track Winner ($2,000 scholarship) at CrimsonCode'25 hosted by Major League Hacking, competing against 50+ teams and showcasing an innovative AI-driven food fusion concept.

FaceMatch: Comprehensive Face Recognition System | *Python, OpenCV, NumPy, Matplotlib*
- Engineered a robust face recognition system, implementing methods for creating, saving, and comparing face encodings using libraries such as face_recognition, cv2, and pickle.
- Processed datasets of varying sizes, ranging from 35 to 10,000 images, achieving a recognition rate of up to 96.5%.
- Created pipelines to handle datasets of up to 10,000 images, optimizing encoding techniques to automate the classification of known and unknown faces while achieving 96.5% accuracy.
- Visualized recognition rates across dataset sizes ranging from 500 to 10,000 images using Matplotlib, delivering actionable insights into performance trends and scalability.

Melody Metrics & Recommender System | *Python, scikit-learn, Spotipy, Matplotlib*
- Developed a music analysis and recommendation system by integrating Spotify API and a 160K-track dataset to deliver personalized song suggestions.
- Applied network analysis, machine learning (KMeans, PCA), artist transition networks and community detection on 10K+ personal streaming tracks to uncover listening patterns and top artists.
- Engineered a hybrid recommendation engine with 95% accuracy, optimizing feature pipelines and visualizing insights through 20+ interactive plots.

EXPERIENCE

Software Development Intern — July 2022 – December 2022
Cactus Communications LLC — *Jaipur, India*
- Developed RESTful APIs using Java Spring Boot for research paper ingestion and user activity tracking, processing 500,000+ publications and 1M+ user activities.
- Optimized MongoDB queries, improving data retrieval performance by 40%, ensuring efficient handling of large-scale datasets.
- Implemented search capabilities, allowing precise filtering by keywords, authors, and journals, resulting in a 15% reduction in search time and improved user satisfaction.
- Collaborated with the frontend team to integrate APIs seamlessly into a personalized dashboard, boosting engagement by 20%.

Head of Programming Club — July 2021 – January 2022
CodeChef College Tech Club — *Jaipur, India*
- Led a team of 4 to build and grow the CodeChef Chapter, creating a vibrant programming community through events and mentorship.
- Orchestrated coding contests, technical workshops, and hackathons with 100+ participants, implementing hands-on learning strategies to enhance programming proficiency and algorithmic thinking skills.

CERTIFICATIONS

Architecting with Google Compute Engine
Google Cloud Fundamentals: Core Infrastructure