

Santosh Sapkota

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🐙 GitHub

ABOUT ME

Certified Computer Engineer passionate about Data Science and Machine Learning. Apart from tech, I enjoy strategic chess, riddles, and creative hobbies like photography and video editing.

EDUCATION

Cosmos College of Management & Technology Sep 2018 – Aug 2023
Bachelor of Computer Engineering – Satdobato, Lalitpur

NIC Secondary School, HSEB (Now NEB) Jul 2016 – Jun 2018
+2 Science – Dillibazaar, Kathmandu

PROJECTS

- **IDC Breast Cancer Detection (CNN)** [link] – Built a custom Convolutional Neural Network using TensorFlow to classify histopathological *image* data into benign or malignant IDC classes. Used Grad-CAM for interpretability. Developed a FastAPI backend and Streamlit frontend, containerized with Docker, implemented CI/CD automation via GitHub Actions, and deployed the application on Render. Wrote a paper discussing methodology and findings.
- **IDRiD Diabetic Retinopathy Lesion Detection** [link] – Applied YOLOv8 to detect and localize retinal microaneurysms, hemorrhages, and exudates from annotated fundus images.
- **Breast Cancer Prediction** [link] – Developed and evaluated neural network models on UCI diagnostic *tabular* data to classify tumors as benign or malignant.
- **Medical Appointment No-Show Prediction** [link] – Analyzed appointment and demographic data to predict the likelihood of patients missing appointments. Performed EDA and trained classification models for behavioral pattern recognition.
- **Intelligent Diet Planner** [link] – Website built using Django framework and ML algorithm to provide meal options tailored to user requirements.
- **Laptop Price Prediction** [link] – Predicted laptop prices using features like RAM, GPU, manufacturer, storage, and more.
- **Book Detail Scraping** [link] – Scraped book metadata (titles, authors, ratings) from websites using Python and BeautifulSoup. Cleaned and analyzed data for trends.
- **Photography Gallery Website** [link] – Created personal photography portfolio in Django, hosted on Render with Cloudinary for image storage and responsive UI.
- **AI-Built Personal Portfolio Website** [link] – Portfolio designed and built entirely using AI tools. Hosted on GitHub Pages with a clean UI and integrated project showcase.

EXPERIENCE

Teaching Assistant Aug 2023 – Nov 2023
Shree Janapriya Secondary School, Baglung

- Taught Science & Mathematics to secondary students.
- Designed lesson plans and simplified complex concepts for better understanding.

PUBLICATIONS

Sapkota, Santosh. (2025). *Breast Cancer Diagnosis Using Custom CNN and Grad-CAM: An Interpretable Deep Learning Approach on Histopathology Images*. Zenodo. <https://doi.org/10.5281/zenodo.16900046>

TECHNICAL SKILLS

Programming Languages: Python, HTML/CSS

Libraries & Frameworks: Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn, Keras, TensorFlow, OpenCV

Machine Learning: Supervised Learning, Deep Learning (CNN & RNN, ResNet, Transfer Learning), YOLO, LLM, Fine-tuning LLM, Attention Mechanism, Boosting (XGBoost, CatBoost, AdaBoost), Bagging (Random Forest)

Data Science: Data Cleaning, Preprocessing, EDA, Visualization

Web Development & Deployment: Streamlit, FastAPI, GitHub Pages, CI/CD (GitHub Actions), Docker, Cloudinary, Render

Tools: GitHub, Jupyter, Docker Desktop, Colab, Kaggle, ChatGPT, LaTeX, Zotero

Mathematics: Linear Algebra, Probability, Statistics, Calculus

OTHER SKILLS

- **Languages:** English (fluent), Nepali (native), Hindi (fluent)
- **Work Style:** Flexible, collaborative or independent
- **Curiosity:** Deep interest in science, behavior, and self-guided research
- **Technical Writing:** Writes blogs on Medium about ML projects and AI tools