Aayush Dangol

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Summary

Computer engineering graduate specializing in **Artificial Intelligence and Machine Learning** with hands-on experience in building, training, and optimizing intelligent systems. Strong focus on applied ML, LLM-based systems, and performance optimization. Research-driven, detail-oriented, and motivated to deliver scalable, real-world AI solutions.

Education

- **Advance College of Engineering and Management**   2020 – 2025
  Bachelor's in Computer Engineering
- **Siddhartha Vanasthali Institute**   2018 – 2020
  +2 Science

Experience

- **L1 Software Engineer (AI/ML), Vivasoft Nepal — Kathmandu**   Dec 2025 – Present
  - Developed and enhanced **agentic AI systems**, improving orchestration and efficiency of LLM-based workflows.
- **Associate AI/ML Engineer, Vivasoft Nepal — Kathmandu**   Aug 2025 – Dec 2025
  - Worked on **in-house AI systems**, focusing on **RAG, AI memory management, stress testing, and comparative evaluation of different AI models**.
  - Optimized **end-to-end STS pipelines**, improving efficiency and accuracy.
  - Designed and implemented an **AI-powered job interview agent**.
  - **Deployed AI applications on GCP and AWS**.
  - Collaborated with **overseas engineering teams** on production-ready deployments.
- **AI/ML Trainee, Bajra Technologies**   Nov 2024 – Feb 2025
  - 3-Month Traineeship focused on applied machine learning and model deployment.

Skills

- **Programming:** C, C++, Python, SQL, JavaScript, HTML, CSS
- **Frameworks & Tools:** PyTorch, TensorFlow, Django, LangChain

Projects

- **VivaDai — Organizational Memory Management System**
  - Designed and developed an organizational memory platform to capture, structure, and retrieve institutional knowledge.
  - Built backend services with FastAPI and real-time collaboration using RTC.
  - Integrated Gemini LLM for intelligent knowledge retrieval and contextual responses.
  - Utilized Neo4j for graph-based knowledge modeling and Qdrant for semantic vector search.
- **Kothon Analytics Platform**
  - Served as **backend engineer**, implementing microservices in **Go and Python**.

- Designed and maintained a **microservice architecture** for scalability and reliability.
- Managed **deployment and operations on GCP**, ensuring production stability.
- Optimized **LLM token usage**, reducing outages and improving inference efficiency.

- **Aakashwani & Capricorn — AI Outgoing Call Platform**
  - Developed **backend services and admin dashboard** using **FastAPI** and **Jinja2**.
  - Integrated **PJSIP with Gemini LLM via WebSockets** to enable real-time AI-driven voice interactions.
  - Delivered a comprehensive **end-to-end calling platform**, encompassing orchestration, AI processing, and administrative control.
- **Micrograd-Inspired Autodiff Engine**
  - Developed an **automatic differentiation engine** for arithmetic operations.
  - Applied the engine to **solve linear regression problems**, demonstrating practical use of gradients.
- **CNN with Backpropagation from Scratch**
  - Implemented **forward pass** for a multi-layer CNN.
  - Performed **backpropagation** to compute gradients manually.
  - Verified gradient correctness by **comparing with PyTorch autograd**.
- **BPE Tokenizer from Scratch**
  - Built a **tokenizer engine** using the **Byte Pair Encoding (BPE)** algorithm.
  - Trained the tokenizer on an **English text corpus** (books), learning efficient subword representations.
  - Evaluated the tokenizer for **vocabulary coverage and tokenization efficiency**, ensuring robust handling of rare and compound words.
- **Transformer for English–Nepali Translation**
  - Implemented **encoder-decoder architecture** based on the original Transformer paper.
  - Trained the model on an **English–Nepali parallel corpus** for machine translation.
  - Evaluated performance using **BLEU scores and qualitative translation assessment**.
  - Optimized training with **attention mechanisms and tokenization strategies** to improve translation accuracy.

Certifications

- Recognition from the **National Cyber Security Center (Dutch Government)**
- **HexHimalayan CTF Winner 2023**
- **LOCUS Beginner CTF – Third Place (2023)**

Languages

- English — Proficient
- Hindi — Conversational
- Nepali — Native