

Sushmita Sarker

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EDUCATION

University of Nevada, Reno <i>Ph.D. in Computer Science</i>	Reno, NV Aug. 2022 – Dec. 2025
University of Nevada, Reno <i>MS in Computer Science</i>	Reno, NV Aug. 2021 – Dec. 2023
Gujarat Technological University <i>BS in Electronics and Communication Engineering</i>	Ahmedabad, India Sep. 2013 – Apr. 2017

TECHNICAL SKILLS

Languages: Python, R, C++, MATLAB
Deep/ Machine Learning Libraries: Tensorflow, Keras, PyTorch, Pandas, Numpy, Matplotlib, Scikit-learn
Research Area: Applied Machine Learning, Generative AI, AI in Healthcare, Computer Vision and Pattern Recognition

RESEARCH EXPERIENCE

Graduate Research Assistant <i>University of Nevada, Reno</i>	Aug. 2021 – Present Reno, NV
<ul style="list-style-type: none">Conducted research on the application of artificial intelligence in medical imaging, focusing specifically on neural network methodologies such as convolutional neural networks (CNN), transformers, and generative models (diffusions) for processing mammogram images to detect invasive masses.Collaborated with the Mining lab to develop a storage repository that efficiently stores vast amounts of raw data in its native format, streamlining data accessibility for diverse end-users across the organization.	

TEACHING EXPERIENCE

Instructor <i>University of Nevada, Reno</i>	Aug. 2023 – Dec. 2023 Reno, NV
<ul style="list-style-type: none">Course taught: GRAD 778: Elements of Research Computing Designed and delivered comprehensive instruction to over 100 graduate students, covering essential research components within the field of computational engineering	
Graduate Teaching Assistant <i>University of Nevada, Reno</i>	Aug. 2021 – Dec. 2021 & Aug. 2022 – Dec. 2022 Reno, NV
<ul style="list-style-type: none">Course: ENGR100	
Assistant Teacher <i>South Point School & College</i>	Dec. 2017 – June 2021 Dhaka, Bangladesh
<ul style="list-style-type: none">Course taught: Cambridge IGCSE A Level Physics	

PROJECTS

Enhanced Mass Segmentation from Whole Mammographic Images Using Optimized U-Net | *Tensorflow* | [GitHub](#)
Multi-View Mammogram Classification with Swin-Transformer | *PyTorch* | [GitHub](#)
Comprehensive Analysis of 3D Shape Classification and Semantic Segmentation | [GitHub](#)
Score-based Diffusion Generative Classifier | *PyTorch* | [GitHub](#)
Conditional Diffusion Model for Semantically-Aware 3D Point Cloud Generation | *PyTorch* | [GitHub](#)
Unsupervised Anomaly Detection for Multivariate Time Series | *PyTorch* | [GitHub](#)
Generating Synthetic tree point clouds for automated part segmentation | *PyTorch*

ACTIVITIES & LEADERSHIP

Google Developer Group at Campus in UNR

University of Nevada, Reno

current

Reno, NV

- Serving as the Lead of the GDG at UNR, I organized impactful events and workshops, led a team in the development of diverse projects, and collaborated with Google's Developer Relations team to enhance the campus technical community.

SUMMER INTERNSHIP

Network Engineer Intern

Teletalk BD Ltd

June. 2016 – Aug. 2016

Dhaka, Bangladesh

- Conducted in-depth research and collaborated with a team of experts in the field of mobile communications.

PUBLICATIONS

Sushmita Sarker, Prithul Sarker, George Bebis, Alireza Tavakkoli, "MV-Swin-T: Mammogram Classification with Multi-view Transformer", IEEE International Symposium on Biomedical Imaging, 2024. [Preprint link](#)

Sushmita Sarker, Prithul Sarker, Gunner Stone, Ryan Gorman, Alireza Tavakkoli, George Bebis, Javad Sattarvand, "A Comprehensive Overview of Deep Learning Techniques for 3D Point Cloud Classification and Semantic Segmentation", Machine Vision and Applications 2024. [Springer link](#)

Gunner Stone, **Sushmita Sarker**, Jonathan Greenberg, Alireza Tavakkoli, "Generating Synthetic Tree Point Clouds for Deep Learning Applications in Remote Sensing", International Symposium on Visual Computing, 2024.

Sushmita Sarker, Prithul Sarker, George Bebis, Alireza Tavakkoli, "ConnectedUNets++: Mass Segmentation from Whole Mammographic Images", International Symposium on Visual Computing, 2022. [Springer link](#)

Sushmita Sarker, Prithul Sarker, George Bebis, Alireza Tavakkoli, "Can Score-based Generative Modeling Effectively Handle Medical Image Classification?", *under review*

Prithul Sarker, **Sushmita Sarker**, Nicholas Murray, Alireza Tavakkoli, "A Unified Unsupervised Anomaly Detection Framework for Multivariate Time Series", *under review*

Sushmita Sarker, Gunner Stone, Alireza Tavakkoli, "Guided and Unguided Conditional Diffusion Mechanisms for Structured and Semantically-Aware 3D Point Cloud Generation", *under review*

ACADEMIC ACCOLADES

Nevada Drive Scholar

Aug. 2023 – May. 2025

- Selected twice as a Nevada Scholar for the Nevada DRIVE program, promoting Doctoral Research in Innovation, Vision, and Excellence.

Indian Council for Cultural Relations Scholarship

Aug. 2013 – Apr. 2017

- Awarded the Fulbright scholarship for undergraduate studies at a prestigious engineering institute in Ahmedabad, India, awarded to students with exceptional academic achievement and leadership potential.