Tasnimul Mohammad Fahim

+880 193-490-8343 | faahim06@gmail.com | linkedin.com/in/insertfahim | github.com/insertfahim

EDUCATION

BRAC University   Dhaka, Bangladesh
Bachelor of Science in Computer Science and Engineering   *June 2021 – June 2025*
- **Relevant Coursework:** Artificial Intelligence, Data Structures, Algorithms, Database Systems, Software Engineering, Image Processing

EXPERIENCE

Research Assistant – Diabetic Retinopathy Detection   June 2024 – Present
BRAC University, Dhaka, Bangladesh
- Led development of a deep learning pipeline (CNNs, Vision Transformers) trained on 35 k fundus images, achieving **F1 = 0.87** in diabetic retinopathy detection.
- Deployed a real-time inference system that reduced diagnosis time from 5 minutes to under 30 seconds, increasing clinical throughput by **80%**.
- Engineered an image pre-processing and augmentation module, expanding training data by **50%** while reducing model overfitting by **40%**.
- Improved model F1-score by **20%** over baseline models through optimized hyperparameter tuning using Bayesian methods and 5-fold cross-validation.

PROJECTS

Genomic Variant Analysis Platform – Python, FastAPI, Modal
- Reduced genomic variant processing time to 15 seconds for the Evo2 AI platform by developing a Modal-based serverless pipeline that optimized NVIDIA H100 GPU utilization to 85%.
- Developed the Python FastAPI backend, integrating NCBI and ClinVar APIs, to process large genomic sequences (over 1 million base pairs) for advanced pathogenicity prediction.
- Designed an intuitive Next.js frontend to visualize complex genomic data and Evo2 AI predictions, significantly enhancing research workflow efficiency.

PropertyFlow - Real Estate Rental Platform – Node.js, AWS
- Architected 'PropertyFlow,' a full-stack rental platform using Node.js, to manage over **10,000 property listings** and serve **3,100 Monthly Active Users**.
- Engineered dual-role (tenant/landlord) dashboards leveraging AWS Cognito for authentication and S3 for media storage, streamlining rental application processing by an estimated **30%**.
- Implemented a Mapbox-integrated property search with optimized PostGIS (utilizing PostgreSQL) geospatial queries, reducing average property search times by **40%**.

ChatPDF - AI PDF Interaction Platform – OpenAI GPT-3.5, Langchain
- Developed 'ChatPDF,' an AI-powered platform for interactive PDF querying using OpenAI GPT-3.5, Langchain, and Pinecone vector databases, achieving **95% accuracy** (defined as exact-answer F1 score on an internal DocVQA-style dataset) in contextual responses.
- Built a scalable backend with Next.js Edge functions and Drizzle ORM, leveraging AWS S3 for storage, to process over **1,000 daily PDF uploads** (up to 50MB each).
- Implemented a real-time streaming chat interface using Next.js, enhancing user interaction speed by **60%** compared to traditional non-streaming approaches.

TECHNICAL SKILLS

Languages: Python, JavaScript/TypeScript, SQL (PostgreSQL)
Frameworks: React, Next.js, Node.js/Express, FastAPI, Flask, TensorFlow, PyTorch, Scikit-learn
Tools: AWS, Docker, GitHub Actions, Modal, Prisma, Drizzle ORM