Sandesh Bashyal

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Education

IOE, Pashchimanchal Campus (WRC), Tribhuwan University — Lamachaur, Pokhara
Bachelor in Electronics, Communication, and Information Engineering — March 2021 - Present
Honors/Awards: Received Government Scholarship on merit basis for 4 year course
Relevant Coursework

- **Mathematics:** Engineering Mathematics(I, II, III), Probability and Statistics, Applied Mathematics, Discrete Structures, Numerical Methods, Discrete Structures, Digital Signal Analysis and Processing
- **Computer Science:** Computer Programming, Object Oriented Programming, Data Structure and Algorithm, Computer Graphics, Database Management Systems, Artificial Intelligence, Data Mining (Elective I)

Tilottama Campus — Yogikuti, Rupandehi
Intermediate Science — June 2018 - July 2020
GPA: 3.62/4
Honors/Awards: Mahatma Gandhi Scholarship from India

Experience

ML Intern in Computer Vision | neuroflip (May 1, 2024 - July 30, 2024)

- Developed and deployed computer vision models for content moderation, identifying and censoring inappropriate content (explicit images, profiles) to enhance platform safety.
- Designed and implemented image analysis and scoring algorithms to evaluate visual attributes (e.g., sharpness, clarity) for robust profile assessment.
- Structured technical documentation and reports using LaTeX.

Interests

Mathematics: Linear Algebra, Problem Solving
ML/AI: Data Analysis, Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Generative AI, Multimodal Learning

Certification

ML Scientist in Python | DataCamp (May 6, 2025)

Python Developer | DataCamp (May 6, 2025)

AI Engineer for Data Scientist Associate | DataCamp (May 5, 2025)

Data Analyst in Python | DataCamp (February 9, 2025)

NAAMII | ANAIS2024 (December 27, 2024- January 6, 2025)

- Attended the Fifth Annual Nepal AI School (ANAIS) 2024, a 10-day intensive program covering advanced AI topics and hands-on labs on Transformers, CLIP, Mixture of Experts and winning the Hackathon on Anti-Money Laundering Challenge.

Accenture North America Data Analytics and Visualization Job Simulation | Forage (May 2, 2024)

- Completed a simulation focused on advising a hypothetical social media client as a Data Analyst at Accenture
- Cleaned, modeled and analyzed 7 datasets to uncover insights into content trends to inform strategic decisions
- Prepared a PowerPoint deck and video presentation to communicate key insights for the client and internal stakeholders

Mathematics for Machine Learning Specialization | Coursera (March 27, 2024)

- Mathematics for Machine Learning: Linear Algebra
- Mathematics for Machine Learning: Multivariate Calculus
- Mathematics for Machine Learning: PCA

Deep Learning Specialization | Coursera (October 19, 2023)

- Neural Networks and Deep Learning
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization

- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models

Machine Learning Specialization | Coursera (June 23, 2023)

- Supervised Machine Learning: Regression and Classification
- Advanced Learning Algorithms
- Unsupervised Learning, Recommenders, Reinforcement Learning

NAAMII | ANAIS2023 (May 22, 2023- June 1, 2023)

- Completed a 10-day intensive AI School with 55+ hours of hands-on learning in deep learning, NLP, computer vision, robotics, and AI applications, including a hackathon and entrepreneurship sessions.

Projects

Distinctive Approaches to 3D Scene Reconstruction: NeRF and 3D Gaussian Splatting (Major Project) | Pytorch, NerfStudio, COLMAP (June, 2024 - Ongoing)

- Integrated NeRFStudio for novel-view scene rendering and leveraged COLMAP for SfM point cloud generation, while implementing and critically analyzing leading research workflows in both methods.
- Designing and building custom photogrammetry hardware to build 3D of small objects (ongoing).

