Sachin Kafle

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EDUCATION

School of Mathematical Science, Tribhuvan University 2020-22
Master's in Data Science, **GPA: 3.71; batch topper** *with full scholarship.*

Advanced College of Engineering & Management 2014-18
Bachelor's of Computer Engineering, 74.08%

PUBLICATIONS

Learning Python by Building games, Reviewer: Prof. Dr. Subarna Shakya, Jose Angel Munoz
PacktPublishing, Amazon Prime, ISBN No. 9781789802986
Can LLM detect deepfakes? A multi-modal analysis using state-of-the-art language models,
Preprint, 10.13140/RG.2.2.14153.25447, July. 2025
**Comparative Analysis of Parametric, Semi-Parametric and Non-Parametric Methods on
Real-Estate Data of the Kathmandu Valley**, IJRAMT, vol. 6, no. 1, pp. 40–43, Jan. 2025
**Metropolis Hasting and Choleski Approach: A case of Simulating Bivariate Normal
Distribution**, TechRxiv. April 18, 2025.
Vehicle Monitoring System using Internet of Things in Nepal, Publication: IJRET, Volume 6, Issue
9, Sept 2019 S.N. 120

EXPERIENCE

Blys | *AI Engineer* Feb 2025 - Present

Developed a customer-facing chatbot for client and therapist interactions. Integrating a video generation model to
automatically create dynamic bios of massage providers from images and user prompts
Led the AI team, and automated the massage booking workflow by building AI agents (using CrewAI) to fill out booking
forms and assist massage clients.
Performance: 60 queries resolved per hour (previously 15 queries per hour resolved by customer experience team). API
workload reduced by 30 request per seconds implementing agentic booking flow

The Partnership Law Firm | *Machine Learning Engineer* Sep 2023 - Feb 2024
Implementation of OCR based tools using Keras API on thousands of scanned law firm documents and extraction of
important parts such as Matter Number, Client Names and Property addresses (NER) modeling. Implemented RAG
LLM models for resolving hundreds of legal enquiries
Technology Used: Fine tuned Microsoft LayoutLM model, pyspark and Mongodb, Azure datafactory and Databricks.

Varosa Technology | *Computer Vision Researcher* Dec 2021 - Mar 2023
Trained custom Keras-OCR to convert images and scanned medical documents into editable, searchable text, supporting
multiple languages and handwriting. Employed NLP and vision-language models (VLMs) to detect key entities (names,
dates, amounts, addresses) and automatically filled the form and provided summaries to the patients.
Technology Used: Keras-OCR, AWS textract, OpenCV, Transformers, Huggingface, CNN, LSTM model

Tribhuvan University and Herald College | *Lecturer And Supervisor* Dec 2019 - Feb 2022
Lecturer of Programming with Python, Machine Learning and Artificial Intelligence and Big data
Visiting lecturer and supervisor at Herald College. **Supervised 20+** Bachelor thesis project on Computer Vision: Pose
estimation, object detection, deepfake detection and Natural Language processing projects

Perceive Now | *Big Data Engineer* | *ML Engineer* Sep 2019 - Dec 2020
Implemented AWS OpenSearch for searching and locating 3TB worth of ORCID, uspto & Crossref's data. Improved
database search speed by 4.x using Python, AWS Lambda and MongoDB Cache
Similarity check and Summarization based on User's history (Collaborative Recommendation)

Project Experience

Evolutionary Timetable Scheduling | *Tribhuvan University* 2022

Addresses the timetable scheduling problem specific to the School Of Mathematical Sciences, TU. The proposed solution utilizes a hybrid technique that merges a 1+1 evolutionary strategy with shotgun hill-climbing. While alternative methods like simulated annealing and a classical genetic algorithm were also considered and tested, they did not outperform the chosen hybrid approach

Physics Informed Full body Deepfake Detection | *Tribhuvan University* 2025-present

Proposed a Deepfake Detection approach that combines physics-informed neural networks (PINNs) with convolutional neural networks (CNNs) to enhance detection accuracy. By incorporating physical principles of image manipulation, such as light behavior and texture distortion, into the model's training, it improves robustness against adversarial attacks and data variability

Technology Used: Inverse Kinematics, Biomarkers deepfake detection, ViTPose, Optical flow

Cyber Security Awareness Program for Nepal Police 2019

Conducted cybersecurity awareness training for Nepal Police, covering topics such as phishing, social engineering toolkit, website SQL injection attacks, and deepfake detection. This training was carried out under the supervision of Prof. Dr. Subarna Shakya.

Referral

Prof. Dr. Narayan Pd Adhikari | *School of Mathematical Sciences, Tribhuvan University*

Email: narayan.adhikari@cdp.tu.edu.np

Ass. Prof. Nawaraj Paudel | *Director, School of Mathematical Sciences, Tribhuvan University*

Email: nawarajpaudel@cdcsit.edu.np