OISHEE BINTEY HOQUE

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EDUCATION

PhD in Computer Science, *University of Virginia* **|** *Charlottesville, VA*　　　　　　　*August 2021 - July 2026(Expected)*

Relevant Coursework: Machine Learning (ML), ML in Image Processing, Interpretable ML, Design and Analysis of Algorithms, NLP, Signal Processing, Machine Learning and Control, Mobile and Iot Security, Software Security via Program Analysis

Advisor: Dr. Madhav Marathe

BSc in Computer Science, *Ahsanullah University of Science and Technology | Dhaka, Bangladesh*　　　*Aug* 2019

RESEARCH PUBLICATIONS

1. ***Oishee Bintey Hoque,*** Samarth Swarup, Abhijin Adiga, Kossi Nouwakpo, Madhav Marathe, "**IrrNet: Advancing Irrigation Mapping with Incremental Patch Size Training on Remote Sensing Imagery**", V4A, CVPR, 2024

2. ***Oishee Bintey Hoque***; [13 other authors], "**COVID-19 non-pharmaceutical interventions: data annotation for rapidly changing local policy information**", **Scientific Data - Nature**, volume 10, Article number: 126 (2023).

3. Sifat Ahmed, Tonmoy Hossain, ***Oishee Bintey Hoque***, Sujan Sarker, Sejuti Rahman, Faisal Muhammad Shah, "**Automated COVID-19 Detection from Chest X-Ray Images: A High-Resolution Network (HRNet) Approach**", SN Computer Science,2(4): 294. 2021

4. ***Oishee Bintey Hoque***, Md Imrul Jubair, Al-Farabi Akash, Md Saiful Islam, "**BdSL36: A Dataset for Bangladeshi Sign Letters Recognition**", In Proceedings of the **Asian Conference on Computer Vision (ACCV) Workshops, 2020**

5. ***Oishee Bintey Hoque***, Maisha Binte Rashid, K.M. Tawsik Zawad, "**Autonomous Deblurring Images and Information Extraction from Documents Using CycleGAN and Mask RCNN**", In Proceedings of the 23rd International Conference on Computer and Information Technology, Dhaka, Bangladesh (ICCIT 2020), Dhaka, Bangladesh.

6. ***Oishee Bintey Hoque***, Md. Imrul Jubair, Md. Saiful Islam, Al-Farabi Akash, "**Real Time Bangladeshi Sign Language Detection using Faster R-CNN**", In Proceedings of International Conference on Innovation in Engineering and Technology (ICIET), 2018

EXPERIENCE

Graduate Research Assistant/Teaching Assistant, *University of Virginia*　　　　　　　　　*Aug 2021 – Present*

Tech Stack: Python, Tensorflow, Pandas, NumPy, Matplotlib, Pytorch, FastAi, scikit-learn, OpenCV, QGIS, Jupyter Notebooks

Irrigation Canal Identification from Satellite Images
- Pioneering research in building novel machine learning algorithms to detect irrigation canals from remote sensing data
- Conceptualizing and developing a model to interpret irrigation canals as a graph network and understanding the topological structure of the network to refine the faulty ground and guide the model to learn better.
- Working on integrating connectivity and reachability constraints into segmentation algorithms to improve accuracy and reliability of canal detection models, with limited data sources.

Irrigation Type Detection from Remote Sensing Data
- Developing a deep learning system for irrigation mapping in a heterogeneous setting using advanced ML tools
- Integrating alternative joint learning approaches to guide the segmentation model for better understanding the coarse features of irrigation types.

Graduate Research Assistant/Teaching Assistant, *University of Virginia*　　　　　　　　　*Aug 2021 – Present*
- Teaching Assistant for undergraduate Mobile Application Development (Fall'22) and Machine Learning (Spring'23).

Research Intern, *USDA-NIFA/NSF AI Institute for Next Generation Food Systems (AIFS)*　　　*Jun 2023 – August 2023*

Tech Stack: Python, Tensorflow, Pandas, NumPy, Matplotlib, Pytorch, FastAi, scikit-learn, OpenCV, QGIS, Jupyter Notebooks
- Trained and evaluated different segmentation models for detecting various irrigation types from remote sensing data, tackling heterogeneity in irrigation types within single fields, requiring advanced analysis and segmentation strategies.
- Processed and prepared the geospatial data to feed the segmentation model.

Software Engineer, *Enosis Solutions*, *Dhaka, Bangladesh*　　　　　　　　　　　　　　*Aug 2020 – Aug 2021*

Tech Stack: C#, JS, SQL (MySQL, Oracle), MongoDB, React.js, Node.js, Express.js, MVC Framework, Git, Visual Studio, Jira
- Worked closely with teams of 6-8 on an Incident Management Tool which tracks different occurrences of an organization using C# and MVC Framework. All code was reviewed, perfected, and pushed to production.
- Designed and developed the full stack implementation of a web platform to train/test Machine Learning models.
- Collaborated effectively with members of the software development team and personnel in other departments.

EXTRA CURRICULAR ACTIVITIES

- Achieved **3rd Position** in **2023 AgAID Digital AgAth0n**
- Built algorithm problem-solving skill via solving problems in online judges and participating in competitive coding contests
- Served as Space and Media Chair, Computer Science Graduate Student Group (CSGSG) Council – 2022.
- Achieved 11th Position, National Girls Programming Contest-2016, Bangladesh. (Tech Stack: C/C++, CodeBlocks)
- Social Chair, Computer Science Graduate Student Group (CSGSG) Council – 2024