Stable Diffusion Depth2Img Pipeline Fine-tuning | PyTorch (February, 2025)

- Worked on fine-tuning the stable diffusion depth2img pipeline using dreambooth training method
- Trained the model for 1000 steps, saving checkpoints every 200 steps.
- Optimized performance using hyperparameter tuning techniques, including gradient accumulation, 8-bit Adam optimizer, and mixed precision training (FP16).

Stable Diffusion Image Variation Pipeline Fine-tuning | PyTorch (January, 2025)

- Worked on fine-tuning the stable diffusion image variation pipeline
- Trained the model for 80 epochs, saving checkpoints every 4,000 steps (10 epochs).
- Optimized performance using hyperparameter tuning techniques, including gradient accumulation, 8-bit Adam optimizer, and mixed precision training (FP16).

Anti-Money Laundering | Python (Pandas, Dask, Matplotlib, Networkx), Neo4j (December 28, 2024 - January 5, 2025)

- Preprocessed 60 million transaction records, reducing them to 0.25 million for efficient analysis.
- Conducted time series analysis, transaction chunking, and high-frequency account detection for Exploratory Data Analysis.
- Utilized Neo4j and Cypher queries to visualize account networks and detect layering activities efficiently.

Home Automation Using Speech Recognition | ML (Whisper Model, Vosk), Hardware (Raspberry Pi, Arduino Nano), Packages (ffmpeg, sounddevice, transformers) (December, 2023 - February, 2024)

- The project was done in raspberry pi, so linux based project with ssh communication for remote management
- Audio captured from the microphone was resampled to 16000 using ffmpeg for model compatibility
- The model used was whisper model from transformers library, and could perform real time speech recognition
- The commands provided were recognized and then mapped to characters which were sent to the arduino nano to control household appliances.

UBC Ovarian Cancer Subtype Classification and Outlier Detection | PyTorch, Patchify, EfficientNetV2 (October 6, 2023 - January 4, 2024)

- This Kaggle Competition had large image dataset(794GB) with each image size ranging from 1GB to 2.5GB, where each image is labeled to any stage (out of 5) of cancer or marked as a outlier.
- The large images were divided into smaller patches using patchify library
- Implemented deep learning models like ResNet50, EfficientNetV2, for classifying the test images

Community Engagement and Leadership

AI BootCamp, ICES, WRC | Mentor (July 2024 – January 2025)

- Sole mentor- responsible for organizing, delivering, and overseeing all sessions of the BootCamp.
- Designed and delivered the full 6-month AI Bootcamp curriculum—organizing and leading hands-on sessions in Python, OOP, data analysis (NumPy, Pandas, Matplotlib), machine learning (linear/logistic regression), deep learning fundamentals (CNNs in PyTorch) and Transformer models.
- Mentored attendees through technical presentations (e.g. AlexNet paper with LaTeX), practical coding exercises, and guided them to complete a capstone project in their field of interest.

TechParva 3.0, ICES, WRC | Organizer (January 6–8, 2025)

- Organized ICES' national 3-day tech fest in Pokhara—led Datathon 3.0 (csv dataset design & Kaggle hosting) and managed event logistics.

Technical Skills - Python, SQL

ML/AI: PyTorch, Sklearn, Tensorflow, PyTorch Geometrics
Data Science Libraries: Pandas, NumPy, Matplotlib, Seaborn, PySpark
Tools: Git, Neo4j, LaTeX, Linux
Embedded System: Arduino, RaspberryPi, VHDL

Honors & Awards

Winner | Anti-Money Laundering Challenge (January 5, 2025)

- Led a team of 5 to win an international-level competition for visualizing layered circular and linear chains of hop-8 from real-world transaction data organized in 5th Annual AI School by NAAMII.

Winner, Best EDA | Datathon 2.0 (February, 2024)

- Awarded first place in a regional-level competition for Best EDA, where we showcased the power of decision tree models by implementing them on a complex CSV dataset, uncovering valuable insights and patterns.

Winner | Battle for Speed Competition (May 31, 2022)

- Led a team of 5 to secure first place in a college-level competition, where our Line Follower Robot emerged as the fastest, outperforming all other cars on the track.