Sangam Man Buddhacharya

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Dedicated and competent learner, willing to solve real-world problems using data, computer vision, and machine learning. Good leadership skills with creative problem-solving abilities. Passionate engineer and thriving analyst with the ability to work with lots of data, images, and apply different computer vision, ML algorithms. Possess a strong background in machine learning, computer vision, databases, mathematics, statistics, and looking to emerge as a machine learning engineer.

EDUCATION

Pulchowk Engineering Campus, TU, Bachelor of Engineering in Electronics and Communication (Aggregate: 81%) [2016]

HARD SKILLS

Programming
Python, C, C++, Matlab

Tools
GitHub, Linux, AWS, Excel

Database
MySQL, NoSQL, MonogoDB, PostgreSQL

Artificial Intelligence
Probability and statistics, Linear Algebra, Machine Learning, Deep Learning, Reinforcement Learning

Computer Vision

Frameworks and APIs
NumPy, Scikit-learn, TensorFlow, Keras, PyTorch, Matplotlib, OpenCV, Open3d, Pandas, SciPy, Seaborn

SOFT SKILLS

- **Problem solving**
- **Creativity**
- **Strong Work Ethic**
- **Teamwork**
- **Adaptability**
- **Leadership**
- **Communication**
- **Punctuality**

PROJECTS

Video to Online shopping/ Video E-commerce (ASMI) AI Engineer **Oct [2021] - March [2022]**
- Matched the clothes from MoJ, TikTok videos, and movies to similar items in an online shop (Flipkart and Amazon). Similar (category, color, pattern) product ads as video items were recommended from an online shop.
- Technologies used: Convolutional Neural Network (CNN), Object Detection, Human Tracking, Siamese Network, Pose estimation, K-Means, XGBoost, Python, PyTorch, TensorFlow, Open-CV, NumPy, SciPy.

AI Voice Clone (Freelancing) ML Engineer **June [2021] - Oct [2021]**
- Human voice cloning using RNN Model and Neural Vocoder. Experimented with the Joe Rogan voice.
- Technologies used: NLP, RNN, Python Language, TensorFlow, Pyaudio, NumPy, scikit-learn.

Supervised monocular depth estimation using single Image (Major Project) **March [2020] - May [2021]**
- Designed a CNN architecture to estimate a depth map from a single RGB image.
- Technologies used: Convolutional Neural Network, Attention Mechanism, Python, TensorFlow, Open-CV, NumPy.

Bigdata stock market analysis and prediction using LSTM (Big Data Project) **Feb [2021] - April [2021]**
- Statistically visualized the stock market data and built a simple LSTM model to predict a closing price.
- Technologies used: LSTM, RNN, Python, Pandas, Seaborn.

Continuous authentication of smartphone-based on human behavioral patterns using mobile sensors (Freelancing) ML Engineer **March [2020] - Nov [2020]**
- Designed a machine learning pipeline to predict legitimate or intruders from the human behavioral patterns using continuous mobile sensors (accelerometer and gyroscope).
- Technologies used: Smartphone accelerometer, gyroscope, 1D-CNN, Xgboost, Python, TensorFlow, Pandas, NumPy.

Arrhythmia prediction Using Convolutional Neural Network (Personal Project) **Aug [2019] - Dec [2019]**
- Proposed a 2D-CNN classification model to classify seven different types of Arrhythmia.
- Technologies used: AD8232 ECG sensor, Arduino, CNN, Python, Scikit-learn, Keras, Numpy.

PROJECTS

Agro-Doctor (Instrumentation Project) **Jan [2019] - May [2019]**

- Built an agricultural robot, that monitors the field, recognizes environmental variables, and diagnoses the health conditions of plants with leaf images and a CNN classifier.
- Technologies used: AVR, Computer vision, Object detection, VGG-16 classifier.

