(702) 372-9126
Minneapolis, Minnesota
dabinay@gmail.com

Binay Dahal

Portfolio: binaydahal.com
linkedin.com/in/binay-dahal/

Education

PhD, Computer Science, *University of Nevada, Las Vegas(UNLV)* 2018 — 2021
• Dissertation: From language comprehension towards general AI.
Master of Science, Computer Science, *University of Nevada, Las Vegas(UNLV)* 2016 — 2018
Bachelor of Engineering, Computer Science, *Kathmandu University* 2009 — 2013

Relevant Experience

Senior Data Scientist **01/2024 —**
Metropolitan Council *Twin Cities, Minnesota*

- **Job duty**: Work in cross-functional teams of chemical engineers, operation staff, and data scientists. • Meet with stakeholders and subject matter experts and collect potential use cases to improve wastewater plant operation. • Handle end-to-end data science projects(Requirement gathering to model deployment). • Communicate/present results to stakeholders. • Mentor junior data scientist(s).
- **Project(s)**: **Flow forecasting**: Training, evaluation, and deployment of ML-based model to predict wastewater flow for the next 6 hours. Improves upon the current system that forecasts for the next 90 min by leveraging past flows and weather forecasts. **Talk to data**: Ongoing R&D of an LLM-based system to let semi-technical stakeholders view, analyze, and visualize data using plain english text.
- **Keywords**: LLM fine-tuning, Prompt engineering, Time series data, Forecasting, Interpretability, A/B testing, Live dashboard.
- **Tools**: Python(Pandas, Scikit-learn, Keras, Tensorflow, Matplotlib, Numpy), SQL, Databricks, Streamlit, Pytorch, Huggingface.

Senior Applied Data Scientist **05/2022 — 01/2023**
R1 RCM *Remote, US*

- **Job duty**: Participate in requirements gathering, understand business problems, and formulate them in data science terms. • Query and collect massive multi-dimensional healthcare(EHR) data, perform feature engineering, train models, evaluate, and deploy.
- **Project(s)**: Mischarges identification: Identified around 90% of total false positives(FP) of a legacy rule-based engine at almost perfect precision. Saved the manual cost of pruning the FPs with minimal tradeoffs on recall.
- **Keywords**: Healthcare data, Predictive modeling, XGBoost
- **Tools**: Python(Pandas, Scikit-learn, Keras, Tensorflow, Matplotlib, Seaborn, Numpy, Scipy), SQL.

Research Assistant **08/2018 — 08/2020**
University of Nevada, Las Vegas *Las Vegas, Nevada*

- **Job duty**: Define research agendas, drive research projects, and disseminate findings through scientific journals and conferences.
- **Project(s)**: Question generation, short-text understanding, image aesthetics analytics, Neural architecture search(NAS).
- **Keywords**: Natural language processing, computer vision, deep learning, transformers, T5, BERT, pre-training, fine-tuning.
- **Tools**: Python, Tensorflow, Keras, Pytorch, Huggingface.

Associate Research Engineer **09/2015 — 07/2016**
Logpoint *Kathmandu, Nepal*

- **Job duty**: Conduct research on creating a new data pipeline using big data frameworks.
- **Tools**: Spark, Kafka, Scala, Flume, HDFS, Zookeeper, Mesos.

LLM skills

Concepts	Efficient attention(Flash attention, Sparse attention, etc), Peft(Adapter, LORA, Prefix tuning, etc), Mixture of Experts, Scaling laws, Prompt engineering(Chain-of-Thought, Tree-of-thought, etc), RLHF, Instruction-tuning, Retrieval Augmented Generation(RAG)
Tools	Pytorch, Huggingface, Langchain, Vector Store

Notable Publications

- **Learn to ask what you don't know**, *Proceedings of Seventh International Congress on Information and Communication Technology: ICICT 2022*, **2022**
- **Effective mutation and recombination for evolving convolutional networks**, *Proceedings of the 3rd International Conference on Applications of Intelligent Systems*, **2020**
- **USRRM: Pairwise ranking and scoring images using its aesthetic quality**, *IEEE Access*, **2019**
- **Machine learning models for paraphrase identification and its applications on plagiarism detection**, *2019 IEEE International Conference on Big Knowledge (ICBK)*, **2019**
- **Using deep learning for short text understanding**, *Journal of Big Data*, **2017**
- For full list of publications: **Google Scholar**