JYOTI POKHREL

Pokhara, Nepal | jyotipokhrelwork@gmail.com | linkedin.com/in/jyotipokhrel22

EDUCATION

B.Sc. Computer Science and Information Technology **GPA: 3.4/4.0**
Soch College of IT, Pokhara 7^{th} Semester · Batch Topper (2^{nd} & 3^{rd} Sem)

Microdegree in AI — Fusemachines 2025 **Nepal AI School — NAAMII** Dec 2025

EXPERIENCE

AI Engineer — SkinPal AI Mar 2026 – Present

- Engineered a RAG pipeline using LangChain and pgvector that serves personalized skincare recommendations from a curated ingredient and product knowledge base
- Shipped an acne detection computer vision pipeline to production using OpenCV, processing user-uploaded photos in real time
- Automated TikTok content pipeline — scrapes trending videos, generates scripts and captions, eliminating manual content creation
- Designed a Reddit AI agent that identifies relevant threads and drafts contextual responses, enabling zero-touch community outreach

AI Fellow — Fusemachines May – Dec 2025

- Completed 10+ projects spanning computer vision, generative modeling, and signal processing with end-to-end MLflow tracking and deployment-ready outputs

PUBLICATIONS & WRITING

- **DO-LEC: Dynamic Obstacle-Aware Largest Empty Circle** — International Journal on Engineering and Technology (INJET), 2025
- Ⓜ How RAG Works: A Beginner's Guide to Retrieval-Augmented Generation — Medium, 2025

PROJECTS

DO-LEC: Dynamic Obstacle-Aware Largest Empty Circle *INJET 2025*

- Designed a computational geometry algorithm for real-time dynamic obstacle avoidance, achieving 40% speed improvement over $O(n^2)$ baseline by introducing incremental spatial indexing that recomputes only changed regions

Repo Explainer

- Architected a hybrid RAG system combining BM25 sparse retrieval and BGE dense embeddings fused via Reciprocal Rank Fusion, returning answers to natural language questions about any GitHub repo with exact file:line citations
- Implemented AST-aware chunking with tree-sitter across 7 languages and a custom code tokenizer handling camelCase, operators, and stemming; deployed on Render via FastAPI + Pinecone + SQLite

Literature Assistant

- Built a full-stack research platform that fetches papers in parallel from arXiv, Semantic Scholar, and OpenAlex, clusters them via UMAP + HDBSCAN, and generates scored research gap reports using an LLM
- Delivered an interactive D3 cluster map with citation graph, PDF export, Google OAuth, OTP auth, and CI/CD with Playwright e2e tests

Guided Attention Learning for ECG Classification

- Improved multi-class ECG classification accuracy from 30–40% to 95.99% (F1: 0.9647) by identifying dataset stratification as the missing fix after exhausting preprocessing and architecture changes

TECHNICAL SKILLS

Core: Python, SQL, Git
AI / LLM: LangChain, LlamaIndex, RAG, pgvector, PyTorch, scikit-learn
Backend & Data: FastAPI, PostgreSQL, MongoDB, Docker, MLflow
Infra: Linux, GitHub Actions, AWS/GCP (familiar)

ACHIEVEMENTS

- Cohort 5 — Aspire Leaders Program, Harvard Business School (2025)
- Selected for NAAMII AI Hackathon at 2nd AI in Health Africa Conference
- Women in Data Conference 2025 — full travel and accommodation scholarship
- IDEATHON FemTech Category — 1st Runner-Up