

Suraj Karki

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Technical Skills

Programming Languages: Python, JavaScript, Dart, TypeScript, Java, C/C++, MATLAB, LaTeX, HTML, CSS

ML Libraries/Frameworks: TensorFlow, Keras, PyTorch, Pandas, Numpy, Scikit-learn, NLTK, OpenCV, LangChain, Darts, HuggingFace, Roboflow

Web Frameworks: React.js, Angular.js, Django, Flask, FastAPI, Express.js, Node.js, Socket.io, Streamlit

Development Tools: Linux, Unix, Docker, Kubernetes, Git, Apache Kafka, Power BI, Celery

Database: SQL, MongoDB, PostgreSQL, Oracle, MySQL, Redis

Cloud Services: AWS(EC2, Lambda, S3, Sagemaker), BentoML, Microsoft Azure, GCP(App Engine, Cloud Functions), Pinecone, ChromaDB, Linode, Google Colab

Concepts: Object Oriented Programming, Unit Testing and Debugging, Machine Learning, Deep Learning, Computer Vision, Model Optimization, Data Analysis, Performance Analysis, CNNs, ViT, LLMs, Stable Diffusion

Work Experience

Omdena

Aug. 2024 – March. 2025

Machine Learning Engineer

Freelance, Remote

- Collaborating with global teams to develop and deploy innovative AI solutions and full-stack applications for real-world problems.
- Contributing as a machine learning engineer in various open-source projects.
- Collaborating on AI Innovation Challenges with companies and non-profit organizations to develop machine learning solutions for real-world problems in areas such as climate change, healthcare, and social impact.

Inflancer Technology

Aug. 2024 – Oct. 2024

Machine Learning Engineer

Kathmandu, Nepal

- Built and deployed a recommendation system for a social media platform using Python, CLIP, HuggingFace, Apache Kafka, and Docker, improving content engagement by 15% and reducing recommendation latency by 25%.

Milo Logic Pvt.Ltd

March 2024 – July 2024

Associate Software Engineer

Kathmandu, Nepal

- Implemented a full-stack ATS system to rank a long list of resumes using FastAPI, NLTK, Spacy, Huggingface, and Docker.
- Helped to build a Salary Management System using Django.
- Implemented a professional head-shot photo generator using the Custom Stable Diffusion Model.
- Built a scalable web scraper to scrape data from Facebook, Instagram, and TikTok posts using Puppeteer, Brightdata, and FastAPI.

Department of Electronics, Computer Technology, and Projects, UPCT

Sep. 2023 – Feb. 2024

AI Research Intern

Cartagena, Murcia

- Implemented an explainable machine learning model, achieving a 94% accuracy in detecting Left Bundle Branch Block, improving patient outcomes.
- Implemented ML/DL algorithms collaboratively, achieving over 90% accuracy.
- Designed and applied machine learning algorithms for bearing fault prognosis.
- Created a versatile end-to-end pipeline for diverse machine learning applications.

Unisala

May 2023 – Jul. 2023

Software Developer

Remote

- Addressed bugs in Unisala's website, enhancing the overall performance of the site.
- Explored independent scaling for frontend, backend, server, and database at Unisala, utilizing the Atlassian agile framework and gaining expertise in bulk searching and various algorithms.

Youth Innovation Lab

Nov. 2022 – Mar. 2023

Software Developer Intern

Kathmandu, Bagmati

- Prototyped a full-fledged admin portal using Refine and JavaScript.
- Contributed to real-time notification implementation on shikshya.org
- Implemented advanced Django concepts (django-channels, mixins, custom view) while creating and debugging APIs for Bipad Portal.

Education

Hochschule Bielefeld

Master of Science in Data Science (Research Master)

March 2025 – Present

Bielefeld, Ostwestfalen-Lippe

Nepal Engineering College

Bachelor of Engineering in Computer Engineering (CGPA: 3.89 / 4.00)

Sep. 2018 – Aug. 2023

Bhaktapur, Bagmati

Technical Projects

Sonocare: Capturing Biometrics through Camera | MediaPipe, Streamlit, rPPG, SciPy, OpenCV, DeepPhys Mar. 2025

Developed a web-based application utilizing AI-driven computer vision and signal processing to detect vital signs (heart rate, respiratory rate, SpO₂, and blood pressure) via standard cameras, providing real-time health monitoring and remote diagnostics.

Detecting and Monitoring Land Use Transformation in Cordoba | React.js, FastAPI, Celery, Redis, GEE, SQL Feb. 2025

This project is a full-stack web application with a queue management system for processing change detection requests, leveraging satellite imagery to monitor land-use changes in Cordoba and support sustainable development through informed decision-making.

Combating Plastic Pollution in the River Ganges Using Computer Vision | PyTorch, ONNX, Roboflow, Streamlit Feb. 2025

Developed and deployed an AI-powered instance segmentation system using YOLOv8 for real-time plastic waste detection in rivers from video feeds.

Predicting Dengue Fever Outbreaks in Sri Lanka | Darts, Sci-kit Learn, SHaP, Streamlit Oct. 2024

Contributed to an Omdena project developing an AI-driven system for dengue outbreak prediction in Sri Lanka, using time series analysis and machine learning to improve early warning and public health response.

Driver Drowsiness Detection | Tensorflow, OpenCV, Django, CNN Sep. 2023

Smart application using deep learning, accurately determines if the driver is awake or asleep, achieving a 96% accuracy rate

MediLeaf | Tensorflow, Scikit-Learn, DVC, Django, FastAPI, Flutter, Docker, CNN July 2023

An Android application powered by an AI model having an accuracy of more than 95%, helps users identify medicinal plants and their properties effortlessly by scanning the leaves of any plant.

Lucy | PyTorch, Scikit-Learn, FastAPI, React.js, Docker, PostgreSQL, Transformers Nov. 2022

Lucy is an NLP-powered chatbot with an accuracy of 90% that can interact with humans and answer questions which are related to Nepal Engineering College.

Freyja | Tensorflow, Gensim, Django, React.js, Docker, Nginx, LSTM Sep. 2020

A full-stack web app for essay grading using an LSTM model with Django REST, React, and Tensorflow. Recognized as the education category winner at Quantum Hack 2020, the project represents an end-to-end deep-learning application

Language Skills

English (CEFR Level B2), German (A1)

Achievements

- Awarded a scholarship for the **Erasmus+ KA1 Mobility Program** at **Universidad Politécnica de Cartagena**, Spain, from September 2023 to February 2024.
- Attained Dean's List honours for outstanding academic performance in **B.E. Computer Engineering** at **Pokhara University**.
- Education category winner at **QuantumHack**, a 24-hour-long hackathon involving 240 participants from all around the world.
- Recipient of a full scholarship for **B.E. in Computer Engineering** at **Pokhara University**, September 2018.

Research Interests

Deep learning, Computer vision, Explainable artificial intelligence, Time-series analysis and forecasting, Generative artificial intelligence, Edge Machine Learning and Computing