Padam Jung Thapa

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Education

University of New Orleans — New Orleans, LA
Ph.D. in Computer Science; GPA: 3.8/4.0 — *Aug 2022 - Expected 2026*

Kalinga Institute of Industrial Technology (KIIT) University — Odisha, India
Bachelor of Technology in Computer Science and Engineering; GPA: 3.93/4.0 — *Jul 2017 - Aug 2021*

Work Experience

Doctoral Research Assistant — Canizaro Livingston Gulf States Center for Environmental Informatics
New Orleans, Louisiana — *Jan 2023 - Present*

- Implemented StyleGAN2-ADA with custom data augmentations to efficiently annotate seepage and sandboil images through semi-automatic convex hull techniques, creating high fidelity synthetic datasets.
- Developed and optimized a stacking framework for precise image segmentation, enhanced with 10-fold cross-validation and an SVM meta-layer, resulting in improved model performance and robustness.

Graduate Research Assistant — Applied AI Research Lab, USD
Vermillion, South Dakota — *Aug 2022 - Dec 2022*

- Determined abnormality in Chest X-Rays to detect tuberculosis using a variation of Graph Neural Networks.
- **Technologies**: Python, Pytorch Geometric (PyG), Django, AWS, LaTeX

Software Engineer — Vajra Tech
Kathmandu, Nepal — *Jul 2020 - Aug 2022*

- Wrote automation scripts for various purposes (such as ETL, web scraping) using Python & Linux shell script.
- Optimized query in a relational database (MySql) for quicker data analysis.
- Prepared, executed, and maintained clean, reusable, and reliable code base and database scripts.
- Practiced code versioning using GIT to track script changes and GitHub for collaboration.
- Developed several components for data visualization, identity, access management, geofencing, etc.
- Worked in small, cross-functional teams with a heavy focus on agile development.
- Prepared road maps and guidelines for the new trainees, interns, & employees for training purposes.
- **Technologies**: Python, Django, React, Tableau, Jira, ggplot2, Folium, Streamlit, Plotly, SCRUM and SOLID Principles.

Skills and Qualifications

- **Languages**: Python, C/C++, Java, Scala, R
- **Databases**: Relational (MySQL, PostgreSQL), No-SQL (MongoDB)
- **Frameworks**: TensorFlow-Keras, Scikit, NLTK, SpaCy, Flask, OpenCV, PySpark, AutoML, FastAPI
- **Web Technologies**: HTML5, CSS3, PHP, Bootstrap, Shiny, Plotly, Bokeh, Django, RestAPI, Heroku
- **Miscellaneous**: Data Analysis (Pandas, Excel VBA), Design Patterns (Singleton, BLOC, Strategy & Factory pattern)

Notable Projects

- **Motor Vehicle Collision Webapp**: Developed a dashboard to detect collisions in New York City using Streamlit & Python.
- **Visualizing Citibike Trips with Tableau**: Created a dashboard using Tableau Public to visualize citibike trips dataset.
- **Credit Card Fraud Detection**: Used highly imbalanced transaction datasets with classification models trained with both imbalanced and synthetically balanced datasets. Tech: R, Decision Trees, Naive Bayes, Sampling (Smote, Adasyn, DBSmote)
- **Cryptoanalysis using Distributed Machine Learning**: Developed a cryptoanalysis and prediction system using the client-side dashboard for data visualization as frontend. Tech: PySpark, Postgres, AWS, .Net6, Python, React & Material UI.
- **Crime Zone Maps using Python**: Created an interactive heatmap with Folium & improved it using spatial clustering.
- **Traffic Sign Classification**: A multi-class classification project using Deep Convolutional Neural Network Model which can classify the images of 43 distinct types of traffic signals.
- **Explainable AI: Scene Classification using ResNet-18**: Trained a deep CNN & ResNet model for classification of scenery from Satellite Images using GradCam visualization technique which helps to explain how AI models think.

Honors And Awards

- Ph.D. Stimulus Assistantship for the academic year 2023 - 2024, GulfSCEI, U.S. Army Corps of Engineers.
- Recipient of the prestigious Indian embassy full undergraduate scholarship: 2017 - 2021

Certifications

- Foundations of Data Science - PadhAI
- Natural Language Processing Specialization
- Generative Adversarial Networks Specialization