Prasanga Neupane

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# 29 Colborne Rd, Boston, MA

Tired of sifting through endless CVs? Say hello to my cutting-edge [LLM powered chat assistant!](https://ask-prasanga.streamlit.app/) Ask anything related to my CV and professional journey with ease in ChatGPT style. I have crafted this application using the latest Gemini-Pro.

# EXPERIENCE

February 2023 – Present CGI Inc (Senior Data Engineer)

* Designed and implemented chat-based application leveraging LLM to provide enhanced data insights for business users, data scientists, and non-technical individuals. It facilitated seamless interaction of users with data using Gen AI empowering them to ask and receive answers to data-related questions which otherwise would require complex query (SQL or NoSQL).
* Revamped big-dataset search project with Azure AI Search and orchestrated multiple ETL pipelines to establish a centralized metadata repository for streamlined dataset discovery.
* Successfully led the integration of existing chatbot application to Palantir AIP facilitating cross-domain Generative AI powered chat feature with data present in Palantir Foundry.
* Led the successful transition of applications from Milvus to AI Search vector database with no downtime.
* Implemented RAG pipeline (including loading, parsing, indexing, storing, and querying) to decrease the latency of LLM Chat application by approximately 12%.
* Developed several impactful business reports with *PowerBI* that meticulously detailed product usage, operations, and essential parameters driving informed decision-making.

May 2022 – January 2023 AI Camp Inc (Lead Data Science Summer Intern)

* Led a group of five interns to implement a hand gesture tracking *object detection* algorithm with YOLOv5. Used tracked hand gestures as an input control to the platformer game and created a *s* out of it.
* Led a cohort of other four interns and implemented a system for easier conversion of restaurant menus, price tags and currency images using object detection, *Optical Character Recognition* and *EXIF* metadata.

January 2020 – December 2022 Louisiana State University (Research Assistant)

* Implemented *Reinforcement learning* based cargo inventory management to reduce the cost of operation.
* Implemented an algorithm for *optimized location of sensors* at indoors for better Quality of Service.
* Ideated and modeled a *chain classifier* to track the human object inside a room using WIFI radio-signals.
* Orchestrated ETL pipelines to scrape reddit posts and tweets for sentiment analysis using AWS Lambda and Glue.

November 2018 – December 2019 Alternative Technology (Machine Learning Engineer)

* Collaborated on the project “My Room-Gaalaincha” which increased the client’s number of Gaalaincha software almost 1.5 times. Accomplished *indoor scene segmentation* using DeeplabV3 and the *Vanishing point detection* to lay the rug over 2D image in that project.
* Reduced the cost of rug manufacturing by 17% by ideating and designing a *color quantization* algorithm in images using *SLIC segmentation.*
* Implemented *content aware image retrieval* system using VGG + ResNet and designed an algorithm to locate the *repeated patterns* within an image.

# TECHNICAL SKILLS

1. Proficient in Python, SQL, PySpark, Databricks, MATLAB, PowerBI, C#, and C++.
2. Competent in Machine Learning (Pytorch, Keras, Tensorflow), Data Analysis and Prediction (Regression, Clustering, SVM, Random Forest, XGBoost, Scikit-learn), Image Processing and Computer Vision (OpenCV), Natural Language Processing (Transformers and LLM apis), Implementing ETL piplines, Classification, Deeplearning using GPU, Object Detection, Segmentation, Scene recognization, AWS Sagemaker, Mlfow, Langchain, Huggingface.
3. Competent in Cloud Services AWS, Azure and GCP, Azure Data Factory, Glue, Athena, Lambda, EMR, Docker, Kubernetes, Terraform, Cloudformation, Git, CI/CD, Jira.
4. Competent in Object oriented programming and software life cycle, algorithms and proficient in Snowflake, DynamoDB, Vector Databases, CosmosDB, S3, ADLS, DataLake, Pandas, Numpy, Fast/Flask api, Plotly, Matplotlib.

