

SHAURAV KHADKA

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PROFESSIONAL SUMMARY

AI/ML engineer and Master of Information Technology (Artificial Intelligence) candidate with 5+ years across software development and technical operations, plus recent AI/ML R&D experience in production document-fraud detection. Built applied systems spanning NLP and RAG, temporal graph learning, computer vision with ROS2 deployment, reinforcement learning, and cloud-based AI evaluation. Strong in Python, PyTorch, scikit-learn, Hugging Face, FAISS, AWS S3 and Azure Document Intelligence, with a focus on measurable performance, reproducibility and real-world reliability.

TECHNICAL SKILLS

Programming: Python, SQL, Java, C#, PHP

AI / ML: PyTorch, scikit-learn, TensorFlow, Hugging Face Transformers, Sentence Transformers, FAISS, NetworkX, Stable-Baselines3, Gymnasium

Systems & Data: pandas, NumPy, Jupyter, Streamlit, ROS2, Git, Docker, Linux, AWS S3, boto3, Azure Document Intelligence, JSON, MySQL, Oracle

Methods: RAG, semantic search, NLP, temporal GNNs, CNN transfer learning, reinforcement learning, OCR evaluation, model benchmarking, data pipelines, Sim2Real adaptation

PROFESSIONAL EXPERIENCE

TRUUTH (truth.id) - AI/ML R&D Intern

Feb 2026 - May 2026

Sydney, NSW, Australia | Document intelligence, fraud detection and production-AI reliability

- Built a repeatable OCR-evaluation workflow for veterinary-insurance invoices across multiple OCR configurations, transformation rules, confidence scores and error codes using Python, pandas, AWS S3/boto3, Azure Document Intelligence and JSON field mapping.
- Supported Red and Blue Team adversarial fraud-detection evaluation by reviewing labels and detector outputs, documenting reruns and edge cases, and interpreting False Acceptance Rate and False Rejection Rate trade-offs.
- Delivered technical recommendations on traceability, reproducibility, validation dependencies, latency and cost, shifting evaluation from model-only accuracy toward end-to-end system reliability.

INGLEBURN CONVENIENCE STORE - Operations & Digital Support Assistant (Part-time)

Oct 2024 - Present

Ingleburn, NSW, Australia | Australian retail operations, data accuracy and digital support

- Maintain accurate transaction and inventory records while troubleshooting POS, hardware and basic network issues in a customer-facing Australian workplace.
- Support day-to-day digital operations through business email administration, Google Business profile maintenance and web analytics; respond to operational issues and customer needs under time pressure.

PICPOINT NEPAL - Software Developer

Aug 2022 - May 2024

Kathmandu, Nepal

- Maintained and improved web applications and databases; implemented security enhancements, monitored performance and resolved production issues to support reliable service delivery.
- Worked across backend maintenance, database operations, web analytics and technical troubleshooting in a client-facing development environment.

THREADSCRIPT - Web Developer

Jul 2020 - Jul 2022

Kathmandu, Nepal

- Built web prototypes, integrated APIs and coordinated iterative delivery of user-facing solutions across design and development activities.
- Resolved usability and technical issues through cross-functional collaboration and structured debugging.

EDUCATION

MACQUARIE UNIVERSITY - Master of Information Technology (Artificial Intelligence)

2024 - Present

Sydney, NSW, Australia

- Relevant work: NLP and LLM systems, graph machine learning, advanced computer vision and action, reinforcement learning, AI governance, and an industry AI/ML R&D internship.

LONDON METROPOLITAN UNIVERSITY (Islington College) - BSc Computer Science

2017 - 2021

Kathmandu, Nepal | First Class Honours; ranked among the top 10 students in the cohort

- Built a Python-based music recommendation system, a PHP/MySQL trip organiser and budget planner, and database-backed information systems using Oracle, C#, Java and GUI development.

SELECTED AI / ML PROJECTS

RedditPulse - Reddit Social Intelligence Platform | NLP, RoBERTa, Sentence Transformers, FAISS, RAG, Streamlit

- Co-developed a seven-module NLP/LLM prototype over 1,989 filtered posts and 1,588 comments from 10 subreddits, integrating preprocessing, NER, TF-IDF, sentiment modelling, zero-shot topic classification, semantic retrieval and grounded insight generation.

- Evaluated 384-dimensional embedding-based retrieval with FAISS, achieving Precision@5 = 0.68 and Recall@5 = 0.68; surfaced analytical outputs through a Streamlit dashboard.

Fine-Grained Computer Vision and ROS2 Robot Deployment | *ResNet50, MobileNetV2, transfer learning, augmentation, ROS2*

- Co-developed an end-to-end pasta-recognition and vision-to-action robot pipeline. A ResNet50 model achieved 90.69% accuracy across 21 pasta subclasses; separate three-class fine-tuning experiments reached 99.21% test accuracy.
- Addressed robot-camera domain shift through deployment-specific fine-tuning and augmentation, improving robot-image accuracy from 2.38% to 95.24%; mapped predicted classes to ROS2 navigation commands.

Reinforcement-Learning Benchmark Suite | *Python, Gymnasium, Stable-Baselines3, Q-learning, DQN, PPO*

- Implemented and compared agents across Taxi-v3, LunarLander-v3, AirRaidNoFrameskip-v4 and custom MountainCar-v0 wrappers, evaluating algorithm choice, observation design and reward engineering.
- Improved AirRaid PPO mean reward from 300 to 1,925 using frame skipping and frame stacking; designed a momentum-position MountainCar reward that achieved a 100% final success rate.

Temporal GNN for Blockchain Fraud Detection | *PyTorch, NetworkX, TGAT, XGBoost benchmark*

- Modelled blockchain transactions as dynamic graphs and built a TGAT-style architecture with temporal encodings, attention-based message passing and dual-task learning for fraud detection.
- Developed an end-to-end graph-learning pipeline and benchmarked temporal graph modelling against a traditional XGBoost baseline.

LLM-Powered Financial Advisory and Multilingual AI Prototype | *RAG, embeddings, semantic search, conversational AI*

- Built a retrieval-augmented financial-guidance prototype combining document retrieval, semantic search, vector embeddings and context-aware LLM responses.
- Extended conversational workflows with multilingual language detection, translation support and context management for cross-lingual interaction.

ADDITIONAL TECHNICAL WORK

NLP toolkit: trigram-frequency analysis, POS tagging, named-entity recognition and TF-IDF document similarity. **Additional systems:** recommendation prototypes, semantic document matching, conversational-AI workflows, prompt-engineering experiments and AI-governance analysis.

LEADERSHIP, INNOVATION AND SELECTED CREDENTIALS

- Macquarie University Global Leadership Program: completed a structured co-curricular leadership-development program focused on global engagement and professional growth.
- MQ Incubator x KPMG Design Thinking: participated in an entrepreneurship and innovation program applying human-centred problem-solving to opportunity identification and solution development.
- UPG Sustainability Leadership (2024): selected as one of 500 participants from a global applicant pool for leadership and sustainability training.
- Selected credentials: CS50x Computer Science - Harvard University; Elements of AI - University of Helsinki; Ethics and Governance of Artificial Intelligence for Health - World Health Organization.
- Languages: English, Nepali and Hindi; intermediate Spanish.