

## EDUCATION & CERTIFICATION

---

- **University College Dublin, Ireland** May 2026 - April 2027 (est.)  
*Master of Science by Research in Computer Science*
- **Khulna University of Engineering and Technology, Bangladesh** Jan 2020 - Sep 2025  
*Bachelor of Science in Computer Science*
- **International English Language Testing System (IELTS)** Nov 2024 - Nov 2026  
*Band: 8.0 out 9.0 (C1 Proficiency)*

## EXPERIENCE

---

- **Software QA Engineer** - Enosis Solutions Nov 2025 - Jun 2026
  - **Automation Framework Development:** Developed an automation framework using playwright for internal use by the Software Engineers of the company saving up to 80% manual QA time.
  - **MVP Launch:** Launched 3 MVP within 4 months, leading to more successful contract signed as offshore team.
- **Machine Learning Engineer** - Freelance Dec 2024 - Jan 2026
  - **Computer Vision Pipeline:** Developed a machine learning (vision) pipeline for real-time tennis serve analysis by serve extraction, serve-type classification, and 3D racket trajectory reconstruction from 60 fps videos. Achieved  $\leq 1^\circ$  racket tilt accuracy and 20 cm ball bounce localization.
- **Research Assistant:** - System Development Center, KUET Apr 2025 - Jun 2025
  - **Multi-modal Aneurysm segmentation:** Made a 3D ViT from scratch to detect *Intracranial Aneurysm* from multi-modal (MRI, CT & MRA) data. Attained 86.3% AUC ROC score, comparable to SOTA. (Model open-sourced).
  - **Skin-lesion Segmentation:** Developed & fine-tuned vision transformers for skin lesion segmentation (swin-transformer, vit enc etc.) to compare gradient shattering effect on generated mask. Outperformed SOTA by 3%.
- **Undergraduate Thesis** - Department of CSE, KUET Mar 2024 - Jul 2025
  - **Interpretability Method Development (State of the Art) :** Developed a *SOTA* interpretability method for vision transformers with **16.4% higher IoU** and a **20% improvement** in both *precision* and *F1-score* compared to existing methods. A **blind test** with 500 images and 5 heatmaps per image (4 existing vs. ours), 3 human evaluators preferred the proposed method in **84%** of cases. Published a paper titled: **F2HF: Feed Forward Network as noisy head filter in vision transformer interpretability.**  
*Research Supervisor: Prof. Kazi Saeed Alam*
- **Machine Learning Team Lead** - KUET Mars Rover team Aug 2021 - May 2024
  - **Reinforcement Learning in Robotics:** Lead the design and implementation of a Reinforcement Learning based path-finding solution for the Mars environment, optimizing for: *Remaining charge, Battery capacity, Solar light availability, Distance.* Achieved top-10 rank globally in International Rover Challenge (IRC).

## PUBLICATIONS

---

- **F2HF: Feed Forward Network as noisy head filter in vision transformer interpretability** - 28th International Conference on Computer and Information Technology (ICCIT), Cox's Bazar, Bangladesh  
*Imran Hossen, Kazi Saeed Alam*

## PROJECTS

---

- **Virtual Dress Try-On Model (with GUI)** - ML Model to try out how a dress might suit someone. [Demo](#)  
Developed a *Double-UNet*-based **diffusion model** for virtual try-on, achieving an FID score of **9.01** (almost SOTA). Separate UNets for the cloth and person-cloth generation architecture aligns cloth on body more accurately.
- **Autism Screening and Therapy Platform** - Video based autism detection and AI based therapy platform.  
Developed a **3D Transformer** for behavioral video analysis, achieving **95.2%** accuracy on just 300 data samples. Model deployed on **AWS Lambda** as a **serverless** function for automatic scaling. Backend deployed on **EC2**.

## SKILLS

---

**Programming Languages:** Python, SQL, C++, Typescript.

**Machine Learning Libraries :** Pytorch, Transformers, SciPy, Scikit-learn.

**Programming Frameworks:** MLFlow, OpenCV, Pillow, Spring, Django, Vue.JS, Langchain.

**Cloud and Databases:** Docker, AWS S3, AWS EC2, AWS Lambda, MongoDB, MySQL, PostgreSQL, Redis.