Md. Sadman Siraj

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Education:

B. Sc. in Electrical and Electronic Engineering, University of Dhaka, Bangladesh
Concentration in Communication, Digital Signal Processing, Embedded Systems and Electronics
Research Interests: Artificial Intelligence and Human Activity Recognition
CGPA Score: 3.59/4.00

RESEARCH EXPERIENCE

A pragmatic signal processing approach for nurse care activity recognition using classical machine learning

- Proposed method in 2nd Nurse Care Activity Recognition Challenge 2020.
- Publication: https://dl.acm.org/doi/abs/10.1145/3410530.3414337

UPIC: user and position independent classical approach for locomotion and transportation modes recognition

- Proposed method in Sussex-Huawei Locomotion Challenge 2020.
- Publication: https://dl.acm.org/doi/abs/10.1145/3410530.3414343

Cooking Activity Recognition with Varying Sampling Rates Using Deep Convolutional GRU Framework

- Prposed method in Cooking Activity Recognition Challenge 2020.
- Publication: https://link.springer.com/chapter/10.1007/978-981-15-8269-1_10

A Hybrid Deep Learning Framework using CNN and GRU-based RNN for Recognition of Pairwise Similar Activities

- Hybrid deep learning models for pairwise similar activity recognition.
- Publication: https://ieeexplore.ieee.org/document/9306630

Prediction of Gender and Age from Inertial Sensor-based Gait Dataset

- Supervised machine learning models for gender and age prediction.
- Publication: https://ieeexplore.ieee.org/document/8858521

A Study on DSR Routing Protocol in Adhoc Network for Daily Activities of Elderly Living

- Performance analysis of wireless sensor networks for elderly living.
- Publication: https://ieeexplore.ieee.org/document/8640994

FoodAlytics: A formalin detection system incorporating a supervised learning approach

- A formaldehyde detection system using mobile application.
- Publication: https://ieeexplore.ieee.org/document/8288898

SKILLS

- **Programming Languages** – Python, Java, C
- **Softwares** – Android, Network Simulator 2, SQLite DB Browser, Emu8086, MATLAB, Proteus, PSpice
- **Development Tools** – Android Studio, Anaconda, Visual Studio Code, Arduino, Processing
- **Interpersonal Skills** – Leadership, Networking, Time Management, Team & Project Management
- **Leadership Skills –** Chair at IEEE Student Branch University of Dhaka (IEEE SB DU).
- **Digital and Social Media Marketing –** Publicity Secretary at Electrical and Electronics Club (EEC).

ADDITIONAL COURSES

- **Programming for Everybody (Getting Started with Python)** – Online course at Coursera by University of Michigan. Grade Achieved: 100.0%.
  Certificate URL: https://www.coursera.org/verify/7PP7LFLDR5DR
- **Python Data Structures** – Online course at Coursera by University of Michigan. Grade Achieved: 100.0%.
  Certificate URL: https://www.coursera.org/verify/XKZGNQ4AMT4N
- **Machine Learning –** Online course at Coursera by Stanford University. Grade Achieved: 96.9%.
  Certificate URL: https://www.coursera.org/verify/PD9WMA3BYUKD
- **Neural Networks and Deep Learning –** Online course at Coursera by deeplearning.ai. Grade Achieved: 99.3%.
  Certificate URL: https://www.coursera.org/verify/YPNP9ZCXR7TV
- **Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization –** Online course at Coursera by deeplearning.ai. Grade Achieved: 99.2%.
  Certificate URL: https://www.coursera.org/verify/3B43YEK4H5RD
- **Structuring Machine Learning Projects –** Online course at Coursera by Stanford University. Grade Achieved: 96.7%.
  Certificate URL: https://www.coursera.org/verify/UN78KUJ46RAK
- **Convolutional Neural Networks** – Oneline course at Coursera by deeplearning.ai.
- **Sequence Models** - Oneline course at Coursera by deeplearning.ai.
- **Small Satellite Technology (Phase 1)** – Advanced Training from Asia-Pacific Space Cooperation Organization (APSCO) at Beihang University of Aeronautics and Astronautics (BUAA), Beijing, China.
- **Small Satellite Technology (Phase 2)** – Advanced Training from Asia-Pacific Space Cooperation Organization (APSCO) at Middle East Technical University (METU), Ankara Turkey.
- **Microsatellite Space Mission Design** – Advanced Training from Asia-Pacific Space Cooperation Organization (APSCO) in APSCO Microsatellite Contest 2019, Northwestern Polytechnic University, Xi'an, China.

