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SONI

EDUCATION

Sharda University, Gautam Buddha Nagar, India *August 2023 - May 2025*
Master of Science - Data Science and Analytics — CGPA: 8.978

MGKVP University Varanasi, India *July 2019 - August 2022*
Bachelor of Science - Mathematics — Percentage - 73

EXPERIENCE

Machine Learning Intern
Team Of Keys, Noida, Gautam Buddha Nagar, India, On-site *April 2025 - Present*
Data Science Intern
LearnNex, Tripura (West), India, Remote *Sep 2024 - Nov 2024*
Data Science Intern
Digisamaksh, Greater Noida, India, On-site *May 2024 - July 2024*
Data Science Intern
Oasis Infobyte, New Delhi, India, Remote *April 2024 - May 2024*
Mathematics Tutor
Qalp Educare, Varanasi, India, On-site *October 2022 - August 2023*

ACADEMIC PROJECTS

- **Research-Based Learning Project — Generative Models in Machine Learning** *Sharda University, Master's Program*
  Conducted an in-depth academic study on **GANs, VAEs**, and **Autoencoders**, exploring their application in *image generation, reconstruction*, and *unsupervised feature learning* for computer vision.
- **Community Connect Project (SDG-8)** *Sharda University*
  Conducted village surveys under SDG-8 initiative, analyzed 100+ responses using **SPSS** and statistical hypothesis testing; created actionable insights and community development metrics.

PROJECTS

- **Real-Time Unreal Engine Chatbot using LLMs and Model Context Protocol (In-progress)** — Designed an intelligent game-based chatbot by integrating **LLMs**, **Model Context Protocol (MCP)**, and **Unreal Engine 5**. Focused on enabling real-time conversational AI within 3D environments using dynamic prompt routing and immersive NPC interactions. Explored Blueprint scripting and Python API for early-stage integration. The project is ongoing and highlights cutting-edge work in AI-driven gaming interfaces.

- **Fine-Tuning LLaMA-2 Chat Model on Multilingual OCR Dataset(On-going)** — Fine-tuned LLaMA-2-7B-chat on multilingual scanned manuscript data using **LoRA, QLoRA, and PEFT** Extracted text with PyMuPDF/PyPDF2, processed data into structured instruction format, and trained using Hugging Face Transformers. Optimized memory usage but faced issues due to small chunk size and limited training steps.

- **Multimodal Emotion Recognition System** — Developed a real-time multimodal emotion recognition system using Python, integrating facial **(DeepFace)**, speech **(SpeechRecognition)**, and text-based **(Transformers)** emotion analysis. Designed an interactive Streamlit UI for both webcam and video input, with visualizations via **Plotly**. Implemented a contradiction detection algorithm to identify inconsistencies across modalities. Enabled live speech-to-text conversion for dynamic emotion tracking and built a complete pipeline for sentiment fusion and dashboarding.

- **Multilingual PDF Chatbot (Bengali–Sanskrit)** — Designed and built an intelligent chatbot using **Python, FastAPI, Google Cloud Vision & Translation APIs**, and **LLaMA 4**. Extracted text and images from multilingual PDFs, performed OCR via Vision API, translated content using Translation API, and generated structured *log files* for each document.

- **Autonomous Agent Development with n8n** — Developed autonomous agents using the **n8n** platform by integrating APIs such as **OpenAI, Mistral, Apify, Apollo.io, Google Cloud**, and **Tavily Search**. Automated workflows for LinkedIn content creation, email scheduling, invoice processing, and Google Drive operations. Built a customer-facing chatbot with real-time data enrichment through web scraping and search-optimized RAG pipelines, enhancing productivity and intelligent automation across multiple business functions.

- **Multi-Agent Chatbot Web App** — Developed a powerful multi-agent chatbot using **JavaScript, HTML/CSS, Tesseract.js**, and **Groq's LLaMA API**. The app features two distinct modes: Agentic Chat for document-based, multilingual QA (supports PDFs, Word files, and OCR-enabled images), and Global Chat for open-domain AI conversations — bringing intelligent automation to everyday document interaction.

