Amogha Y A (He/Him)

+91-7337621608 | y.a.amogha@gmail.com | linkedin.com/in/amogha-ya/ | github/thatblackfox

I am a Computer Science and Engineering student specializing in Artificial Intelligence and Machine Learning, with experience working on freelance and corporate projects. I am particularly interested in developing backend systems that integrate seamlessly with intelligent applications. While still exploring the breadth of my field, I actively apply my skills across diverse domains, combining adaptability with a passion for solving problems.

EDUCATION

Vidyavardhaka College Of Engineering　　　　　　　　　　　　　　　　　Mysore, Karnataka
Bachelor of Engineering in Computer Science (AIML) (84.2% — 2.36/3)　　　Dec. 2022 – Dec. 2026

TECHNICAL SKILLS

Backend Technologies: FastAPI, Django, Flask, Docker, Firebase, Microsoft Azure, AWS, Vertex AI
Databases: PostgreSQL, Microsoft SQL Server, Firebase Realtime DB
Languages: Python, JavaScript, Java, C++, SQL
DevOps Tools: Git, Docker, Azure DevOps, Firebase Hosting, VS Code
ML Frameworks: PyTorch, TensorFlow (Keras), SpaCy, Optuna, Flower, Scikit-learn
Others: Pandas, NumPy, Matplotlib, Seaborn, NLTK, SimpleITK

EXPERIENCE

ML Research Intern　　　　　　　　　　　　　　　　　　　　　　Feb. 2025 – Present
National Institute of Technology - Karnataka　　　　　　　　　　*Mangalore, Karnataka*

- Developed a backend pipeline to convert bounding boxes on full CT scans into segmentation masks using patch-trained models, achieving a **dice score of 95%**.
- Built an image processing workflow to generate Chest X-rays and segmentation masks using DRR for dataset creation.
- Contributing to a lung cancer detection system using multi-modal deep learning models under Prof. Annappa B.
- Project is funded over 30L by the **Core Research Grant (CRG)** from the Science & Engineering Research Board (SERB), **Govt. of India**.

ML Research Intern　　　　　　　　　　　　　　　　　　　　　Apr. 2024 – Nov. 2024
M.S. Ramaiah Institute Of Technology　　　　　　　　　　　　　　*Bangalore, Karnataka*

- Deployed a cry classification model using **FastAPI** and **Gradio** for real-time inference on an on-premise server.
- Utilized **PyTorch**, **scikit-learn**, and **Optuna** to train and optimize a ResNet-18 + LSTM model.
- Achieved an **F1 score of 94%** on the Baby Chillanto dataset, outperforming baseline models.
- Collected and preprocessed neonatal cry audio from Ramaiah hospitals and public datasets.

AI Engineer Intern　　　　　　　　　　　　　　　　　　　　　Aug. 2023 – Jan. 2024
Samiteon LLC　　　　　　　　　　　　　　　　　　　*(Remote) Louisville, Kentucky*

- Built and deployed REST APIs on **Microsoft Azure** for healthcare applications using risk stratification models.
- Developed an agentic backend analyst using **LangChain** and **OpenAI APIs** to extract insights from **Microsoft SQL Server**.
- Collaborated with the ML team on **pregnancy** and **geriatric** patient risk prediction models.
- Utilized **Scikit-learn**, **PyTorch**, and **Polaris** for ML model development and evaluation.

Freelance Backend Developer　　　　　　　　　　　　　　　　Sep. 2022 – Sep. 2023
Upwork　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Remote*

- Worked on 6+ backend-focused projects with over $800+ in earnings and excellent client reviews (Achieved a 4.7+ rating and 100% job success score).
- Designed and deployed RESTful APIs and bots using **Python**, **FastAPI**, and **Discord.py** for diverse use cases including gaming and admin automation.
- Handled real-time data, user role logic, and internal admin features for Discord servers using secure backend workflows.
- Deployed and maintained projects using **Docker** and hosted on platforms like **Heroku** and **AWS**.
- Praised for responsiveness, code quality, and ability to ship fast, reliable solutions.

SELECTED PROJECTS

intelliDoc | *Django, Docker, Tesseract OCR, NLTK* June 2024
- Built a backend service using **Django** and **Docker** for an NLP-powered educational tool that generates quizzes and answers from textbook images.
- Used **Tesseract OCR** to extract text from images and **NLTK-based NLP models** to process and generate educational content.

Why's the Baby Crying? | *FastAPI, Gradio, PyTorch, Flower, Librosa* Sept. 2024
- Built a **federated learning** system using Flower to classify neonate cries into hunger, pain, or discomfort.
- Designed and deployed the backend using **FastAPI** to serve model inference and federated communication.
- Achieved an **F1 score of 93%** on the Baby Chillanto dataset, with only a 1% drop from centralized training.
- Provided cross-device access with a **Gradio** frontend, enabling real-time predictions.

Drug-Drug Interaction Predictor | *FastAPI, Gradio, PyTorch, SpaCy* Dec. 2024
- Built a RESTful API using **FastAPI** to serve a transformer-based drug-drug interaction prediction model.
- Used **SpaCy** for text tokenization and preprocessing, and integrated **BioBERT** for biomedical embeddings.
- Developed a device-agnostic UI using **Gradio** for easy access to backend predictions.

PUBLICATIONS

Enhanced Detection Of Microplastics Siamese Neural Networks And YoLo V5 Feb. 2025
- The conference paper proposes the use of a modified version of YoLoV5 and an extended Siamese neural network detection head for enhanced detection of MPs
- The conference proceedings are going to be published in **Springer's Lecture Notes in Computer Science (LNCS) — Q2**
- The DOI is yet to be generated.

NOTABLES

- **Top of the department** in DSA assessment test conducted by Training department with and in **top 5** for all departments of Information Sciences
- Smart India Hackathon 2025 **top 5** finalist for ML domain with over 5 Lakh participants
- Kaggle Machine Learning **Expert tier** with a rank of **3600** out of 60,000 users
- 1 Gold badge and 3 bronze on HackerRank

RELEVANT COURSEWORK

Foundations: Data Structures and Algorithms, Computer Architecture and Organization
Systems and Networking: Operating Systems, Computer Networks, Database Management Systems, DevOps
Security: Cybersecurity, Cryptography and Network Security
Artificial Intelligence & Machine Learning: Principles of AI, Machine Learning, Deep Learning, Computer Vision
Programming: Python, Java
Engineering: Software Engineering and Testing

CERTIFICATIONS

Meta Back-End Developer Professional Certificate (Coursera)
Courses Included: Introduction to Back-End Development, Programming in Python, Version Control, Introduction to Databases for Back-End Development, Django Web Framework, APIs, The Full Stack, Back-End Developer Capstone, Coding Interview Preparation

Intermediate Machine Learning (Kaggle Learn)
Topics Covered: Missing Values, Categorical Variables, Pipelines, Cross-Validation, XGBoost, Data Leakage