Prakhar Langer

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Education

Manipal Institute of Technology — Bangalore, India
*B.Tech **(Honours)** in CSE-Minor in Artificial Intelligence (CGPA: 8.5/10, Top 5%)* — August 2022 - Present

Class XII (HSC) — Mumbai, India
87%, Rank 5 in Junior College — 2022

Class X (ICSE) — Mumbai, India
98.6%, Rank 3 in City, Rank 1 in School — 2020

Publications

StoryGuard: Ethical Monitoring of AI-Generated Narratives for Children — 2025
Accepted – 11th International Conference on Education and Technology (ICET 2025) — *Indonesia*

- Authors: **Prakhar Langer**, Dr. Gauri Kalnoor, Dr. Vishnu Yerlagadda.
- Developed an ethical moderation pipeline for AI-generated children's narratives using **Gemini 1.5 Flash**, integrating narrative generation and ethical evaluation across safety, inclusivity, and age-appropriateness axes.
- Curated a dataset of 500+ LLM-generated stories, manually verified and labeled to retrain system components for ethical evaluation.
- Integrated a **RAG-based querying system** and auto-rewriting module for real-time story correction and ethical enhancement.

Healthcare Prediction Pipeline using Fully Homomorphic Encryption and GenAI — 2025
Accepted – IEEE 2nd Asia Pacific Conference on Innovation in Technology (APCIT 2025) *Mysore, India*

- Authors: **Prakhar Langer**, Dr. Gauri Kalnoor, Dr. Vishnu Yerlagadda.
- Proposed a privacy-preserving healthcare prediction pipeline using the **CKKS variant of Fully Homomorphic Encryption (FHE)** for wearable health data.
- Integrated **rPPG-based heart rate estimation**, BMI computation, and RAG-based LLM recommendations for personalized health insights.
- Designed a **multi-layer authentication protocol** with device keys and security challenges ensuring zero-trust data security.

Automated Internship Posting System for Job Sites via Selenium and GenAI — 2025
Under Review – 2nd Asian Conference on Intelligent Technologies (ACOIT 2025)

- Authors: **Prakhar Langer**, Dr. Gauri Kalnoor, Dr. Vishnu Yerlagadda.
- Developed a full-stack automation framework analyzing resumes using LLMs to extract candidate skills, preferences, and match them with scraped internship listings.
- Leveraged **Gemini 1.5 Flash** to generate context-specific application responses and auto-filled them using **Selenium**, with CAPTCHA bypassing and secure credential management.
- Reduced manual workload and increased outreach speed 4×, cutting total application time from 175s to 42s.

Research Experience

Research Assistant — Apr 2025 - Present
New York University — *New York, USA*

- Developed ML pipelines with **Prof. Dennis Shasha**, integrating MIMIC-III, BigQuery, and OpenAI LLMs with in-context learning and RAG to predict diagnoses, treatments, and 2-hour test plans in simulated ICU scenarios.

Research Intern — Sept 2024 - Jan 2025
National University of Singapore — *Singapore*

- Analyzed 500+ PubMed articles and PubChem entries under the guidance of **Prof. Matthias Wacker** to extract and correlate physicochemical properties of phospholipids and drug compounds.
- Implemented an automated extraction and ML-based ranking pipeline to identify optimal phospholipids for targeted drug delivery, improving retrieval speed by 60%.

Research Assistant — Jan 2025 - Aug 2025
Manipal Institute of Technology — *Bengaluru, India*

- Developed 3 GenAI-powered systems under the guidance of **Dr. Gauri Kalnoor** and **Dr. Vishnu Yarlagadda** for ethical story moderation, academic outreach, and application automation, improving execution speed by 70%.
- Automated 200+ internship and 100+ faculty outreach processes, reducing manual effort by 90% using LLMs.

Industry Experience

Full-Stack Web Development Intern May 2025 - Jul 2025
ICICI Bank Ltd *Mumbai, India*

- Developed a responsive digital banking interface using **FlutterFlow** and **Spring Boot** to unify mobile and web platforms.
- Implemented backend workflows to automate logging of test transactions during UAT and generate downloadable PDF summaries of client–Jira interactions.
- Optimized API-based automation in the core banking system, reducing onboarding time by **20%**.

Team Lead – Capstone Project (PPO Offer Based on Performance) Apr 2025 - Jun 2025
Deloitte *Bengaluru, India*

- Led a 5-member team to design a privacy-first healthcare prediction pipeline using **Fully Homomorphic Encryption (FHE)**, shortlisted among top 10 at Deloitte Innovation Drive.
- Built a **FastAPI** backend with **AWS**-hosted model inference and a **ReactJS** dashboard for real-time monitoring and encryption latency visualization.
- Integrated **role-based access control (RBAC)** and conducted threat modeling to ensure HIPAA-compliant data security, improving compliance by **30%**.

Cloud Computing Operations Intern Apr 2024 - Jul 2024
Anunta Tech *Mumbai, India*

- Supported deployment and monitoring of **Azure Virtual Desktop Infrastructure (VDI)** for enterprise clients in finance and pharma sectors.
- Automated provisioning pipelines using **PowerShell scripting** and **Azure Resource Manager (ARM)** templates, cutting deployment time by **40%**.
- Configured **Azure Monitor** alerts and optimized VM scaling rules to maintain SLA compliance and reduce latency.

Projects

Healthcare Analytics Pipeline using FHE | ***Python, FHE, Streamlit*** Jan 2025 - Jun 2025

- Designed and deployed an end-to-end healthcare analytics pipeline using **Fully Homomorphic Encryption (FHE)** to enable privacy-preserving inference on **Fitbit time-series data**.
- Used **Concrete ML** and **TenSEAL** to compile XGBoost models for secure predictions; built an interactive interface with **Streamlit** and hosted it on **AWS**.
- Integrated **Gemini 1.5 Flash**, **FAISS**, and **LangChain** to deliver RAG-based, LLM-powered health insights; extended functionality to include encrypted **BMI computation** and **RPPG-based heart rate monitoring**.

Geo AI Crop Advisory System | ***Python, Satellite APIs, RAG Model, Twilio SMS*** Jan 2025 - Apr 2025

- Integrated **satellite imagery** and geolocation APIs to extract soil moisture, temperature, and vegetation indices.
- Deployed a RAG-based crop recommendation system, processing 50+ satellite images daily with 95% accuracy.
- Deployed SMS advisory system using **Twilio API for real-time farmer guidance.**

Old Age Home Automation using RAG + LLMs | ***Python, Gemini, LangChain*** May 2025 – Sept 2025

- Developed an AI-based personal assistant for elderly users that responds to voice commands with personalized care advice.Built a speech-enabled assistant capable of retrieving personalized information (medication, health tips, reminders) using **RAG** and **Gemini 1.5**; added a caregiver portal with remote configuration and monitoring for enhanced supervision.
- Integrated emotion-aware **TTS** and **STT** modules for natural, accessible voice-based interactions.
- Enabled two-way reminders for pill intake and emergency calls, reducing missed medication by **60%** in pilot deployment.
- Tested across three care homes with a **92% task success rate** and strong positive user feedback on comfort and clarity.

Technical Skills & Certifications

Languages: Python, SQL, Java
Tech Skills: ML, DL, RAG, NLP, Data Science, OpenCV, **LangChain**, Databases
Cloud Platforms: Google Cloud Platform (GCP), Microsoft Azure
Software Tools: Git, Selenium, TensorFlow, Flutter Flow, Supabase, **FAISS, Jupyter, VSCode**
Certifications: AZ-900, AI-900, DP-900 (Microsoft), Python for AI (IBM)