Prithul Sarker

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Portfolio: https://prithulsarker.me/ | 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, Pandas, Numpy, Matplotlib, Scikit-learn, Selenium
Research Area: Time Series Analysis, Pupillometry in Virtual Reality, Applied AI in Healthcare, Computer Vision

Internships

Software Developer Intern — June 2023 – Aug. 2023
SGX3- Science Gateways — Texas Advanced Computing Center — *The University of Texas at Austin*

- Packaged HPC applications into docker and singularity applications and making it compatible with AI framework.
- Fixed issues for HPC applications, and updated user portal for easy access.

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

- Mentored five high school students who assisted in one of my research projects by preprocessing data.

Experience

Graduate Research Assistant — Jan. 2021 – Present
University of Nevada, Reno — *Reno, NV*

- Led my own research, implemented an ophthalmic assessment in virtual reality (VR), gathered control and patient data, analyzed data gathered from the assessment to predict and quantify defect in participants.
- Participated in NSF I-Corps national program with our research technology and was awarded $50,000.
- Collaborated with Neuromechanics lab on concussion detection from VR ocular and vestibular data.

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.

Projects

ChatGPT Code Snippet Extension | *JavaScript, HTML, CSS* | GitHub — Feb 2023 – Present
- Developed a chrome extension which lets you save code snippet suggested by ChatGPT in your browser.

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

VR-Chess | *C++, Unreal Engine* | GitHub — Jan. 2022 – June 2022
- Implemented an interactive chess game in VR where the user can have a 3D view from any angle of the board.

Bangladeshi Student Association Website | *CSS* | GitHub | Demo — Jan. 2022 – Present

Social Media Interaction Bot | *Python, Selenium, HTML* | GitHub — Feb. 2020 – May 2020
- Created a bot that logs in social media (Twitter, Instagram, Facebook), and interacts (like, comment) with posts.

Face Recognition in Real Time Video | *Python, OpenCV* | GitHub — Oct. 2019 – Mar. 2020
- Implemented a python program to localize faces from real time video and recognize them with 85% accuracy.

Publications

Prithul Sarker, Nasif Zaman, Alireza Tavakkoli, "VR-SFT: Reproducing Swinging Flashlight Test in Virtual Reality to Detect Relative Afferent Pupillary Defect" Springer link

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" Translational Vision Science & Technology link

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" Life Sciences in Space Research link

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" Springer link

Prithul Sarker, Sushmita Sarker, George Bebis, Alireza Tavakkoli, "ConnectedUNets++: Mass Segmentation from Whole Mammographic Images" Springer link

Prithul Sarker, Joshua Ong, Nasif Zaman, Sharif Amit Kamran, Ethan Waisberg, Phani Paladugu, Andrew G. Lee, Alireza Tavakkoli, "Investigating the Pathogenesis of Spaceflight Associated Neuro-ocular Syndrome with Head-mounted Visualization Engineering of Pupil Reactivity" (Poster at North American Neuro-Ophthalmology Society- NANOS Annual Conference 2023)

Prithul Sarker, Alireza Tavakkoli, "An Arduino-based Lightweight and Reliable Solution to Detect Relative Afferent Pupillary Defect" (Poster at Optica Fall Vision Meeting 2022)

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" Nature Eye link

Nasif Zaman, **Prithul Sarker**, Alireza Tavakkoli, "Calibration of Head Mounted Displays for Vision Research with Virtual Reality" Jounral of Vision link

Ethan Waisberg, Joshua Ong, Nasif Zaman, Sharif Amit Kamran, **Prithul Sarker**, Alireza Tavakkoli, Andrew G. Lee, "GPT-4 for Triaging Ophthalmic Symptoms" Nature Eye link

Ethan Waisberg, Joshua Ong, Sharif Amit Kamran, Nasif Zaman, Phani Paladugu, **Prithul Sarker**, Alireza Tavakkoli, Andrew G. Lee, "Further Characterizing the Physiological Process of Posterior Globe Flattening in Spaceflight Associated Neuro-ocular Syndrome with Generative Adversarial Networks" Applied Physiology link

Ethan Waisberg, Joshua Ong, Mouayad Masalkhi, Nasif Zaman, Sharif Amit Kamran, **Prithul Sarker**, Andrew G. Lee, Alireza Tavakkoli, "Text-to-image Artificial Intelligence to Aid Clinicians in Perceiving Unique Neuro-ophthalmic Visual Phenomena" Springer link

Ethan Waisberg, Joshua Ong, Mouayad Masalkhi, Sharif Amit Kamran, Nasif Zaman, **Prithul Sarker**, Alireza Tavakkoli, Andrew G. Lee, "GPT-4 and Ophthalmology Operative Notes" Annals of Biomedical Engineering link

Khondker Fariha Hossain, Sharif Amit Kamran, **Prithul Sarker**, Philip Pavilionis, Isayas Adhanom, Nicholas Murray, Alireza Tavakkoli, "Virtual-Reality based Vestibular Ocular Motor Screening for Concussion detection using Machine-learning" Springer link

Undergraduate Thesis

Statistical Modeling of Effluent Generated from Proposed Rampal Power Plant for Environmental Impact Assessment

Oct. 2016 – Sep. 2017

- The primary objective of the thesis was to ensure less emission of SOx and NOx compared to subcritical and supercritical technologies.
- Analyzed and interpreted the direction of wind of that locality to ensure the prevention of the mangrove forest from the power plant generated SOx and NOx emissions.