Elrhea De Souza

AI/ML Enthusiast

+917507927242 | elrheadesouza@gmail.com | Goa, India | LinkedIn:Elrhea Desouza | GitHub:ElrheaDeSouza

SUMMARY

AI/ML | Python | Computer Vision | Predictive Modeling
Passionate and detail-oriented AI/ML learner with practical experience building machine learning models on real-world datasets. Proficient in Python, R, and SQL, and comfortable using libraries such as Scikit-learn, TensorFlow, Pandas, and OpenCV. Skilled in data cleaning, exploratory data analysis, model training, and performance evaluation. Familiar with tools like Jupyter Notebook and Google Colab for experimentation. Eager to apply AI to solve real-world problems while continuously improving through hands-on projects and learning.

EXPERIENCE

Cloud Engineering Intern   Jul '25 — Sep '25
IMMO Pvt Ltd   Merces, Goa, India
- Migrated legacy on-premise product to AWS Cloud, enhancing scalability, cost efficiency, and system reliability.
- Performed cost–benefit analysis of AWS services (Lambda, S3, EC2, API Gateway, IAM) with documented pros, cons, and alternatives.
- Designed cloud architecture & API flowcharts, enabling seamless Lambda–frontend integration; hosted UI on S3 with CI/CD via GitHub Actions.
- Utilized Terraform for Infrastructure as Code (IaC) to automate resource provisioning and accelerate deployment cycles

EDUCATION

Bachelor's in Computer Engineering, Agnel Institute of Technology and Design, India   India
- **Concentrations:** Artificial Intelligence/Machine Learning and Cloud Computing .
  Related Coursework: Database Management and Query Processing, Computing in Python, Object Oriented Programming, Machine and Deep Learning, Cloud Computing, Computer Networks.

PROJECTS

ML-Powered Flask API with n8n Workflow & Webhook Integration Link
- Built an end-to-end house price prediction system by integrating a trained ML model from Google Colab with a Flask API hosted on Replit, and triggered predictions via n8n workflows using webhooks to enable automated, real-time inference.
- Streamlined the delivery process by automating result notifications through n8n's email module, reducing manual communication overhead and improving turnaround time for insights.
- Maintained clean and secure project structure using Git, GitHub, `.env`, and `.gitignore`, to support scalable collaboration and protect sensitive configuration data.

FAISS BookSearch VectorStore Link
- Developed a semantic book recommendation and search system using FAISS for efficient vector-based similarity search over book embeddings.
- Generated vector embeddings using `nomic-embed-text` model for book metadata and descriptions, enabling semantic search via FAISS.
- Enabled fast, context-aware retrieval by integrating a vector store with Python and improving search relevance through cosine similarity ranking.

Emotion Detection System Link
- Engineered a real-time facial emotion detection system using OpenCV, Haar Cascades, and a CNN model trained with TensorFlow, achieving accurate classification of emotions such as happy, sad, and angry.
- Designed a user-friendly dashboard to visualize detected emotions and performance metrics, using Matplotlib.
- Ensured data privacy by running all emotion predictions locally without storing facial data, improving trust and usability for privacy-conscious users.

CERTIFICATIONS

Introduction to Large Language Models   Jun '25
Google Cloud - Coursera
Studied the fundamentals of Large Language Models (LLMs), their use cases across industries, and the concept of prompt tuning to tailor model responses effectively.
Explored Google Cloud's Generative AI development tools like Vertex AI and Model Garden to experiment with fine-tuning and deploying custom AI models in real-world scenarios.

AWS APAC Solutions Architecture virtual experience program on Forage   Mar '25
Forage
Designed and simple and scalable hosting architecture based on Elastic Beanstalk for a client experiencing significant growth and slow response times. Described my proposed architecture in plain language ensuring my client understood how it works and how costs will be calculated for it.

Verizon Cloud Platform Job Simulation   Mar '25
Forage
Completed a job simulation involving building a hypothetical new VPN product for Verizon's Cloud Computing team.
Used command line Python to test whether Verizon's VPN met the cloud-native traits, i.e. redundancy, resiliency and least-privilege.
Researched approaches to achieve application security.

Wells Fargo Software Engineering Job Simulation   Mar '25
Forage
Understood relevant requirements for building a system to manage financial portfolios,Figured out what data the system needed to keep track of. Drafted a visual representation of the data as an entity relationship diagram (ERD).
Used the IntelliJ developer application to implement the ERD and published it to GitHub.

SKILLS

Programming Languages: Python, C/C++ STL, R
ML Libraries: Scikit-Learn, TensorFlow, Keras (Neural Network Library), PyTorch, NumPy, Pandas, Matplotlib, OpenCV
Web/Frameworks: React.js, Node.js, Apache Hadoop, PyQt
Data Bases: MySQL, MongoDB, Oracle
Tools: Vscode, Git, GitHub, Jupyter Notebook, Google Colab
Soft Skills: Problem Solving, Critical thinking, Time Management, Communication, Team Work