- **Football Player Tracking** — Created a real-time player detection and tracking system using **YOLOv5** and **YOLOv8** and **Dense Inverse Search (DIS) Optical Flow**. Built custom datasets on **Roboflow** and generated tactical insights with **Python, OpenCV**, and **Matplotlib**. The system supports performance analysis through automated visualizations and speed/movement heatmaps.

- **Smart Vision Face Recognition** — Built a real-time face detection and recognition system using **OpenCV (v4.5+), Python**, and the **Haar Cascade Classifier**. The application identifies known faces in live video streams and features a clean user interface using **Tkinter**. Optimized for speed and accuracy in real-world environments.

- **Unemployment Data Analysis Using Python** —Performed in-depth Exploratory Data Analysis (EDA) on multiple unemployment datasets totaling over **500,000 entries**. Utilized **Python (Pandas, NumPy, Matplotlib, Seaborn)** to clean, analyze, and visualize trends. Applied statistical methods and created comparative charts to identify regional unemployment shifts, improving data insights and reporting efficiency by 20 percent.

- **Stock Price Predictor** — Created a stock price forecasting tool using **TensorFlow** and **yfinance** for historical data. Implemented **LSTM-based neural networks** to predict future stock values. Built an interactive dashboard using **Streamlit** for live visualization.

- **Movie Recommendation System** — Built a recommendations engine using **text vectorizations** and **collaborative filtering**, improving recommendations. Deployed using Streamlit, achieving increase in user engagement.

- **Zomato Data Analysis** — Analyzed Zomato restaurant dataset using NumPy and Pandas. Performed data cleaning, preprocessing, and exploratory data analysis **(EDA)** to uncover trends in customer ratings, pricing, and delivery options. Visualized insights using **Matplotlib** and **Seaborn**.

- **WhatsApp Chat Analyzer** — Developed a tool to analyze exported WhatsApp chat files using **Python** and **NLP techniques**. Extracted key insights like most active users, peak activity hours, frequently used words, and sentiment trends. Visualized findings with Matplotlib and Seaborn to support communication pattern analysis, helping users make data-driven decisions about their messaging behavior.

TECHNICAL STRENGTHS

- **Programming Languages:** Python, C, SPSS, R
- **Libraries & Frameworks (ML/DL):** TensorFlow, PyTorch, Scikit-learn, Transformers (HuggingFace), DeepFace
- **NLP & OCR:** Tesseract.js, Google Cloud Vision API, SpeechRecognition, PyMuPDF
- **Fine-Tuning & LLMs:** LoRA, PEFT, LLaMA 2, OpenAI APIs, Groq's LLaMA API
- **Computer Vision:** OpenCV, Haar Cascade, YOLOv5, YOLOv8, Dense Inverse Search (DIS) Optical Flow
- **Data Analysis & Visualization:** Pandas, NumPy, Matplotlib, Seaborn
- **Automation & Agents:** n8n, RAG pipelines, Apollo, Tavily
- **Web & App Development:** Streamlit, FastAPI, Tkinter
- **Cloud & APIs:** Google Cloud Platform (Vision, Translation), yFinance, OpenAI API
- **Dashboard & Visualization Tools:** Streamlit, Tkinter
- **Deployment Tools:** Streamlit, Web-based apps with HTML/CSS/JS
- **Data Sources & Platforms:** Roboflow, WhatsApp exports, Zomato dataset, multilingual OCR datasets

CERTIFICATIONS

Data Structures and Algorithms in Python(Geeks For Geeks)-Ongoing
Learn Python Programming- Beginner to Master(Udemy)
Building Language Models on AWS (AWS)
Big Data Hadoop and Spark Developer Training(Simplilearn)
MongoDB Developer and Administrator(Simplilearn)