Prithul Sarker

prithuls@unr.edu | linkedin.com/in/prithulsarker/ | github.com/prithuls
Portfolio: https://prithulsarker.com/ | Google Scholar

EDUCATION

University of Nevada, Reno — Reno, NV
Ph.D. in Computer Science — *Jan. 2021 – Dec. 2024*

University of Nevada, Reno — Reno, NV
MS in Computer Science — *Jan. 2021 – May 2023*

Bangladesh University of Engineering and Technology — Dhaka, Bangladesh
BS in Electrical and Electronic Engineering, Minor in Telecommunication — *Feb. 2013 – Sep. 2017*

TECHNICAL SKILLS

Languages/Platforms: Python, R, C++, MATLAB, SQL, JavaScript, Bash, Docker
Python Libraries: Tensorflow, PyTorch, JAX, Pandas, Numpy, Matplotlib, Scikit-learn, Selenium
Research Area: Time Series Analysis, Pupillometry in Virtual Reality, Applied AI in Healthcare, Computer Vision

SUMMER INTERNSHIP

Ph.D. Software Engineer Intern (Incoming) — May 2024 – Aug. 2024
Google Research- Health AI — *Mountain View, CA*

Software Developer Intern — June 2023 – Aug. 2023
SGX3- Science Gateways (Texas Advanced Computing Center, University of Texas at Austin) — *Austin, TX*
- Developed applications for Frontera- world's fastest university supercomputer and 13th fastest supercomputer.
- Created interactive applications in HPC framework through remote desktop connections (i.e. VNC and DCV).
- Packaged HPC applications into docker and singularity applications and making it compatible with AI framework.

Education Mentor — May 2021 – Aug. 2021 & June 2022 – Aug. 2022
Army Educational Outreach Program (AEOP) — *Reno, NV*

EXPERIENCE

Graduate Research Assistant — Jan. 2021 – Present
University of Nevada, Reno — *Reno, NV*
- Utilized machine learning and generative modeling to predict concussion and quantify vision defects.
- Currently leading an independent research project to develop and implement an ophthalmic assessment in VR.
- Secured a $50,000 grant as recognition for our innovation of VR based ophthalmic assessment tool.
- Employed transformer and score-based generative modeling to classify and segment breast mass of mammograms.

Team Lead / Senior Software Quality Assurance Engineer — Jan. 2020 – Dec. 2020
Software Quality Assurance Engineer — June 2019 – Dec. 2019
EchoLogyx Ltd. — *Dhaka, Bangladesh*
- Led the team to create a positive relationship with the clients contributing to 160% company growth in year 2020.
- Designed and wrote script for QA automation and scraping data from the client website.

Product Officer — July 2018 — May 2019
Loence Solution — *Dhaka, Bangladesh*
- Researched market and designed features and infrastructure of the enterprise resource planning (ERP) web app.

Assistant Engineer (Electrical) — Nov. 2017 – June 2018
Energypac Engineering Ltd. — *Dhaka, Bangladesh*
- Investigated issues, and troubleshot faults in the electrical system of transformers and other substation equipment.

TEACHING EXPERIENCE

Instructor- GRAD778: Elements of Research Computing — Fall 2023
University of Nevada, Reno — *Reno, NV*
- Designed and delivered comprehensive instruction to 70 graduate students on fundamental concepts of Linux OS.
- Co-instructed the Python modules and contributed to graduate students' proficiency in Python programming.

Teaching Assistant- CS791 Topics: Mass Detection in Mammograms — Fall 2023
University of Nevada, Reno — *Reno, NV*

Projects

Multi-View Mammogram Classification with Swin-Transformer | *PyTorch* | <u>GitHub</u>   June 2023 - Jan 2024

Video Maker Bot | *Python, Selenium, YouTube API, Google Text-to-Speech* | <u>GitHub</u> | <u>Demo</u>   Oct. 2022 – Present
  - Developed a bot that makes video in Bengali from Facebook posts using google voice and uploads in social media.

