

Md Ashaduzzaman Rubel Mondol

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Education

Ph.D. in Computer Science

08/2019 – 12/2023 (Expected)

The University of Texas at Arlington

B.Sc. in Electrical and Telecommunication Engineering

2008 - 2012

The Southeast University, Bangladesh

CGPA- 4.0 on scale of 4.0

Research Experience

Human Data Interaction Lab (HDILab), UTA

2019 - Present

Advisor: Dr. Deokgun Park

Building a Simulated 3D environment with *Unity3D* and *ML Agents* for testing and development of Learning Agents. The environment provides the necessary experiences a human baby goes through during fetus to 12 months of age. It also provides a mother character acting as a social partner. To evaluate the learning agent, it provides different experiments from Developmental Psychology.

Work Experience

University of Texas at Arlington

2019 - Present

Working as Graduate Teaching Assistant for Data Mining, Artificial Intelligence, Software Engineering

Samsung R&D Institute Bangladesh

2012 - 2019

Designation: Staff Engineer

Worked as Project Leader of Social Platform for iOS since 2018.

Projects:

- Samsung Social Platform for iOS
A cross-platform, multi-device experience SNS platform for iOS.
 - Project and team management, Software design, architectural implementation and feature development, R&D on new ideas, collaborating with overseas teams (Onshore, offshore)
- Samsung Account iOS SDK
Samsung account SDK has been developed to be used by other apps for accessing Samsung Account Server
 - Worked with the implementation of server-client architecture, and security improvements.
- Smart things (Samsung Connect)
IoT based application to control and monitor IoT enabled devices through iotivity framework developed first for Galaxy S8 in Android Platform.
 - Worked on content streaming over DLNA using AllShare library
 - Development, optimization and security enhancement of Plugin platform.
- Bitmap Engine (Arctecture)
Bitmap engine is a bitmap based 2D drawing engine which is used to develop canvas-based drawing/art application. The Arctecture app is available in playstorte.

- Worked on Core engine and SDK design and development. Developed different drawing tool algorithms using Lattice Boltzmann Fluid simulation, Bezier curve path generation, GP-GPU programming with OpenGL, OpenCL, Kubelka-Munk Color-Mixing algorithms.
 - Complex UI design and developments in Android Platform
 - As part of this project I also developed a *VR based drawing canvas* with real-time drawing functionalities.
- MEA Android commercialization
Commercialization of different android models including Galaxy S4, S5, Note 4, Note 5 models.
 - Worked on optimization, feature developments, localization and bug fixing of Android OS for Samsung devices.

Publication

A Testbed for the Study of Human-Level Artificial Intelligence

- M. A. Rubel Mondol, S. Narasimhan, S. M. Islam and D. Park
- 36th AAAI Conference on Artificial Intelligence - 2022
- Still under phase 2 review. Passed phase 1 Review

SEDRo: A Simulated Environment for Developmental Robotics

- Aishwarya Pothula, M. A. Rubel Mondol, S. Narasimhan, S. M. Islam and D. Park
- 2020 Joint IEEE 10th International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob)

Modeling Social Interaction for Baby in Simulated Environment for Developmental Robotics

- Md Ashaduzzaman Rubel Mondol, Aishwarya Pothula, Deokgun Park
- Presented at BabyMinds, NuerIPS 2020 workshop

Collaborative drawing method and electronic device therefor

- Md Shamsul Arifin Mozumder, Sifat Afroj Moon, Jewel Nandy, Md Ashaduzzaman Rubel Mondol, Samsad Ul Islam
- <https://patents.google.com/patent/US20170123648A1/en>

Academic Projects

Body Pose Estimation from Depth Images

- Implemented body pose estimator with CNN to classify depth pixels (Voxels) for each body part and estimated body joint positions using Linear Regression from depth images.

Image Caption Generation and Search

- Generated image caption of a given image based on InceptionV3 pretrained model and GRU using TensorFlow. With the generated caption searched over dataset and ranked using TF/IDF.

Traffic Volume Estimator

- Built a traffic volume estimator Based on numerical features as input to Random Forest models using TensorFlow.

Client Server using Sockets

- Implemented a client server mechanism using TCP sockets. Multiple clients could request for service to the server and backed up data in another.

Relevant Courses

● Udemy Courses:

- AI: Reinforcement Learning in Python (Certificate ID: *UC-a1287471-29ab-4a1e-95d3-96c74cb00408*)
- Advanced AI: Deep Reinforcement Learning in Python (Certificate ID: *UC-38d14056-64d5-414a-92b3-9cd2bf9d638b*)

- **Academic Courses:**

- Neural Network
- Machine Learning
- Data Mining
- Advanced Intelligent Systems: Human Level AI
- Advanced Software Engineering

Skill

- Machine Learning libraries: TensorFlow, Keras, PyTorch, Unity ML Agents
- Mobile OS and other platforms: Android, iOS application and Unity 3D game development
- Languages: Python, Java, C/C++, Matlab, R, Objective C, Swift, C#, SQL
- Libraries: OpenGL, OpenCL, Skia, LibGDX, GearVR Framework
- Other: Software design patterns, Agile methodology

Open Source Contribution

- Developed and open sourced my research project SEDRo. It's publicly available at: <https://github.com/utaresearch/SEDRO>
 - Details about this project can be found at: <https://sedro-env.github.io/>

Honors and Awards

- Achieved **Chancellor Gold medal** award
 - For securing the highest result among all Bachelor students passing in 2012
- Awarded **Best Code Reviewer of the month** for months Jan-Mar, 2018 from Samsung R&D Institute Bangladesh
- Received **Icon of the month** award 3 times for June 2013, September 2014 and November 2017 from Samsung R&D Institute
- Achieved **Professional level** on Algorithmic Problem solving Test in Samsung R&D Institute Bangladesh
- Secured good positions in multiple ACM problem solving contests among around 100+ teams
 - 5th position in *National Collegiate Programming Contest 2010*
 - 15th position in *International Collegiate Programming Contest, Dhaka Regional, 2010*