

SAUMYA BHANDARI

Experienced AI Engineer • Deep Learning • Computer Vision • Innovator

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SaumyaBhandari

EXPERIENCE

Head of Research

The Legalities

Oct 2024 – Present

Kathmandu, Nepal

- Led development of LegalOps+, an AI-powered product for compliance automation and legal case tracking.
- Designed and deployed end-to-end AI-based document intelligence systems to extract and analyze structured data from unstructured legal files, using OCR and LLMs for document understanding, built on Django REST APIs.
- Contributed to overall product strategy, UX, and growth roadmap of LegalOps+, collaborating with legal teams and engineers.

Machine Learning Engineer

Naamche (ReAlpha)

Jan 2024 – Oct 2024

Remote

- Fine-tuned SegFormer for internal room segmentation; generated virtual interiors by manipulating segmentation bitmaps, prompts, and diffusion-based inpainting.
- Applied research-backed staging strategies which is used by 86% of buyers for better property visualization to drive product design decisions.
- Leveraged AWS SageMaker and serverless GPU architectures for scalable experimentation and model deployment.
- Developed an AI-based virtual real estate agent (**Claire**) using RAG pipelines, OpenAI hooks, and Pinecone, guiding users through the home-buying journey.
- Conducted intensive data preprocessing, anomaly detection, and visualization using Pandas and SQL-based techniques to improve data quality.

Computer Vision Engineer

Treeleaf Technologies

Oct 2023 – Dec 2023

Lalitpur, Nepal

- Built, optimized and Reworked on development OCR and object detection microservices with gRPC and Improved ArcFace-based face recognition.

Machine Learning Engineer

Wiseyak Inc.

Sep 2022 – Oct 2023

Kathmandu, Nepal

- Developed a Chest X-ray multi-label classifier (**AUROC > 0.91**) from scratch, covering 10+ diseases in a highly imbalanced dataset using weighted loss techniques and class balancing strategies.
- Earned MIT's Data and Specimen Research certification upon nomination by Prof. Suresh Manandhar for excellence in ethical AI research.
- Integrated Grad-CAM based heatmap visualization and built a multimodal pipeline to generate radiologist-level reports using GPT-2.
- Co-designed and implemented a novel CNN-Transformer hybrid architecture for medical video processing, including autoencoder-based next-frame prediction and a fully convolutional transformer for medical image segmentation.
- Led the development of a domain-adversarial neural network (**DANN**) trained on a Nepali plant dataset curated in collaboration with (**GeoKrishi**) and professors from (**Madan Bhandari University of Science and Technology**).

- Scraped and organized a comprehensive plant disease QA dataset from Plantix forums to complement model training with real-world disease-symptom mappings.

ML Intern

Namespace.jp / Chulo Solutions

📅 May 2022 – Aug 2022

📍 Lalitpur, Nepal

- Worked on building YOLO3-inspired waste management model from scratch.
- Learned core Mathematics behind ML models including PCA, SVM, EVD, PseudoInverse and creating Neural Networks, CNNs, Transformers and even writing backpropagation and different optimization hacks like adagrad, adam from scratch - by using own function implementation.

EDUCATION

BSc. (Hons) Computer Science

Herald College Kathmandu

📅 2020 – 2023

📍 First Class Honors

Thesis: Image Segmentation for Autonomous Vehicle Navigation and Image Super Sampling

- DevCorps Leader (Leader of 3/6 student run communities), On Campus Hult Prize Winner, Student Academic Rep for 2 consecutive years, Planned and Ideation of Highest Altitude Hackathon 2023, Scholarship Achiever.

Higher Secondary

Uniglobe College

📅 2018 – 2020

📍 Mathematics + CS

- IT Club President, Hackathon Winner (2x), National Level Debate Finalist, Organized and won 15+ competitions including quiz, debates, essays and presentations.

Secondary School

The New Summit School

📅 2016 – 2018

📍 Kathmandu

- School CCA Captain, **Student of the Year**, Soft Skills Coach.

SKILLS

Deep Learning / Self Supervised Learning

OpenCV / Computer Vision / Diffusion Models / CNNs

NLP / LLMs / Document Understanding / OCR

PyTorch

FastAPI / Flask / Django

gRPC

SELF LEARNING AND GROWTH

Self Learning

Core Courses: Harvard Stats 110 || MIT 18.06 Linear Algebra (2006) || MIT 6.034 Artificial Intelligence (2010) || MIT Deep Learning Bootcamp (2020–2022) || Stanford CS231N Deep Learning for Visual Recognition (2017) || University of Waterloo CS480/680 Deep Learning (2021)

Extra Learning (Out of Passion): MIT 9.13 The Human Brain (Spring 2019) || Stanford Human Behavioral Biology (2011) || MIT 8.04 Quantum Physics I (Spring 2013) || NCCR SwissMAP Quantum Information Theory (2020)

Toastmasters Speaker

- Speech Title: *Ahamasmi Yodha* – explored inner conflicts, leadership, and bravery.
- Awarded “Best Table Topics Speaker” multiple times over 3 months.