Jonas Chris Ferrao

Goa, India
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EDUCATION

Don Bosco College of Engineering **Jun 2021 - Jun 2025**
Bachelor Of Engineering *- CGPA - 8.08/10.0* *Fatorda, India*

- Honors: Artificial Intelligence and Machine Learning

Relevant Coursework: Mathematical Foundations for AI & ML, Artificial Intelligence, Machine Learning, Neural Networks & Deep Learning, Soft Computing, Data Science & Analytics, Speech & NLP, Applications of AI

EXPERIENCE

Avyott **Dec 2024 - May 2025**
Software Engineering Intern *Remote*

- Enhanced a production voice agent by implementing **multilingual** and **low-latency** capabilities, leveraging **Telephony**, **STT**, **LLM**, and **TTS**, and integrated the **Model Context Protocol (MCP)** to streamline modular integration.
- Optimised audio processing pipeline, achieving **1750×** speed-up.
- Reduced LLM tool call overhead, cutting response times by **50%** and LLM costs by **50%**.

NIT Goa **July 2024 - Aug 2024**
AI/ML Research Intern *Remote*

- Finetuned **3 Deep Learning Models** for bone disease classification achieving **94% accuracy**.
- Built a T-score prediction model from X-ray images, ensuring results within **±0.25 units**, **85%** of the time.

Velocilabs **July 2024 - Aug 2024**
Software Intern (Fullstack) *Remote*

- Developed **3 full-stack web applications**: a URL shortener (**Golang**, **SQLite**, **React**), a real-time chat app (**Next.js**, **WebSockets**, **MongoDB**), and OsteoAI (**Flask**, **TensorFlow**, **React**).
- Built **REST APIs**, integrated **WebSocket** communication, and deployed medical application focused **ML** models.

TheKode.Biz **Mar 2024 - June 2024**
AI/ML Engineer Intern *Remote*

- Developed **3 Machine Learning** models for **Time Series forecasting**.
- Integrated models in an **AutoML** application.

StartupXY **July 2023 - Jan 2024**
Data Science (AI/ML) Intern *Remote*

- Contributed to development of a **MVP** and collaborated with 2 senior data scientists.
- Engineered **5 ML pipelines** with **10+ scripts**, integrating **NLP, CV, SER, SR** based models.

PROJECTS

Photometric Redshift Estimation using ML Code | arXiv **June 2024 - Ongoing**

- Compiled one of the largest up-to-date datasets (∼**400k** samples) for ML-based redshift estimation.
- Outperformed existing methods, clearing **2/3** LSST redshift estimation metrics for $\mathbf{z \leq 3}$.
- Wrote a custom **Triton kernel** that achieved a **9x speedup** over the PyTorch implementation.

EmployAI | Flask, PyTorch, HuggingFace, Redis **Jan 2024 - May 2024**

- Leveraged 3 **LLMs** to analyse job descriptions and user profiles, generating tailored cover letters.
- Implemented a **RAG** system for generating personalised interview questions/answers based on job description and user profile.

Finance Metrics | Tensorflow, Keras, Django, Docker, Azure, MongoDB **Apr 2023 - May 2023**

- Designed a web-based platform in **Django** to forecast **live** stock prices of **7 leading Tech Companies**.
- Created CNN-LSTM neural network for stock price prediction with a **12% error rate**.
- Applied **Agile** methodology and utilised **GitHub Actions** for streamlined **CI/CD** to **Azure**.

PUBLICATIONS

Template-fitting meets deep learning | DOI **April 2026**

- A physics-guided neural network combining template fitting and deep learning for photometric redshift estimation.
- Published in JAA (Springer Nature), an internationally recognised SCI-Indexed journal.

GCBLANE arXiv | **March 2025**

- A graph-enhanced convolutional BiLSTM attention network for transcription factor binding site prediction trained on the 690 ENCODE ChIP-Seq datasets.

Skills & Technologies

Languages: Python, R, C/C++, Go

Machine Learning: Jupyter Notebook, TensorFlow, Keras, PyTorch, Scikit-learn, RAPIDS

Web Development: FastAPI, Django, Flask, CSS, HTML, JavaScript, PHP

Databases: MongoDB, MySQL, Redis, Pinecone, SQLite

MLOps: Git, GitHub, Azure, Docker, ONNX, Triton, MLflow, W&B

Certifications

- **Applied Accelerated Artificial Intelligence - NPTEL**
- **Google Cloud Generative AI Virtual Internship - AICTE**
- **Google AI-ML Virtual Internship - AICTE**
- **Altair Data Science Master Virtual Internship - AICTE**
- **Machine Learning for Engineering and Science Applications - NPTEL**
- **Machine Learning with Python - freeCodeCamp**
- **DevOps Fundamentals - Udemy**
- **Competitive Programming - NPTEL**

Achievements

- **1st Place - Tech Mania 2k25 (DBCE, Fatorda):** Won the annual Final Year Project competition for PREML.
- **2nd Place - Technothon-3.0 2025 (GEC, Farmagudi):** Developed an AI-assisted music composition tool for a 24 hour hackathon.
- **1st Place - IEEE PaperQuest 2024 (DBCE, Fatorda):** Presented research titled "Advancing Transcription Factor Binding Site Prediction with Deep Learning".
- **1st Place - HackQuest at TechTwister 2024 (RIT, Shiroda):** Won a coding contest involving DSA, SQL, and debugging.
- **1st Place - Tech-It-To-Crack-It at TechTwister 2024 (RIT, Shiroda):** Won a competitive coding contest among state-wide participants.
- **Contributed to Evidently during GitHub Hacktoberfest 2024:** Implemented BERTScore feature for LLM evaluation, enhancing the Evidently framework.
- **Upwork Freelancing:** Completed two deep learning research projects, earning 5-star ratings for both.
- **Team Leader - Retrieval Sages at Inspirus 2023 (DBCE, Fatorda):** Led a team in successfully organizing a state-wide programming contest.