

AMIT SINGH RAJAWAT

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EDUCATION

Madhav Institute of Technology & Science, Gwalior

B.Tech in Information Technology (Artificial Intelligence & Robotics)

CGPA: 8.65

Aug. 2020 – May 2024

WORK EXPERIENCE

Software Engineer

June 2024 – Present

Kloudspot Inc.

Bengaluru, India

- Designed a **Face Recognition Algorithm** in **C++** for **1:1 Verification** and **1:N Identification**, achieving a global rank of **277** in 1:1 Verification and **59** in 1:N Identification (NIST-Face Recognition Vendor Test – FRVT).
- Trained models using **Multiple Architectures** (ResNet, ResNet with CBAM, ResNet with attention, etc.), incorporating rigorous **hyperparameter tuning**, **knowledge distillation**, and **reinforcement learning** techniques to enhance model performance and improve accuracy by **13%**.
- Developed an **FRS Analysis Tool** using clustering techniques and a **FRS Registration Tool** in **Python**—implementing detection, landmark processing, and recognition for multi-pose registration with real-time tracking and visualization.
- Engineered and maintained scalable **data pipelines** for real-time facial recognition data; integrated **CI/CD practices** for automated deployment and continuous improvement of deep learning models in production environments.
- Collaborated with product managers and analytics teams to define key performance metrics, conduct exploratory data analysis, and optimize ML solutions that drive operational efficiency and business impact.

Software Engineering Intern

Feb 2024 – May 2024

Kloudspot Inc.

Bengaluru, India

- Engineered a high-performance **computer vision inferencing framework** in **C++** using **GStreamer**, **OpenVINO**, and **DLStreamer**, resulting in a **9%** improvement in processing speed.
- Implemented **gRPC** and a **GStreamer RTSP Server** for efficient client-server communication and low-latency video broadcasting—aligning with real-time solution needs.
- Optimized pre-processing and post-processing workflows, increasing model prediction accuracy and system efficiency for large-scale data handling.

Machine Learning Intern (LOR)

Dec 2023 – Jan 2024

Indian Space Research Organisation (ISRO)

Bengaluru, India

- Developed a **vision-based satellite pose estimation system** using the **HRNet algorithm**, iterative hyperparameter tuning, and real-time processing optimizations to achieve **90%** accuracy in landmark detection across diverse and challenging imaging conditions.
- Integrated **deep landmark regression** and **nonlinear pose refinement** techniques, reducing error rates by **15%** through extensive model training.

Amazon ML Summer School

Sept 2023 – Oct 2023

Amazon

Virtual

- Implemented various **machine learning algorithms** using advanced **Python libraries**, achieving over **95%** accuracy across multiple projects.
- Worked on projects involving **sequence modeling** and distributed data processing frameworks, preparing models for high-throughput, low-latency applications.

PROJECTS

StoryCraftAI - Infinite Possibilities in Every Story | Python, TensorFlow, Keras, NLP, Pandas, Huggingface, CI/CD

(Link)

- Developed** and **optimized** a suite of **deep learning models** for **story generation** using advanced NLP techniques. Improved model accuracies: GRU increased by **13.46%**, LSTM by **33.53%**, Bidirectional-LSTM by **25.32%**, and Bidirectional-GRU by **9.91%**.
- Integrated** an interactive **Flask-based web interface** for **real-time story generation** and **deployed** the solution via **CI/CD** on **Hugging Face Spaces**.

GestureSymphony - Control Video Playback Using Your Hands | Python, OpenCV, MediaPipe, Pygame, Flask, NumPy, Bootstrap

(Link)

- Engineered a real-time **hand gesture recognition** system using **MediaPipe Hands** and **OpenCV** for detection and control, demonstrating strong **computer vision** and **ML** integration.
- Enhanced system efficiency by implementing **lazy loading** and containerizing with **Docker**; established a robust **CI/CD pipeline** for continuous deployment on cloud platforms like **Render**.

Snake Game Using RL With Neural Network | Python, TensorFlow, Keras, Matplotlib, NumPy

(Link)

- Enhanced gameplay** using **Q-learning**, improving the agent's performance through trial and error and state-space representation, and used **boolean features** to improve decision-making and gameplay strategies by **20%**.
- Visualized agent performance and evolving strategies with **animated plots** for deeper understanding, improving analysis efficiency by **10%**.

Some Other Projects: Movie Recommendation System with GUI, Rainfall Prediction Using ML, Text Classification with Tensorflow

PUBLICATIONS

- A. Rajawat, A. Manjhi and A. Srivastava, "Categorization of IRIS Flower using Different Machine Learning Strategies," [paper].
- A. Manjhi, A. Rajawat and A. Srivastava, "Design and Analysis of Programmed Face Monitoring System," [paper].
- Rajawat, A.S., Srivastava, A., "Recognition of Parkinson's Ailment by Using Various Machine Learning Procedures." Current Psychology Journal (2024). [paper].
- On Heart Disease** (Communicated in Journal).

TECHNICAL SKILLS

- Programming Languages:** C/C++ (Proficient), Python (Proficient), JavaScript, HTML/CSS, LaTeX, Shell, MySQL
- Developer Tools & Frameworks:** Git, GitHub, Linux, Docker, VS Code, ONNX, AWS, CI/CD, MLOps
- Libraries:** Pandas, NumPy, PyTorch, TensorFlow, Scikit-learn, Flask, OpenCV, Transformers (LLM, GenAI), MXNet, Keras, LLMs
- Coursework:** DBMS, Machine Learning and Optimization, OS, DSA, CN, Robotics, Computer Vision, NLP, AI

ACHIEVEMENTS

- Leetcode:** 850+ Problems Solved & 1765+ Rating (**Profile Link**), **GFG:** 320+ Problems Solved (**Profile Link**),
- Selected for **IIT Madras Pravartak Undergraduate Fellowship 2023-24** (among 72 in India) (**Link**)
- Certifications:** Advanced Learning Algorithms, DeepLearning.AI TensorFlow Developer Specialization, Machine Learning