

AZAD, MD ABULKALAM

PhD Candidate in AI for Ultrasound Medical Imaging

@ mabulkalam.azad81@gmail.com +4797336992 GitHub Google Scholar
Alfred Trønsdals veg 18, 7033 Trondheim, Norway Homepage LinkedIn



SHORT BIO

I am pursuing a PhD in AI for ultrasound medical imaging at NTNU, focusing on computer vision and deep learning for motion tracking. With a Master's in Marine & Maritime Intelligent Robotics, including thesis work at SINTEF Digital on Video Understanding and 3D Reconstruction, and prior industry experience as a Software Engineer at SAMSUNG R&D, I bring a strong blend of research and development expertise, specializing in AI, computer vision, deep learning, and robotics. My experience spans image or video analysis, underwater robotics, machine vision, and digital solutions, making me highly adaptable and well-prepared to apply AI across diverse domains. As my PhD will be completed by September 2026, I am seeking opportunities to contribute to industrial R&D by addressing real-world problems using state-of-the-art research and by adapting and advancing these methods for practical applications.

EDUCATION

Ph.D. (cont.) in AI for Ultrasound Medical Imaging

Norwegian University of Science and Technology (NTNU)

September, 2023 – 2026 Trondheim, Norway

M.Sc. (Erasmus Mundus) in Marine and Maritime Intelligent Robotics [CGPA: 4.33/5.0 – Specialization in Deep Learning & Computer Vision]

Norwegian University of Science and Technology (NTNU)

August, 2022 – June, 2023 Trondheim, Norway

M.Sc. (M1-Erasmus Mundus) in Engineering of Complex Systems [CGPA: 4.3/5.0 – Specialization in AI (Deep/Machine/Reinforcement Learning)]

Université de Toulon

September, 2021 – June, 2022 Toulon, France

B.Sc. in Computer Science and Engineering [CGPA: 3.91/4.00 – major in Machine Learning & Pattern Recognition]

United International University

February, 2014 – May, 2019 Dhaka, Bangladesh

Erasmus Mundus Exchange and Bachelor's thesis [GPA: 5.0/5.0]

University of Bremen

September, 2016 – July, 2017 Bremen, Germany

PROGRAMMING/TOOLS/Framework

- Excellent command of **Python, PyTorch, C/C++**, and **Java**
- Competent in different ML/DL/CV packages such as **Scikit-learn, Scikit-image, OpenCV, PIL, NumPy, SciPy, Pandas, Torchvision, Matplotlib** and able to integrate any other packages
- Experience with **Git (Version Control System)** and **Cluster GPU**
- Variational Auto-Encoder (VAE), Out of Distribution (OOD) detection & Object Detection and Localization** using methods; **CNN, Likelihood, Faster RCNN, YOLO** through different course projects. **Object Tracking, Temporal Action Localization, Vision Transformers, and VSLAM**
- Web Development: **HTML, CSS, PHP, Mysql, JavaScript, Azure Cloud**
- Possesses the ability to adapt to any new tools/languages quickly**

WORK EXPERIENCE

Software Engineer

SAMSUNG R&D Institute Bangladesh

February, 2020 – August, 2021

- Developer Relation/Support/Evangelism & Community/Content Management
- Servicing domain: **Galaxy Watch Studio, AR Emoji SDK for Unity, Samsung IAP and Unity plugin, Samsung DeX, Galaxy Store, Unity Distribution Portal(UDP)**
- Created technical blogs for developers (Available on Samsung Developers: [AR Emoji](#), [Samsung IAP for Unity](#), and [UDP](#))

ACADEMIC/APPRENTICE EXPERIENCE

Doctoral Researcher

NTNU, Trondheim, Norway

September, 2023 – present

- Advancing Myocardial Function Imaging in Echocardiography using **Vision Intelligence**
- Developing robust models for real-time **Point Tracking** in ultrasound video
- Publishing at top-tier conf./journals (MICCAI 2024, ICCV 2025, IEEE TMI)
- Collaborating across clinical and technical domains to advance imaging technology

Summer Student & Master's Thesis

SINTEF Digital, Oslo, Norway

June, 2022 – June, 2023

- 3D Reconstruction** from RGB images using **NeRF** and **3D MoMa**
- Evaluated NeRF's robustness on different object types (e.g. shiny, transparent)
- Multi-label Video Classification** for underwater ship hull inspection
- Modified **Vision Transformer (ViT)** for spatiotemporal video understanding

