

Nitesh Gautam

Nepal · niteshgautam1@yahoo.com · +977-9863180740



EDUCATION

Kathmandu Engineering College, Tribhuvan University

2019-2024

B.E. Computer Engineering

PROFESSIONAL EXPERIENCE

ThirdFactor AI, Prixa – AI/ML Engineer I

Jan 2026 - Present

- Contributing to Prixa's production KYC/identity verification platform serving banks, financial institutions, and ISPs, with major contributions to OCR (English + Nepali, digital and handwritten), passive liveness detection, and document forgery detection, alongside team contributions to 1:1 and 1:N face matching using PyTorch, Ultralytics, HuggingFace, OpenCV, and FastAPI
- Drove research initiatives including calibrated facial age estimation (Bayesian ConvNeXt) targeted for IEEE T-BIOM.
- Built multi-agent AI workflows using LangGraph, MCP, and Python to automate insurance renewal and quoting processes for a client, currently in testing ahead of deployment

Diyalo Technologies – ML/Backend Engineer (Intern & Jr. Level)

Jun 2025 – Nov 2025

- Built an agentic ticket reservation system using LangGraph, MCP tools, and Python for BusSewa, a bus ticketing platform serving thousands of daily bookings, enabling natural-language itinerary input with end-to-end route lookup, seat selection, and payment end-to-end
- Designed and developed FastAPI backend services for BusSewa, contributing to core API architecture powering daily ticketing operations at scale

ENTREPRENEURSHIP

Jumbo Eco Vehicles – Co-Founder

2019 - 2025

- Co-founded one of Nepal's early electric two-wheeler ventures during first year of my bachelor with a vision of reducing fuel dependency and emissions, scaling the business across six years before handing it over to new ownership in 2025
- Contributed to Nepal's broader EV transition, which has made the country the world's second-largest EV market by new car sales share (73%).

PROFESSIONAL ENGAGEMENT

Judge - **Google TMT Hackathon, ILPRL Lab, Kathmandu University**

- Evaluated innovative multilingual AI applications focused on English–Nepali–Tamang machine translation and language accessibility tools, assessing technical implementation, usability, and real-world applicability across participating teams

TEACHING EXPERIENCE

Click Consulting Group – IELTS Instructor

Mar 2026 – May 2026

- Led IELTS prep sessions and built a Python-based online mock test platform that provided students 24/7 access to practice exams with instant feedback through a Gemini API-powered test checker agent

Global Choice Education Consultancy – IELTS and SAT Instructor

May 2025 – Oct 2025

- Instructed students in IELTS and SAT preparation, covering all four IELTS modules and both English and Math sections of the SAT, with personalized lesson plans and mock test reviews

TECHNICAL SKILLS

Programming Languages: Python

Mathematics: Time Series Analysis, Linear Algebra, Calculus, Probability and Statistics, Numerical Methods

ML and Deep Learning Frameworks: PyTorch, Tensorflow/Keras, Scikit-learn, HuggingFace Transformers

Generative AI and LLM Tooling: Langchain, LangGraph, MCP, Vector Databases (FAISS, ChromaDB, Milvus), RAG Systems, Multi-Agent Orchestration

Computer Vision: YOLO (Ultralytics), OpenCV, Mediapipe, DeepFace, RoboFlow, Image Processing CVAT

Backend and API Development: FastAPI (Preferred), Django Rest Framework, RESTful API design

MLOps, Orchestration and System Deployment: Model Evaluation, LLM Monitoring, Performance Optimization, Apache Airflow, Docker, CI/CD Pipelines, GitHub Actions

Databases: MongoDB, PostgreSQL, MySQL

Data Engineering (Fundamentals): Basic knowledge of ETL processes, data pipelines, and modern data architectures including marts, warehouses, lakes, and lakehouse concepts

Version Control: Git, GitHub

RESEARCH AND PUBLICATIONS

Multi-Horizon Spatiotemporal Soil Moisture Forecasting for Drought Detection Across Nepal's Physiographic Zones Using an Encoder-Decoder ConvLSTM Architecture

- Designed and trained an Encoder-Decoder ConvLSTM on seven ERA5-Land variables to simultaneously forecast soil moisture at 1, 3, 7, and 14-day horizons across Nepal's five physiographic zones, the most topographically diverse domain reported in the published ConvLSTM soil moisture literature. Proposed zone-specific drought threshold calibration replacing the single-threshold convention that fails across heterogeneous terrain, supported by five-member ensemble inference and spatially adaptive bias correction. Benchmarked rigorously against persistence baselines, confirming calibration integrity at 1-day and demonstrating substantial learned spatiotemporal skill at 7-day (mean delta NSE +0.21) and 14-day (mean delta NSE +0.44) lead times. Achieved NSE above 0.97 at 1-day lead with drought detection F1 above 0.88 across all zones.

First Author · Manuscript Finalized · Will send to Preprint · Planning Journal Submission

Beyond Point Estimates: Ordinal Uncertainty-Aware Age Estimation via Bayesian ConvNeXt and Progressive Domain Alignment

- Developed a facial age estimation framework that produces calibrated per-sample uncertainty alongside every prediction, enabling deployment-time deferral on low-confidence inputs. Combined ConvNeXt-Tiny with Bayesian Monte Carlo Dropout under a four-phase progressive curriculum across five heterogeneous benchmarks. Contributed the first systematic multi-metric calibration evaluation and three-way UQ comparison (MC Dropout, temperature scaling, deep ensembles) in this domain. Found that temperature scaling's optimal value monotonically tracks dataset noise, offering a new interpretable diagnostic. Achieved MAE 2.76 on Morph-II with a 4.13x error gap between confidence quartiles on UTKFace.

First Author · Sent to Preprint · Targeted for IEEE T-BIOM