

Shubham Pandey

Center for Unified Biometrics and Sensors, University at Buffalo, Buffalo, NY

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Education

Doctoral of Philosophy in Computer Science

August 2023 – June 2028

University at Buffalo, The State University of New York, Buffalo, New York

GPA: - 3.55/4.0

(Advised by Dr. Venugopal Govindaraju)

- Current research area: Computer Vision and Multi-Modality in Health AI
- Working on a pipeline focused on patient care and clinical workflow optimization in collaboration with Roswell Park Comprehensive cancer research center, Buffalo, NY

Master of Science in Computer Science

August 2021 – May 2023

University at Buffalo, The State University of New York, Buffalo, New York

GPA: - 3.55/4.0

Bachelor of Technology in Electronics Engineering

August 2016 – September 2020

Kamla Nehru Institute of Technology, Sultanpur, India

GPA: 7.29/10.0

Publications

- S. Ahmed, B. Jawade, **S. Pandey**, S. Setlur, V. Govindaraju, "[RealCQA: Scientific Chart Question Answering as a Test-Bed for First-Order Logic](#)," accepted at ICDAR, 2023
- **S. Pandey**, B. Jawade and S. Setlur, "[Ridgeformer: Mutli-Stage Contrastive Training for Fine-Grained Cross-Domain Fingerprint Recognition](#)," accepted at IEEE International Conference on Image Processing, 2025
- **S. Pandey**, B. Jawade, S. Setlur, V. Govindaraju, K. Seastedt, "[Abstract A054: Multimodal LLM-Driven Intervention for Precision Risk Prediction in Lung Cancer Surgery](#)," accepted at AACR Special Conference in Cancer Research: Artificial Intelligence and Machine Learning, 2025
- **S. Pandey**, B. Jawade, S. Setlur, V. Govindaraju, K. Seastedt, "[LLM Augmented Intervenable Multimodal Adaptor for Post-operative Complication Prediction in Lung Cancer Surgery](#)," accepted in P2P-CV @ WACV 2026

Area of Expertise

- **Knowledge Areas:** Computer Vision, Deep Learning, Machine Learning, Data Science
- **Programming Languages:** Python, MATLAB
- **Deep Learning Toolkits:** Pytorch
- **CS Skills:** Data Structures, Algorithms, Object-oriented programming
- **Machine Learning:** Neural Networks, CNN, GAN, RNN, Transformers
- **Other Utilities:** Linux, ROS

Research Experience

University at Buffalo, Buffalo, NY, USA

August 2023 - Present

PhD student - Center for Unified Biometrics and Sensors

- Exploring domain of Multi-Modality and Explainability in Health AI

University at Buffalo, Buffalo, NY, USA

August 2025 - Present

Research Assistant - Center for Unified Biometrics and Sensors

- Funded by Roswell Park Comprehensive Cancer Center, Buffalo, NY
- Developing deep learning architectures using multi-modal data for patient care and clinical workflow optimization

Roswell Park Comprehensive Cancer Center, Buffalo, NY, USA

May 2025 - August 2025

Predoctoral Trainee - Department of Thoracic Surgery

- Worked on project focused on using Multi-modal preoperative data to predict probability of Pulmonary Postoperative Complications
- Another Project focuses on automated generation of radiology reports using X-Ray and CT scans
- Paper accepted in P2P-CV @ WACV 2026

University at Buffalo, Buffalo, NY, USA

August 2024 - May 2025

Teaching Assistant

- Lead Teaching Assistant for CSE 587 (Data Intensive Computing)

University at Buffalo, Buffalo, NY, USA

May 2024 - August 2024

Research Assistant - Center for Unified Biometrics and Sensors

- Developed a portal to crawl health care resources such as NIH to gather grant and proposals
- Portal paraphrased the proposal information accurately, making them concise using Llama 3.1
- Funded by Office of the Vice-president for Health Sciences, University at Buffalo

University at Buffalo, Buffalo, NY, USA

August 2023 - May 2024

Teaching Assistant

- Lead Teaching Assistant for CSE 587 (Data Intensive Computing)

The MathWorks Inc., Natick, MA, USA

May 2022 - August 2022

EDG Intern - Computer Vision and Deep Learning Team

- Worked on Optical Flow Method for cylindrical, sphere and plane model giving a clear perception on working of optical flow

University at Buffalo, Buffalo, NY, USA

August 2021 - May 2023

Research Assistant - Center for Unified Biometrics and Sensors

- Completed projects focused on VQA in scientific informatics and got a paper accepted in ICDAR'23
- Worked on project involving object detection and scene text detection funded by NSF S&CC program

Wobot Intelligence Pvt. Ltd., Delhi, India

October 2020 - January 2021

Vision Data Intern - Computer Vision Team

- Curated 15 datasets, employing web crawlers and web scrapers to scrap around 5 websites
- Implemented 2 GUIs to Filter and annotate datasets in PyQt5 in Python
- Implemented a Deep Learning architecture with the aim to enforce COVID sanitation guidelines for 3 food and beverage vendors

Selected Projects

- [Ridgeformer](#), a cross domain fingerprint matching network using novel loss function and a unique feature fusion training strategy
- [Real CQA](#) dataset created with over 18K real world images on scientific informatics, spanning over 5 categories and 7 QA types with 1.65M QA pairs
- [Sign Language recognition using CNN](#) utilizing ASL dataset to recognize sign language employing ResNet50
- [Census based Multi Agent Deep RL for day trading](#) using PPO to maximize the profit for day
- [DQN and Duelling DQN implementation on various RL environments](#) to maximize the overall reward for the agent and complete tasks
- [Dimensionality Reduction and Clustering with metrics](#) utilizing 20000 newsgroup documents
- [PPO Implementation on various predefined environments](#) uses PPO algorithm for optimizing learning in Acrobot-v1, Lunar Lander and Inverted Double Pendulum problem using RL

Professional Experience

The MathWorks Inc., Natick, MA, USA

May 2022 - August 2022

EDG Intern - Computer Vision and Deep Learning Team

- Added Rotated Rectangle support to Image, Video and Ground Truth Labeler apps for MATLAB 2022b release with unit and automation testing
- Applied DRY principle and inheritance to create new software in existing codebase
- Gained thorough knowledge of Sandbox and Perforce client

Teaching Experience

- Lead Teaching Assistant for CSE 587B Data Intensive Computing, SUNY Buffalo (Fall 2023)
- Lead Teaching Assistant for CSE 587B Data Intensive Computing, SUNY Buffalo (Spring 2024)
- Lead Teaching Assistant for CSE 587B Data Intensive Computing, SUNY Buffalo (Fall 2024)
- Lead Teaching Assistant for CSE 587B Data Intensive Computing, SUNY Buffalo (Spring 2025)