Tech. Academy Intern

SAMSUNG R&D Institute Bangladesh

December, 2019 – December, 2019

- Received level-up programming training to solve advanced problems
- Implemented different algorithms (e.g. **BFS, DFS, shortest path finding, recursive, divide & conquer**, etc.) efficiently
- Participated in programming contests

ACADEMIC PROJECTS

1. Multi-label Video Classification for Ship Hull Inspection
Master's thesis project
📅 Tools: Vision Transformers (ViT), Image Classification, Python, PyTorch
2. Road Damage Detection Using Visual Intelligence
Achieved highest F1 score amongst 52 students
📅 Tools: Python, PyTorch, Faster RCNN, YOLOv5, Cluster GPU
3. Sea-lice Control in Aquaculture using Computer Vision
Paper project of "Sustainable Utilization of Marine Resource" course
📅 Tools: Object detection, AI, Robotics
4. Neural Radiance Field (NeRF) for constructing 3D Objects from Images
Successfully completed as a summer project at SINTEF Digital
📅 Tools: Python, PyTorch, 3D MoMa, COLMAP, Cluster GPU
5. Out of Distribution (OOD) Detection using Vision
Project of "Deep Learning" course
📅 Tools: Python, PyTorch, Auto-Encoder(AE), VAE, Cluster GPU
6. Autonomous Surface Vehicle (ASV) from scratch
MIR Championship team project and obtained 2nd place
📅 Tools: ROS, Python, C++, Arduino, GPS, RPI4, IMU
7. Leave Management System (Undergrad)
Awarded the 1st prize in UIU CSE Project Show 2019
📅 Tools: Bootstrap, HTML, CSS, PHP, Mysql, JavaScript, Azure

Most of the projects (including others) are available on my GitHub.

PUBLICATIONS

[Taming Modern Point Tracking for Speckle Tracking Echocardiography via Impartial Motion](#) at **IEEE/CVF ICCV2025 CVAMD**

📅 October 2025

📍 Hawaii, USA

[EchoTracker: Advancing Myocardial Point Tracking in Echocardiography](#) at **MICCAI 2024**

📅 October 2024

📍 Marrakesh, Morocco

[Multi-label Video Classification for Underwater Ship Inspection](#) at **OCEANS 2023**

📅 June 2023

📍 Limerick, Ireland

[Layered Ensemble Learning for Effective Binary Classification](#) at **IEMIS 2020** [Undergrad work]

📅 July 2020

📍 Kolkata, India

[Low Complexity Point Tracking of the Myocardium in 2D Echocardiography](#) (IEEE Access)

📅 March 2025

[Big Data with Decision Tree Induction](#) at **SKIMA 2019** [Undergrad work]

📅 August 2019

📍 Island of UKULHAS, Maldives

REFEREES

Andreas Østvik
Senior Research Scientist
@ SINTEF Digital
✉ andreas.ostvik@sintef.no
Trondheim, Norway

Bjørnar Grenne
Cardiologist & Associate Professor
@ ST. Olavs Hospital & NTNU
✉ bjornar.grenne@ntnu.no
Trondheim, Norway

PROBLEM SOLVING

Gained problem-solving skills through consistent participation in programming contests such as the Inter-University Programming Contest, ACM-ICPC

- Passed the advanced level programming contest arranged by Samsung R&D (Global) to step into the final phase for the position of a software engineer
- Passed the online programming contest arranged by Samsung R&D to be selected for an internship, 2019
- Obtained 7th position in the advanced section of the UIU Intra-University Programming Contest, Summer 2015
- UVA: Solved 90+([ripon_azad](#))
- CODEFORCES: Solved 100+([ripon_azad](#))
- Hackerrank(Gold badge)
- LeetCode: Solved 80+ ([ripon_azad](#))
- Light OJ: Solved 20+ and Others: 150+

HONORS & AWARDS

1. MIR Championship Award (2021)
by MIR for securing 2nd place in the Autonomous Surface Vehicle (ASV) competition
2. Best Paper Award (July 2020)
Issued by IEMIS 2020
3. Erasmus+ Erasmus Mundus Joint Master Degree Scholarship (February 2020)
Issued by European Union
4. Summa Cum Laude - Scholastic Honor (February 2020)
Issued by United International University
5. Intra-University Project Showcasing Awards
by the dept. of CSE, UIU. 1st prize in Electronics (2015) and 1st prize in Web Development (2018)
6. Erasmus Mundus FUSION Scholarship (September 2016)
Issued by European Union
7. UIU Intra-University Programming Contest Award (Summer 2015)
by UIU for obtaining 7th position in the advanced level

LANGUAGES

Bangla (native)
English (fluent)
Norwegian (B1)