# CERTIFICATES

1. [AWS Certified Cloud Pactitioner](https://www.credly.com/badges/a4f58185-444b-4695-b3a7-831e44ccc332/linked_in_profile)
2. [Microsoft Certified: Azure Fundamentals](https://www.credly.com/badges/e6804608-8eb0-4db3-a85a-5cdb4a3f3698/public_url)
3. [Snowflake : Data Engineering, Data Warehouse, Data Lake, Data Application](https://www.credly.com/users/prasanga-neupane.fef007f4)
4. Completed [Intro to ML Safety](https://docs.google.com/document/d/14xABYDpuVLnlLiSds8LVYvLYWWIHNxOvTRYqjy30kMQ/edit), an 8-week online course from [Center for AI Safety](https://www.cais.ai/) aimed at introducing ML Safety concepts such as robustness, monitoring, alignment for building safe Artificial Intelligence systems.

# EDUCATION

2020 – 2022 Masters in Electrical and Computer Engineering (4.0 GPA)

Louisiana State University, Baton Rouge, Louisiana, USA

2014 – 2018 Bachelor of Computer Engineering (75.25%)

Pulchowk Campus, Tribhuvan University, Lalitpur, Nepal

# RELEVANT PROJECTS

1. Retrival Augmented Generation (RAG) based LLM powered Personal Resume Assistant

* Implemented web-application with RAG architecture to have conversation with resume. [Try product here](https://ask-prasanga.streamlit.app/)

1. Image Segmentation in Indoor Scene and Laying Rug over the Floor

* Implemented indoor scene segmentation using DeepLabV3 and RANSAC based Vanishing Point Algorithm to lay rug/carpet in a 2D image of client’s room. [Try product here](https://galaincha.com.np/my-room)

1. NeedAHand: Webcam based Hand Gesture Controlled Game

* Trained an object detection YOLOv5 model to track different hand gestures and used those gestures as input to platformer game over a Flask website. [Try product here](https://github.com/akaprasanga/NeedAHand)

1. RNN Based Crypto Price Prediction with Twitter Sentiment Analysis

* Created sentiment analysis dataset from Twitter and designed a multi-modal algorithm for sentiment analysis (NLP) and prediction of bitcoin price fluctuations using Recurrent Neural Netwok. [Try here](https://cryptosentiment.streamlit.app/)

1. Recognizing Unkown Locally Repeated Pattern in Image

* Designed an algorithm to detect and locate the motif that is repeated several times in the image using Fourier analysis (OpenCV) and CNN. [Link](https://link.springer.com/chapter/10.1007%2F978-3-030-49336-3_10)

1. Content Based Image Retrival

* Created an image retrieval system based on the semantic similarity of images (VGG19, ResNet). [Link](https://github.com/akaprasanga/CBIR-ML_Project)

1. Graph DTI

* Predicted the possible interaction of drug and target cell using multi-layer perceptron using the molecular features of drug and protein features of target cells. [Link](https://link.springer.com/article/10.1186/s13321-021-00540-0#citeas)

# PUBLICATIONS

1. “Novel Cascade Classifier Using Multiresolution Progressive Learning for Device-Free Indoor Localization.” IEEE Sensors Letters, 2021.
2. “Novel Optimal Multisensor Placement for Indoor Rectilinear Line-of-Sight Coverage” IEEE Sensors Journal, 2021.
3. “GraphDTI: A robust deep learning predictor of drug-target interactions from multiple heterogeneous data.”, (with G. Lui and et.al) Journal of Cheminformatics, 2021.
4. “Extracting unknown repeated pattern in tiled images.” In: Hybrid Intelligent Systems. HIS 2019.
5. "Recurrent Neural Network Based Bitcoin Price Prediction by Twitter Sentiment Analysis," (with D.R. Pant) ICCCS-IEEE 2018