Diwas Pandey

Associate Machine Learning Engineer

Personal Information

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Professional skills

Python
★★★★★

Machine Learning
★★★★☆

Deep Learning
★★★★☆

SQL
★★★★☆

AWS
★★★☆☆

Frameworks & Tools

- **OpenCV**
- **Keras/Tensorflow**
- **Scikit-learn**
- **Sagemaker/Jupyter**
- **Pandas, Numpy, Scipy**
- **Git (Github/Gitlab)**
- **Flask & Rest API**
- **Linux & Windows 10**

Languages

English
Fluent

Nepali
Native

Hindi
Proficient

Experience

Team Lead & Machine Learning Engineer - Bottle Technology, Jhamsikhel Road, Lalitpur

July 2021 - currently employed

- Created Dataset, developed & deployed an OCR model on Nepali Citizenship with NER & Spacy on Docker
- Created Nepali to Roman Transliteration API & PyPI package
- Worked on Vehicle counts & Traffic time detection on the busiest street of Kathmandu
- Designed a model to extract image from citizenship and enhanced them to calculate matching probability with selfie images
- Performed research on efficient OCR tool available on AWS, Google Cloud, NanoNets, EasyOCR & Tesseract
- Developed & deplyed an API to extract Signature from image to transparent background
- Worked on Image pre-processing, Noise removal, feature extraction techniques & built web application for broker company with auto fill feature by implementing OCR on Bank Cheque, and BOID information

Founder & Content Writer - Aihubprojects.com, Kathmandu, Nepal

Sep 2019 - Present (Self Employed)

- Designed & published Machine Learning algorithms tutorials with scratch implementation and one project each
- Published Python Basics kindle version on Amazon and on website
- Published various articles and project tutorials on ML, NLP and Computer Vision
- Collaborated with VIT Vellore India, IIT Banglore & various Nepalese Colleges as tech partner
- Worked on various freelancing projects and provided mentorship to international students

AWS AI/ML Internship - Genese Cloud Academy, Kathmandu, Nepal

Aug 2020 - Dec 2020

- Developed Corona cases visualizing and predicting web applications and worked on various AI ML projects on Sagemaker
- Created web application that predicts age, gender, sentiments using S3, Lambda and Boto3
- Built EC2 websites integrating S3 and relational databases with load balancing
- Designed temperature conversion chatbot, market chatbot using Lex and Polly

Education

Bachelor in Computer Engineering

Nov 2016 - May 2021

Advanced College of Engineering, IOE, TU - Lalitpur Nepal

- Full Scholarship merit award winner & graduated with 79% on aggregate
- Developed Nepali Real Time Number Plate recognition System in Minor project on YOLO, OpenCV and Python under the supervision of Er. Anku Jaiswal
- Designed Traditional GauGAN under the supervision of Er. Ranjan Shrestha

National Examination Board, HSEB

Aug 2014 - Jun 2016

National School of Sciences (NIST) - Lainchour, Kathmandu Nepal

- Full Scholarship merit award winner with 90% on SLC
- Graduated on Physical Science with 80.7%

Projects

Fake License Plate Generation

June 2021

LogicTronix

- Tools used : Python, OpenCV, GAN
- Applied computer graphic scripts and Generative Adversarial Networks to generate and augment a large number of annotated, synthesized license plate images
- Generated and augmented data were mixed and used as training data for the license plate recognition network

Doodle to Image using SPADE

Jan 2020 - Jan 2021

Major Project - ACEM

- Tools Used : Python, GauGAN
- Synthesized realistic images directly from simple outline doodles by converting them into semantic maps that are relevant to what the figure describes
- Obtained mIoU score 29.7 & FID score 26.8

Real Time Number Plate Recognition System

2019

Minor Project - ACEM

- Collected over 10k training and test dataset by cropping the image of vehicles and license plates
- Tools used :
    - YOLO for vehicle detection and ROI techniques to crop License Plate region
    - Implemented Mean-SD algorithm to segment License Plate Characters
    - Trained a model on Keras to predict and classify the segmented character

Projects

Emotional Recognition From EEG Data

January 2022 - February 2022

Freelance

- Performed Data Cleaning, Visualization & Data Augmentation to create 25k+ Dataset
- Implemented Random Forest, CNN, LSTM, RNN
- Obtained an accuracy of about 85% on RNN and propose the best model

Nepali to Roman Transliteration Package

February 2022 - February 2022

Bottle Technology - Jhamsikhel Kathmandu

- Developed Rule-based Nepali to Roman Transliteration Module
- Released the PyPI package (Nepali-to-Roman)
- Deployed an API on Project ABC to sync data extracted from the front and backside of Citizenship from OCR

River Network Extraction From Satellite Image

February 2022 - February 2022

Freelance

- Collected, Enhanced & Augmented the 18k+ Satellite Image Datasets
- Trained a model on U-Net network to obtain binary masks of Water Surfaces
- Deployed the testing module on Flask-EC2

PDF Information Extraction to Table & JSON

January 2022 - January 2022

Freelance

- Tools Used: Tabula, Pytesseract
- Extracted the Tabular data from pdf and stored it on CSV
- Converted the information extracted from PDF to JSON format

OCR Implementation on Nepali Citizenship

September 2021 - March 2022

Bottle Technology - Jhamsikhel Kathmandu

- Collected & Enhanced the Nepali Citizenship to create 20k+ best Citizenship Dataset
- Performed Image Alignment to check skewness & Image rotation
- Extracted Information of backside of Citizenship using EasyOCR and used NER Spacy to map information to respected entities
- Used custom trained Nepali OCR to extract Devanagari script and implemented NER Spacy to map information to respected entities
- Created own rule-based transliteration module to romanize the Devnagari Script
- Developed an flask API for all OCR & Transliteration module & deployed on EC2 & Docker

Projects

Corona Prediction from X-Ray Images & Face Mask Detection

Dec 2020

- Tools used : Python, OpenCV, Keras, Tensorflow, Plotly
- Designed convolution network that inputs a X-ray images of lungs and outputs whether there is white patches on the X-Ray indicating pneumonia
- Developed a model capable of predicting multiple faces with or without masks with validation accuracy of 0.87

Corona Cases Visualization & Forecasting

Nov 2020

Genese Cloud Academy

- Tools used : Scikit-Learn, Pandas, Numpy, Seaborn, Plotly
- Visualized Corona cases in World, Asia and in Nepal and forecasted the future trends of Corona cases
- Designed and developed the model on AWS Sagemaker

Blood Cancer Detection Using CNN

Dec 2019

- Tools used: Python, Pytorch
- Designed convolution network that inputs a blood cell images and outputs whether the cell is infected with cancer
- Developed the model with precision score of 0.75 and accuracy score of 0.78

Diabetes Prediction using K-means

Feb 2021

- Tools used : Pandas, Numpy, Scikit-learn, Scipy, Matplotlib, Seaborn
- Created & published tutorials on website with Flask implementation implemented on Heroku

Freelance Works & Hobbies

- Content Writing
- Digital Marketing
- Web Scrapping
- Website Development
- Writing Novels & Literatures
- Travelling
- Reading Research Papers
- Online Games