

With two years of experience in Artificial Intelligence, I'm deeply intrigued and enthusiastic about the field. I began my journey in the realms of OCR, object detection, and segmentation within computer vision. I have since expanded my expertise to include Generative AI, Large Language Models (LLMs), and Natural Language Processing (NLP). Alongside technical skills, I'm dedicated to honing my soft skills. The ever-evolving AI industry continually fascinates me, and I'm eager to keep learning and innovating.

## EDUCATION

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- **Bachelors of Science in Computer Science and Information Technology** 2018-2023  
*Prime College, Kathmandu* Percentage: 83.69
- **AI Fellowship** JAN 2023- DEC 2023  
*Fuse Machines*
- **High School** 2016-2018  
*Kathmandu Model College, Kathmandu* GPA: 3.45

## EXPERIENCE

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- **ICEBRKR, A Virtly Company, Switzerland** April, 2024 - Present  
*AI/ML Engineer*
  - Lead a team of AI/ML Engineers and effectively communicated solutions to stakeholders.
  - Scraped food and restaurant data and developed a food recommendation system using Word2Vec and FAISS.
  - Developed simple, logical and effective synthetic data for model training, system building an evaluation.
  - Researched on various Large Language Models.
  - Worked on LLMs and ML models such as GliNer(NER), PaddleOCR, YOLO, Phi-3-ONNX, and Mistral.
  - Developed API endpoints for various system modules using FastAPI.
- **galli MAPS** MAY 2023 - APR 2024  
*Junior Artificial Intelligence Engineer*
  - Developed a YOLO-based License Plate Detection and Blurring Model for 360-degree images with 97 percent recall, addressing small object detection challenges.
  - Developed a YOLO-based Billboard Detection Model for 360-degree images with 60 percent recall.
  - Developed a script for generating synthetic Nepali OCR data with required augmentations and trained NepaliOCR.
  - Worked on and researched OCR technologies including EasyOCR, PaddleOCR, and tesseractOCR.
  - Developed a text extraction module for billboards using EasyOCR (Nepali), PaddleOCR (English), and PaddleCLS (language classification).
  - Compiled GroundingDino with SAM for house detection in drone and satellite images and researched UNet for image segmentation.
- **InfoDevelopers Pvt. Ltd.** Jan 2023 - May 2023  
*AI and Data Science Trainee*
  - Researched Bank Churn Analysis using the Cox Proportional Hazards Model and Kaplan-Meier estimator.
  - Scraped data from HamroBazar and conducted exploratory data analysis (EDA) for research.
  - Worked on tesseractOCR for scanning documents.

## PERSONAL PROJECTS

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- **Newari-OCR** 🐙  
*CRNN technology on different Newari Lipi.*
  - Python application for Optical Character Recognition (OCR) of Newari Lipi scripts, including Pracalit and Ranjana Lipi.
  - Trained Newari-OCR on gray and RGB channels for Pracalit and Ranjana Lipi, and experimented with combining both scripts into a combined OCR model.
  - You can find the training metrics in the project's GitHub repository under the "figures" section.
  - Technology Used: Python, Flask, Tensorflow, OCRNN.
- **nepali textToSpeech**  
*An application to generate Nepali Speech from its text.*

- Researched TTS systems and decided to use Tacotron2 with Wavenet or MelGAN. Chose OpenSLR female voice dataset for training.
- Trained tacotron2 model for generating mel-spectrograms from text.
- Trained Wavenet and MelGAN for generating raw audio from mel-spectrograms.
- Wavenet models were space-efficient but slow in inference, while MelGAN models were larger but faster in inference.
- Technology Used: Python, PyTorch

#### • sign-pdf 🔗

*A python application for signing PDF.*

- Developed a Python tool to sign PDF documents with a signature image, solving the issue of subscription-based online tools.
- Technology Used: Python

#### • Nepali Poem Generator 🔗

*Nepali Poem Generator with LSTM and LLMs*

- Researched and trained a Nepali Poem Generator model using LSTM, scratch transformer, and fine-tuned GPT-2 and DistilGPT2-Nepali models.
- DistilGPT2-Nepali gave the most convincing results for the Nepali Poem Generator, but it lacked proper evaluation metrics.
- Technology Used: Python, Tensorflow, HuggingFace, Flask, PyTorch

#### • Nepali News Classifier and Summarizer 🔗

*Python web application to classify news and summarize*

- Developed a Flask-based web application that classifies English and Nepali news using SVM and provides extractive summaries with TF-IDF.
- SVM achieved over 95 percent accuracy in classifying news into five categories, but TF-IDF summarization lacked proper evaluation
- Integrated AI/ML models with React frontend using Flask."
- Technology Used: Python, Scikit-Learn, Flask, React