ChatGPT Code Snippet Extension | *JavaScript, HTML, CSS* | <u>GitHub</u>   Feb 2023 – Present

VR-Chess | *C++, Unreal Engine* | <u>GitHub</u>   Jan. 2022 – June 2022

Bangladeshi Student Association Website | *CSS* | <u>GitHub</u> | <u>Demo</u>   Jan. 2022 – Present

Social Media Interaction Bot | *Python, Selenium, HTML* | <u>GitHub</u>   Feb. 2020 – May 2020

Face Recognition in Real Time Video | *Python, OpenCV* | <u>GitHub</u>   Oct. 2019 – Mar. 2020

Selected Publications

Prithul Sarker, Sushmita Sarker, George Bebis, Alireza Tavakkoli, "MV-Swin-T: Mammogram Classification with Multi-view Transformer", <u>IEEE International Symposium on Biomedical Imaging (Conference 2024)</u>

Prithul Sarker, Nasif Zaman, Joshua Ong, Phani Paladugu, Molly Aldred, Ethan Waisberg, Andrew G. Lee, Alireza Tavakkoli, "Test-retest Reliability of Virtual Reality Devices in Quantifying for Relative Afferent Pupillary Defect", <u>Translational Vision Science & Technology (Journal 2023)</u>

Prithul Sarker, Nasif Zaman, Alireza Tavakkoli, "VR-SFT: Reproducing Swinging Flashlight Test in Virtual Reality to Detect Relative Afferent Pupillary Defect", <u>International Symposium on Visual Computing (Conference 2022)</u>

Prithul Sarker, Joshua Ong, Nasif Zaman, Sharif Amit Kamran, Ethan Waisberg, Phani Paladugu, Andrew G. Lee, Alireza Tavakkoli "Extended Reality Quantification of Pupil Reactivity as a Non-invasive Assessment for the Pathogenesis of Spaceflight Associated Neuro-ocular Syndrome: A Technology Validation Study for Astronaut Health", <u>Life Sciences in Space Research (Journal 2023)</u>

Prithul Sarker, Khondker Fariha Hossain, Isayas Adhanom, Philip Pavilionis, Nicholas Murray, Alireza Tavakkoli, "Analysis of Smooth Pursuit Assessment in Virtual Reality and Concussion Detection using BiLSTM", <u>International Symposium on Visual Computing (Conference 2022)</u>

Prithul Sarker, Sushmita Sarker, George Bebis, Alireza Tavakkoli, "ConnectedUNets++: Mass Segmentation from Whole Mammographic Images", <u>International Symposium on Visual Computing (Conference 2022)</u>

Joshua Ong, Ethan Waisberg, Mouayad Masalkhi, Alex Suh, Sharif Amit Kamran, Phani Paladugu, **Prithul Sarker**, Nasif Zaman, Alireza Tavakkoli, Andrew G. Lee, " "Spaceflight-to-Eye Clinic": Terrestrial Advances in Ophthalmic Healthcare Delivery from Space-Based Innovations", <u>Life Sciences in Space Research (Journal 2024)</u>

Ethan Waisberg, Joshua Ong, Mouayad Masalkhi, Sharif Amit Kamran, Nasif Zaman, **Prithul Sarker**, Andrew G Lee, Alireza Tavakkoli, "GPT-4: A New Era of Artificial Intelligence in Medicine", <u>Irish Journal of Medical Science (2023)</u>

Joshua Ong, Ethan Waisberg, Sharif Amit Kamran, Phani Paladugu, Nasif Zaman, **Prithul Sarker**, Alireza Tavakkoli, Andrew G. Lee, "Deep Learning Synthetic Angiograms for Individuals Unable to Undergo Contrast-guided Laser Treatment in Aggressive Retinopathy of Prematurity", <u>Nature Eye (Journal 2023)</u>

Nasif Zaman, **Prithul Sarker**, Alireza Tavakkoli, "Calibration of Head Mounted Displays for Vision Research with Virtual Reality", <u>Journal of Vision</u>

Ethan Waisberg, Joshua Ong, Nasif Zaman, Sharif Amit Kamran, **Prithul Sarker**, Alireza Tavakkoli, Andrew G. Lee, "GPT-4 for Triaging Ophthalmic Symptoms", <u>Nature Eye (Journal 2023)</u>

Ethan Waisberg, Joshua Ong, Mouayad Masalkhi, Nasif Zaman, **Prithul Sarker**, Andrew G Lee, Alireza Tavakkoli, "The Future of Ophthalmology and Vision Science with the Apple Vision Pro", <u>Nature Eye (Journal 2023)</u>

Awards

Outstanding International Graduate Student Award   Spring 2024
University of Nevada, Reno - Graduate Student Association   *Reno, NV*

NSF National Innovation Corps (I-Corps™) program   July 2022 – Sep. 2022
Entrepreneurial Training Program (Seven weeks) ($50,000 Awarded)   *New York City, NY*

Undergraduate Student Merit Scholarship   Feb. 2013 – Sep. 2017
Bangladesh University of Engineering and Technology   *Dhaka, Bangladesh*