

Ayaan Haque

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EDUCATION

UC Berkeley College of Engineering

B.S. in Electrical Engineering and Computer Sciences (EECS)

Berkeley, CA

Aug. 2022 – May 2025 (Exp.)

ABOUT

Freshman at UC Berkeley EECS. ~2 years of university and industry research experience. Worked with Stanford, Princeton, Berkeley professors/researchers to publish 10+ primary-author papers in top professional publications. Research focuses on training deep learning models to learn from limited-labeled data for 2D/3D vision tasks by leveraging self-supervised and semi-supervised learning. Other interests include NLP (multimodal learning) and intelligent robotics.

EXPERIENCE

AI Research Intern at Samsung SDSA

Artificial Intelligence Research Team

June 2022 – September 2022

San Jose, California

- Proposed “SSL-MeshCNN”, a novel self-supervised algorithm for segmenting non-uniform, irregular 3D meshes
- Introduced new SimCLR-inspired stochastic augmentation policy for mesh-specialized contrastive learning
- Matched accuracy of fully-supervised training (90.50%) with just 67% of labels on benchmark datasets
- Released preprint of work on [preprint](#), submitting to top conference/journal

AI Research Intern at Stanford University

Wang Group (Radiological Sciences Laboratory)

July 2020 – June 2022

Stanford, California

- Wrote 5 first-author papers with Professor Adam Wang in professional, top-10 ranked venues, published/presented at international conferences/journals
- Addressing “limited-labeled data” challenge in AI-based medical imaging by leveraging self-supervised, semi-supervised, and multi-task learning
- Attended weekly group meetings, gave talks and presentations at joint group meetings
- Developed research skills by designing/coding models and training algorithms, running hundreds of experiments, writing manuscripts, preparing supplementals, and writing rebuttals

Researcher in REU Program at Stanford’s RSL

Radiological Sciences Laboratory

June 2021 – August 2021

Stanford, California

- Conducted research as part of Stanford RSL’s Research Experience for Undergraduates (REU) summer program
- Prepared research project on image-quality assessment concurrently as part of main Stanford internship
- Attended talks/lectures with undergraduate researchers, sole high school participant, accepted to 2022 program

Software Engineering Intern at Openwater Accelerator

Internal SWE Team

August 2020 – December 2020

Menlo Park, CA

- Developed Waitlist API for portfolio companies in VC cohort, allows companies to establish waitlists for their products and build market
- Used React.js, MongoDB, Flask and other web dev/backend tech, integrated Stripe API, implemented referral features, and communicated with companies for feedback

PUBLICATIONS

A. Haque, H. Moon, H. Hao, S. Didari, J. Woo, P. Bangert. “[Self-Supervised Contrastive Representation Learning for 3D Mesh Segmentation](#),” ArXiv, 2022. *In Submission*.

A. Haque. “[EC-GAN: Low-Sample Classification using Semi-Supervised Algorithms and GANs](#),” AAAI Conference on Artificial Intelligence (AAAI), 2021.

A. Haque, A. Wang, A.A.Z. Imran. “[Window Level is a Strong Denoising Surrogate](#),” MICCAI Machine Learning in Medical Imaging (MLMI), 2021.

A. Haque, A.A.Z. Imran, A. Wang, D. Terzopoulos. “[MultiMix: Sparingly Supervised, Extreme Multitask Learning From Medical Images](#),” IEEE International Symposium on Biomedical Imaging (ISBI), 2021.

A. Haque, A.A.Z. Imran, A. Wang, D. Terzopoulos. “[Generalized Multi-Task Learning from Substantially Unlabeled Multi-Source Medical Image Data](#),” The Journal of Machine Learning for Biomedical Imaging (MELBA), 2021.