PROJECTS

EQ-RESQ, Java, Android, Android Studio *April 2017*

- Built an earthquake notifier android application.
- Triggered by vibrational sensors in earthquake prone areas.
- Generates a probabilistic area of threat from database and received data.
- Notifies users of the area under threat and guides for evacuation.
- Github Repository: https://github.com/sadman-siraj/eqresq

Satellite Camera Resolution Determination, SIMULINK, MATLAB *August 2017*

- Project at APSCO First Summer Camp 2017 at Beijing, China.
- Developed a sequential algorithm from theory.
- Implementation of SIMULINK model.
- Github Repository: https://github.com/sadman-siraj/camressimulink

MediScan, Java, Android, Android Studio *March 2018*

- Built a pharmaceutical authentication android application.
- Scans QR codes on pharmaceuticals.
- Registers the pharmaceuticals encountered with information.
- Github Repository: https://github.com/sadman-siraj/mediscan

ADCS MicroSimulator, SIMULINK, MATLAB, Arduino *September 2018*

- Project at APSCO Second Summer Camp 2018 at Ankara, Turkey.
- Assembly of ADCS MicroSimulator from discrete components.
- Calibration of Simulator through control parameter optimzations.
- Virtual simulation of control sensitivity for attitude control.
- Real-time analysis and test of attitude determination and control.

Work Experience

Co-Founder and Lead Programmer, Orion Avionics and Electronics *May 2016 – December 2019*

Project Shadhinota – First nanosatellite prototype of Bangladesh

- Developed the mechanical prototype.
- Performed orbital analysis and simulation.
- Ground Station Project – An open-source portable ground station for Space Education.

Android Application Developer, 10 Minute School *July 2016 – April 2018*

10 Minute School Android Application – First Android Application of an online educational platform in Bangladesh

- Built the first prototype application.
- Programmed and developed in Android Studio.
- Incorporated a template for interfacing with YouTube.
- Developed backend communication for user registration.
- Developed backend communication for user authentication.
- Developed backend PHP server files to handle communication.
- Incorporated Floating Action Buttons, Navigation Drawer and Snackbars.

Competitions and Achievments

- Champion, Space Expedition Contest, IEEE BRACU AES Chapter, BRACU
- Champion, Satellite Mission Idea Contest, 4th International BIRDS Workshop 2019, IEEE BRACU SB, BRACU
- Science for Mankind Research Award, DUSS, University of Dhaka.
- Champion, IT Business Challenge, Technovation, NSU ACM Chapter.
- Champion, Innovative Idea Contest, Engenius 2018, AUST.
- Champion, Poster Presentation, Intra-DU Robofest 2017.
- Champion, Technology Idea Competition, DUET Techfest 2017.
- Champion, IEEE Bangladesh Section Humanitarian Idea Contest 2017.
- Champion, Exhibition and Runner Up, Techkriti Innovation Challenge, Techkriti Bangladesh Round 2017.
- Champion, Project Competition, 2nd Bangladesh Electronics Olympiad 2017.
- Champion, Project Showcasing, EEE Day 2016, BUET.
- Semi-Finalist, Techkriti Innovation Challenge, Techkriti 2017, IIT Kanpur, India
- Participant in NASA Space Apps Challenge 2017, Bangladesh Round.