

Prithul Sarker

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Portfolio: <https://prithulsarker.com/> | [Google Scholar](#)

EDUCATION

University of Nevada, Reno <i>Ph.D. in Computer Science</i>	Reno, NV <i>Jan. 2021 – Dec. 2024</i>
University of Nevada, Reno <i>MS in Computer Science</i>	Reno, NV <i>Jan. 2021 – May 2023</i>
Bangladesh University of Engineering and Technology <i>BS in Electrical and Electronic Engineering, Minor in Telecommunication</i>	Dhaka, Bangladesh <i>Feb. 2013 – Sep. 2017</i>

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

SUMMER INTERNSHIP

Software Developer Intern <i>SGX3- Science Gateways (Texas Advanced Computing Center, University of Texas at Austin)</i>	June 2023 – Aug. 2023 <i>Austin, TX</i>
<ul style="list-style-type: none">Developed applications for Frontera- world's fastest university supercomputer and 13th fastest supercomputer.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 for multiple HPC systems.	
Education Mentor <i>Army Educational Outreach Program (AEOP)</i>	May 2021 – Aug. 2021 & June 2022 – Aug. 2022 <i>Reno, NV</i>
<ul style="list-style-type: none">Mentored five high school students who assisted in one of my research projects by preprocessing data.	

EXPERIENCE

Graduate Research Assistant <i>University of Nevada, Reno</i>	Jan. 2021 – Present <i>Reno, NV</i>
<ul style="list-style-type: none">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.Analyzed temporal health data collected from various assessments, and predicted anomalous behaviour.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 Software Quality Assurance Engineer <i>EchoLogyx Ltd.</i>	Jan. 2020 – Dec. 2020 June 2019 – Dec. 2019 <i>Dhaka, Bangladesh</i>
<ul style="list-style-type: none">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 <i>Loence Solution</i>	July 2018 — May 2019 <i>Dhaka, Bangladesh</i>
<ul style="list-style-type: none">Researched market and designed features and infrastructure of the enterprise resource planning (ERP) web app.	
Assistant Engineer (Electrical) <i>Energypac Engineering Ltd.</i>	Nov. 2017 – June 2018 <i>Dhaka, Bangladesh</i>
<ul style="list-style-type: none">Investigated issues, and troubleshoot faults in the electrical system of transformers and other substation equipment.	

TEACHING EXPERIENCE

Instructor- GRAD778: Elements of Research Computing <i>University of Nevada, Reno</i>	Fall 2023 <i>Reno, NV</i>
<ul style="list-style-type: none">Instructed Linux module and guided graduate students through fundamental concepts and commands of Linux.Co-instructed the Python modules and contributed to graduate students' proficiency in Python programming.	
Teaching Assistant- CS791 Topics: Mass Detection in Mammograms <i>University of Nevada, Reno</i>	Fall 2023 <i>Reno, NV</i>

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, 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 (Jounral 2023)
- Prithul Sarker**, Nasif Zaman, Alireza Tavakkoli, "VR-SFT: Reproducing Swinging Flashlight Test in Virtual Reality to Detect Relative Afferent Pupillary Defect", International Symposium on Visual Computing (Conference 2022)
- 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 (Journal 2023)
- 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", International Symposium on Visual Computing (Conference 2022)
- Prithul Sarker**, Sushmita Sarker, George Bebis, Alireza Tavakkoli, "ConnectedUNets++: Mass Segmentation from Whole Mammographic Images", International Symposium on Visual Computing (Conference 2022)
- 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)
- 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", Irish Journal of Medical Science (2023)
- 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 (Journal 2023)
- Nasif Zaman, **Prithul Sarker**, Alireza Tavakkoli, "Calibration of Head Mounted Displays for Vision Research with Virtual Reality", Jounral of Vision
- Ethan Waisberg, Joshua Ong, Nasif Zaman, Sharif Amit Kamran, **Prithul Sarker**, Alireza Tavakkoli, Andrew G. Lee, "GPT-4 for Triaging Ophthalmic Symptoms", Nature Eye (Journal 2023)
- Mouayad Masalkhi, Ethan Waisberg, Joshua Ong, Nasif Zaman, **Prithul Sarker**, Andrew G Lee, Alireza Tavakkoli, "Apple Vision Pro for Ophthalmology and Medicine", Annals of Biomedical Engineering (Journal 2023)
- 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", Nature Eye (Journal 2023)

Ethan Waisberg, Joshua Ong, Mouayad Masalkhi, Nasif Zaman, Sharif Amit Kamran, **Prithul Sarker**, Alireza Tavakkoli, Andrew G Lee, "The Case for Expanding Visual Assessments During Spaceflight", Prehospital and Disaster Medicine (Journal 2023)

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", Journal of Applied Physiology (2023)

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", Irish Journal of Medical Science (2023)

Joshua Ong, Ethan Waisberg, Mouayad Masalkhi, Sharif Amit Kamran, Kemper Lowry, **Prithul Sarker**, Nasif Zaman, Phani Paladugu, Alireza Tavakkoli, Andrew G Lee, "Artificial Intelligence Frameworks to Detect and Investigate the Pathophysiology of Spaceflight Associated Neuro-Ocular Syndrome (SANS)", Brain Sciences (Journal 2023)

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 (Journal 2023)

Ethan Waisberg, Joshua Ong, Mouayad Masalkhi, Nasif Zaman, Sharif Amit Kamran, **Prithul Sarker**, Andrew G Lee, Alireza Tavakkoli, "Generative Pre-Trained Transformers (GPT) and Space Health: A Potential Frontier in Astronaut Health During Exploration Missions", Prehospital and Disaster Medicine (Journal 2023)

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", International Symposium on Visual Computing (Conference 2022)

AWARDS & CERTIFICATIONS

NSF National Innovation Corps (I-Corps™) program <i>Entrepreneurial Training Program (Seven weeks) (\$50,000 Awarded)</i>	July 2022 – Sep. 2022 <i>New York City, NY</i>
Undergraduate Student Merit Scholarship <i>Bangladesh University of Engineering and Technology</i>	Feb. 2013 – Sep. 2017 <i>Dhaka, Bangladesh</i>

UNDERGRADUATE THESIS

Statistical Modeling of Effluent Generated from Proposed Rampal Power Plant for Environmental Impact Assessment	Oct. 2016 – Sep. 2017
<ul style="list-style-type: none">The primary objective of the thesis was to ensure less emission of SO_x and NO_x 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 SO_x and NO_x emissions.	