A. Haque, A. Wang, A.A.Z. Imran. “[Task-Specific Self-Supervision for CT Image Denoising](#),” *In Submission*.

- A. Haque**, A. Wang, A.A.Z. Imran. “Noise2Quality: Non-Reference, Pixel-Wise Assessment of Low Dose CT Image Quality,” SPIE Medical Imaging (SPIE), 2022.
- A. Haque**, V. Reddi, T. Giallanza. “Deep Learning for Suicide and Depression Identification with Unsupervised Label Correction,” International Conference on Artificial Neural Networks (ICANN), 2021.
- A. Haque**, S. Haque. “3N-GAN: Semi-Supervised Classification of X-Ray Images with a 3-Player Adversarial Framework,” ArXiv, 2021. *In Submission.*
- A. Haque**, I. Sutradhar, M. Rahman, M. Hasan, M. Sarker. “Convolutional Nets for Diabetic Retinopathy Screening in Bangladeshi Patients,” ArXiv, 2021.
- A. Haque**, S. Shah, F. Liu. “Simulated Data Generation Through Algorithmic Force Coefficient Estimation for AI-Based Robotic Projectile Launch Modeling,” IEEE Asia-Pacific Conference on Intelligent Robot Systems (ACIRS), 2021.
- A. Haque**, A. Kukal, Y. Rao, D. Cho, K. Rao. “A Computational Analysis of the Effect of Nicotine Withdrawal on Cardiac Arrhythmia and its Relationship with COVID-19 Mortality Rates,” Journal of Student Research, Vol. 10, No. 1, 2021.

AWARDS

- AAAI Best Student Paper Finalist** Feb 2021
- One of 20 finalists chosen for best student papers at AAAI 2021, youngest in 35 year history to be selected, gave 3-minute oral thesis presentation
- Major League Hacking Top 50 Hacker** July 2021
- Selected for Major League Hacking (MLH) Top 50 Hacker, which recognizes most successful and impactful hackers in a community of 500,000 hackers. Second youngest chosen, highlighted in public profile
- 33x Hackathon Winner** September 2019 - Present
- Accumulated 33+ hackathon awards and \$10,000 prize value for 10+ projects, amongst highest winners in history
- 4th Place Congressional App Challenge** December 2020
- Awarded 4th place for the Congressional App Challenge for our project SuiSense, a national programming challenge held by US Congress, received hand-written letter from Congresswomen Anna Eshoo
- ACIRS Best Presentation Award** July 2021
- Selected as Best Presentation Award for our paper at IEEE ACIRS 2021, youngest author in history to be selected

SERVICE WORK

- Invited Reviewer** November 2020 – Present
- Invited by the IEEE Journal of Biomedical and Health Informatics (IEEE JBHI)
 - Reviewed for MICCAI 2021, WACV 2021, ICANN 2021, and more
- Drishti** November 2019 – Present
Bangladesh
- Founder/Researcher*
- Developed an AI algorithm to diagnose Diabetic Retinopathy, integrated algorithm with self-designed smartphone-based retinal cameras
 - Currently used and fully supported by Dr. Sabrina Ullah from the Bangladesh Eye Hospital, conducted pilot study on 50 images, achieved 96% accuracy
 - Working with Dr. Ullah and the Sonar Bangla Foundation (SBF) to deploy algorithm in two pilot clinics, building partnerships with multiple NGOs operating rural clinics
- Jaago Robotics** July 2018 – Present
Bangladesh
- Founder/Director*
- Founded branch of the Jaago Foundation to teach Robotics and STEM education to underprivileged students in Bangladesh
 - Instructed two sessions, summer 2018 and winter 2019 with 20+ total students, developed week-long curriculum for beginners, taught block programming and engineering concepts with Lego Mindstorms EV3 Kit
 - Students presented their work to education board and Levi Strauss representatives, received funding for their school

TECHNICAL SKILLS

Skills: AI/ML/DL(CV, NLP), Data Science, App Dev, Web Dev, Frontend, Backend, Fullstack
Languages: Proficient: Python, Java, Swift, HTML. Familiar: CSS, Javascript, R
Frameworks/Tools: PyTorch, Keras, Sklearn, NumPy, Pandas, LaTeX, Scipy, OpenCV, RStudio, Firebase, MongoDB, Flask, React, Jupyter, Git, XCode, Ruby