Health Care (Freelancing) Data Engineer **Jan [2019] - June [2019]**

- Built a device that measures 20 different body parameters such as (Blood pressure, Heartbeat, Weight, Height, Fat, BMI, Muscular muscles, ECG, etc.). It stores each person's data, weekly in the database(MongoDB) and analyzes those stored data to calculate the present health score and predicts the health risk of a person.
- Technologies used: Arduino, sensors , Python, NumPy, Pandas, Seaborn, SciPy, scikit-learn

AI Chess Playing robot (Locus Project) Team Lead **Feb [2018] - Aug [2018]**

- Built a robot to play chess physically with a human. Each move is generated using the alpha-beta pruning algorithm. Computer vision is used for the detection of the board position.
- Technologies used: Computer vision, Alpha-Beta Pruning, Blob detection , C++, Open-CV.

Stereo Matching and depth prediction using Siamese network **Jan [2018] - March [2018]**

- Designed a siamese network to extract the features vector from the left and right pair to find point correspondence.
- Technologies used: Computer vision, siamese network. stereo camera, Python, Open-CV, NumPY

Braille-Dristi (AT-Hackathon) **July [2017] - Nov [2017]**

- Built a device that converts printed textbooks into braille format. It consists of a camera and processor which clicks the picture of the book and uses Optical character recognition (OCR) to converts images into text. The text is sent via UART communication in ASCII format to the braille printer.
- Technologies used: Raspberry pi, Camera, Optical character recognition, Image processing, TTS, Python

EXPERIENCE

AI Engineer at ASMI **1st Sep [2021] - 15th March [2022]**

- Working on augmented reality, 3D advertisement injection in the video.
- Designed a computer vision pipeline for the video to online shopping recommendation
- Fine tunned hyperparameter for object detection and human tracking. Applied different computer vision algorithms (Gamma Correction, Color Constancy, etc).
- Build efficient fashion pattern matching for the online recommendations.
- Quality analysis and preparation of training data.

Associate Data Engineer at Deerwalk **10th May [2021] - 29th Aug [2021]**

- Interpret and analyze data using statistical techniques**.**
- Cleansing, conversion, and aggregation of data from several data sources, mapping of fields into a common schema, matching of member information across data sources, Standardization of Vocabulary.
- Developed algorithms to transform data into useful, actionable information.

ML Engineer(Freelancer) at ASMI **July [2020] - Nov [2020]**

- Collected data from different sensors in a smartphone and hand-engineered to select required features.
- Developed an ML model to filter data and designed a CNN model to classify legitimate from an intruder.
- Deployed the model developed using django on AWS.

Sakura Science exchange program(Japan) **16th Dec [2019] - 23rd Dec [2019]**

- Attended seminars on emerging technologies used in Japan such as Artificial Intelligence and Internet of Things (IoT) in Japan.
- Presented poster at International Workshop on Effective Engineering Education(IWEEE-5), Kisarazu, Chiba, Japan.

Hardware Coordinator at LOCUS **10th Sep [2019] - 20th Dec [2020]**

- Project Mentor
- Organized and planned robot competition (RoboWarz, Dronacharya, RoboPop)
- Instructor at hardware and software fellowship

HONORS & AWARDS

Locus 2019 Instrumentation (Project Winner)
[2019]

Locus 2018 Open (Hardware Winner)
[2018]

Sirjana-The Innovation(Winner)
[2019]

AT-Hackathon(2nd Runner up)
[2018]

ONLINE CERTIFICATES

Databases and SQL for Data Science with Python
HXBMQEJKFWHQ

Python for Data Science, AI & Development
8MWTPM47FPFX

Fundamentals of Reinforcement Learning
M3SWJ4EEWTRF

Convolutional Neural Networks
EE9B9HUTVMMD

Prediction and Control with Function Approximation
8HC7EKKETXZE

Robotics: Perception
XCKTW4TTLNE3

Build Basic Generative Adversarial Networks (GANs)
8TNGDUTHAJWB

Sample-based Learning Methods
JZ5YAFTEQ4NJ

Sequence Models
MFEZWC2JGPEK