#### • Basic Machine Learning Applications

*Learnings and Simple Machine Learning Projects.*

- Flask-based web application that adds shades and moustache on detected faces.. 🔗
- Performed data cleaning, visualization, analysis, and modeling on a credit card dataset with 28 columns and 100k rows. 🔗
- Flask based application that recommends music on the based of detected emotions. 🔗
- Learning CV. 🔗
- Learning NLP 🔗
- Learning and Exploring LLMs on Nepali Language. 🔗

#### • Movies 🎬

*During my leisure time, I engage in creating short films under the banner of Horror Dreams Productions.*

- Under The Cloud
- How to Brainwash a Ghost
- Teleportal
- Influenced

#### CERTIFICATIONS 📜

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##### • Fuse Machines AI fellowship, Fuse Machines, Jan 2024

- A year-long program offering hands-on experience in AI/ML, including machine learning, deep learning, computer vision, and NLP, with expert mentorship and impactful projects.

##### • Click To Career AI, Info developers, Sep 2022

- The sixty-hour AI/ML training provided by Info Developers was instrumental in launching my journey into the world of AI/ML, equipping me with essential skills and knowledge.

##### • Gen AI, Coursera | ActiveLoop, Feb 2024 | March 2024

- **Generative AI with Large Language Models** : Course provied by Coursera introduced me into world of LLMs.

- **LangChain and Vector Databases in Production** : With this course provided by Activeloop I explored the broader realms of LLMs, LangChain, RAG, and vector databases.
- **Machine Learning**, Coursera , May 2024 | Jun 2024 | Jun 2024
  - **Deep Learning Specialization** : Developed better intuition in Deep Learning.
  - **Mathematics for Machine Learning and Data Science** : Provided a solid mathematical foundation essential for understanding and applying machine learning and data science techniques.
  - **Machine Learning Specialization** : Offered comprehensive insights into machine learning concepts and algorithms.
  - I believe in Learning and Relearning. This certifications require the same approach.
- **Deep Learning Framework**, Coursera , Jul 2024
  - **Deep Learning Networks with PyTorch** : Get hands on knowledge on PyTorch Frameworks from Data loading, preprocessing to model training.
  - **DeepLearning.AI Tensorflow Developer** : Get hands on knowledge on Tensorflow Frameworks from Data loading, preprocessing to model training.
- **GANS**, Coursera , OCT 2024
  - **Build Better Generative Adversarial Networks (GANs)** : Provided with better understanding of GANs.
  - **Build Basic Generative Adversarial Networks** : Introduced me to realm of GANs.
  - However I need to brush up in these.
- **MLOps**, Evidently AI , NOV 2023
  - **Open source ML observability course** : Got insights on MLOPs.
- **Python**, UDEMY , APR 2022
  - **Python Bootcamp 2021** : My first introduction with Python.

## TECHNICAL SKILLS AND INTERESTS

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**Languages:** Python, C, C++

**Libraries** : Python Libraries, AI/ML Related Libraries

**Web Dev Tools:** VScode, Git, Github

**Frameworks:** Flask, FastAPI, PyTorch, Tensorflow, Scikit-Learn

**AI Expertise:** OCR, Object Detection, LLMs, Synthetic Data Building, Text to Speech,

**DBMS:** MongoDB, PostgreSQL

**Areas of Interest:** Artificial Intelligence/Machine Learning, OCR, LLMS,

**Soft Skills:** Leadership, Problem Solving, Self-learning, Presentation, Adaptability, Communication.

**Hobbies:** Gaming, Filmmaking, Script Writing.

## VOLUNTEERING

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- **AI Mentor** Code For Change *AUG 2024 / APR 2024*
  - Conducted online AI/ML bootcamps for beginners with Code For Change. So far, I've held sessions in Kathmandu and Chitwan.
- **AI Mentor** Prime College *JUN 2024*
  - Conducted physical bootcamps in association with Prime College on AI/ML for beginners.
- **AI Project Consultant** Khowpa Engineering College *AUG 2024*
  - Suggested final year computer engineering students at Khowpa Engineering College

## ACHIEVEMENTS

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- **Kathmandu Road Safety Film Festival 2023** Secured Third position in film festival with film title Influenced
- **Prime College Batch Topper** Secured Third position in BSC.CSIT program at Prime College. *2018 - 2023*
- **Prime College FIFA Champion** Won Fifa 19 competition at Prime Sports GALA. *2018*

## REFERENCES

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- **Er. Rolisha Sthapit**

Vice Principal

Prime College

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- **Jitu Khamcha**

AI Lead

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Senior Software Engineer

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