Suryodaya B. Shahi

Nepali Citizen | sshahi20@umd.edu | (667)-445-7800 | LinkedIn: Suryodaya Bikram Shahi

EDUCATION

University of Maryland College Park — **College Park, Maryland**
M.S. in Data Science — *Expected Graduation, May 2026*

- **Concentrations:** Data Science
- **Related Coursework:** Data Science, Probability Statistics, Machine Learning, NLP, Data Representation and Modeling, Communication in Data Science and Analytics, Big Data Systems, Algorithms for Data Science

Delhi Technological University (formerly DCE) — **Delhi, India**
B.Tech in Software Engineering — *Graduated, May 2023*

- **Concentrations:** Software Engineering
- **GPA:** 8.22/10.0
- **Related Coursework:** Data Structures & Algorithms, Objects & Design, Computer Organization & Programming, Compiler Design, Machine Learning, Artificial Intelligence, Object-Oriented Programming, Statistics & Applications, Software project Management, Computer Network

EXPERIENCE

Macquarie University — **Sydney, Australia**
Research Intern — *Jul 2022 – Oct 2023*

- **Resolved a data pipelining bottleneck** by optimizing the ingestion and preprocessing of a large-scale, **multilingual meme dataset** focused on **Nepali, Code-Switch, and Code-Mix languages** for sentiment analysis in **resource-constrained environments**. This solution significantly reduced processing time, improving overall model efficiency.
- **Engineered and applied advanced machine learning models** such as **BERT**, **VGG19**, and **ResNet50** for both **natural language processing** and **image analysis**, successfully classifying over **5,000 memes**. The optimized pipeline enabled seamless data integration, reducing errors and enhancing processing accuracy.
- **Developed and integrated multimodal approaches** by combining **VGG16** and **BERT**, improving the system's ability to identify hateful and malicious memes on social media by **40%**. This multimodal integration tackled complex data challenges by ensuring a comprehensive analysis of both visual and textual content.
- **Collaborated closely with Dr. Usman Naseem**, applying research insights to solve **real-world challenges in online content moderation**. Contributed significantly to enhancing the system's detection capabilities, making social media a safer platform by reducing harmful content.

Nepal Electricity Authority (Government Entity) — **Kathmandu, Nepal**
IT Intern — *May 2022 – Jul 2022*

- Collaborated with the IT department to apply **AI** and **machine learning** techniques for optimizing **inventory management** systems, improving process efficiency by **50%**.
- Developed and tested AI models on platforms like **Kaggle for random data**, focusing on improving demand forecasting and resource allocation within the organization.
- Enhanced inventory management operations by incorporating predictive analytics, helping **NEA become more centralized** in its operations and decision-making processes directly contributing to improving NEA's inventory accuracy and resource allocation, benefiting both internal operations and customer services.

PROJECTS

Analysis Towards Classification of Infection & Ischemia of Diabetic Foot Ulcers using Machine Learning — **Delhi, India**
Team Member

- **Developed a machine learning model** designed to classify **infection and ischemia** in **diabetic foot ulcers**, focusing on providing healthcare professionals with more **accurate and timely diagnosis**. This model directly addresses a critical challenge in early detection, improving patient outcomes.
- **Implemented SMOTE (Synthetic Minority Over-sampling Technique)** and **ensemble techniques** to counter class imbalance and improve the model's classification accuracy, achieving a **15% performance improvement** over baseline models. This enhancement ensured more reliable predictions, particularly for underrepresented cases.
- **Contributed to a solution** with **real-world potential** for improving **diabetic foot ulcer management**, reducing healthcare costs by enabling earlier interventions and more efficient treatment strategies. This project demonstrates the power of data-driven approaches in addressing **healthcare inefficiencies** and improving patient care.

Deep Learning methods for Vehicle Trajectory Prediction (Publication) — **Delhi, India**
Co-Author — *Oct 2023– March 2023*

- Co-authored and published a paper titled *"Deep Learning Methods for Vehicle Trajectory Prediction"* at the International Conference on IoT-Based Control Networks and Intelligent Systems (ICICNIS) 2023.
- Conducted a comprehensive review of **63 articles** on deep learning approaches for autonomous vehicle trajectory prediction, systematically narrowing down to **43** high-quality studies. Synthesized findings from the remaining **43 studies**, offering novel insights into the efficacy and advancements in deep learning techniques such as **LSTM** and **CNNs** for trajectory prediction.
- Proposed novel techniques integrating IoT data for more informed predictions, offering a scalable approach for real-time traffic monitoring and autonomous navigation.
- Publication DOI: 10.1007/978-981-99-6586-1_37.

SKILLS

Programming: Python, HTML/CSS,C++, C
Tools and Systems: PyCharm, **SQL,** Jupyter Notebooks, Git, Tensor flow,Pytorch,Panda Keras, Scikit-learns

ACTIVITIES, AWARDS AND LEADERSHIP

Kaushala (Edtech startup) — **Kathmandu, Nepal**
2022 – Present

- Started an ed-tech startup offering online and offline K-12 skill courses called Kaushala as a CTO

ICCR Scholar — **Delhi, India**
Scholar — *Aug 2019 – May 2023*

- Received a **Full Scholarship** from ICCR (INDIAN COUNCIL FOR CULTURAL RELATIONS) to pursue studies at Delhi Technological University