Abdullah Al Mamun

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https://moon05.github.io

Education

- **University of Rochester** — Rochester, NY
  BA in Computer Science — *2013 - 2018*
  - Emphasis on Applied Machine Learning and Human-Computer Interaction

Research Experience

- **ROC HCI** — Rochester, NY
  Research Associate — *June 2018 - May 2020*
  - Developed a Python Framework to extract skeletal keypoint features, using OpenPose framework, from 1000+ videos of Parkinson's patients
  - Developed analysis programs to extract audio features such as pitch, jitter, shimmer etc. and perform statistical analysis to find anomalies in the voices of Parkinson's patients (1000+)
  - Maintained the Park international web application platform to collect videos of remote Parkinson's patients performing diagnostic test, as well as adding new features and resolving bug issues https://parktest.net
  - Created a PARK-like platform for Super Users to perform similar tasks in a new in-clinic Parkinson's study
  - Worked on a neural network and vision based approach to identify Parkinson's disease using data collected through PARK system, where participants do various tasks such as finger tapping, making fists, mimic facial expressions etc.

- **ROC Vision and Language Lab** — Rochester, NY
  Research Assistant — *May 2017 - August 2017*
  - Mentored two REU students on working with TensorFlow and neural networks
  - Designed and implemented a system to segment and annotate characters of ancient manuscripts using Amazon Mechanical Turk corwdsourcing platform

- **ROC Vision and Language Lab** — Rochester, NY
  Computer Vision Research Assistant — *May 2015 - May 2017*
  - Worked on face clustering, benchmarked accuracy of our system's fluctuation through various domains
  - Applied various machine learning techniques on news datasets to find how politically biased news outlets are
  - Worked on Hand Recognition, denoising data, and the development of new user interfaces

- **ROC NLP** — Rochester, NY
  Data Collection Research Assistant — *October 2016 - January 2017*
  - Analyzed data collected for computational story understanding research project
  - Analyzed stories through TRIPS parser

Publications

Detecting Parkinson's Disease from an Online Speech-task: Observational Study

JMIR 2021

- *Wasifur Rahman, Sangwu Lee, Saiful Islam, Victor Nikhil Antony, Harshil Ratnu, Mohammad Rafayet Ali, **Abdullah Al Mamun**, Ellen Wagner, Stella Jensen-Roberts, Max Little, Ray Dorsey and Ehsan Hoque*

DBATES: dataset of DeBate Audio features, Text, and visual Expressions from competitive debate Speeches

IEEE 2021

- *Taylan Sen, Gazi Naven, Luke Gerstner, Daryl Bagley, Raiyan Baten, Wasif Chowdhury, Kamrul Hasan, **Abdullah Al Mamun**, Samiha Samrose, Anne Swobu-Slowe, Eric Barnes, Mark Frank, Ehsan Hoque*

A Virtual Conversational Agent for Teens with Autism Spectrum Disorder: Experimental Results and Design Lessons

IVA 2020

- *Mohammad Rafayet Ali, Seyedeh Zahra Razavi, Raina Langevin, **Abdullah Al Mamun**, Benjamin Kane, Reza Rawassizadeh, Lenhart K. Schubert and Ehsan Hoque*

Aligning Movies with Scripts by Exploiting Temporal Ordering Constraints

ICPR 2016

- *Iftekhar Naim, **Abdullah Al Mamun**, Young Chol Song, Jiebo Luo, Henry Kautz and Daniel Gildea*

Unsupervised Alignment of Actions in Video With Text Descriptions

IJCAI 2016

- *Young Chol Song, Iftekhar Naim, **Abdullah Al Mamun**, Kaustubh Kulkarni, Parag Singla, Jiebo Luo, Daniel Gildea and Henry Kautz*

Professional Experience

- **Tone**   Cambridge, MA
  Software Engineer   *June 2020 -*
    - Work with JavaScript, TypeScript and React to build new features and workflow in existing stack
    - Work with Terraform to improve infrastructure level codebase
    - Participate in design meetings to come up with better design paradigms and API decisions
    - Work on making wiki-guides for technologies like GraphQL to introduce basic and advanced usage along with establishing organization-wide best coding practices

Awards, Grants and Honors

Renaissance and Global Scholarship (Full Tuition + Room & Board)   2013-2018
Research and Innovation Grant   2013-2018

Teaching

- **CSC 212, Human-Computer Interaction by Dr. Ehsan Hoque**
  Teaching Assistant   *Spring 2017, 2019*
    - Mentored 5 person student group for semester long project
    - Held hour long, weekly office hours
    - Created homework assignment
    - Held presentation in-class about new hardware technology
    - Graded quizzes, coding assignments and exams

- **CSC 171, The Science of Programming by Dr. Ted Pawlicki**
  Teaching Assistant   *Fall 2015, 2016, Spring 2016*
    - Held weekly recitation and lab sessions
    - Graded coding assignments and exams

Projects

- **Calorie Counter React Native App**
  React Native, JavaScript, NodeJS
    - Minimal calorie counting app based on MyFitnessPal
    - Code: `github.com/moon05/CalorieCounterApp`

- **Treez Chrome Extension**
  JavaScript, React, Python, Flask
    - Chrome Extension to learn about various plants through bite-sized information
    - On Chrome Web Store: `https://tinyurl.com/TreezExtension`
    - Code: `https://github.com/moon05/treez_extension`

- **Uptick**
  Swift/iOS Development
    - App for a student marketplace startup
    - Code: `https://github.com/moon05/Uptick_iOS`

Courses

- **Undergraduate Coursework**: Human-Computer Interaction, Mobile Application Development, Computer Models and Limitations, Introduction to Cryptography, Programming Language Design and Implementation, Artificial Intelligence, Data Structure & Algorithms, Robot Construction

Skills

- **Programming Languages**:

  - Python, Java, Kotlin, C#, HTML5/CSS3, JavaScript, SQL, Swift, TypeScript

- **Frameworks, Libraries and Development Tools**:

  - Docker, Flask, GraphQL, Jira, React, React Native, Keras, OpenCV, OpenPose, PyTorch, Airflow, Git, Matlab, Android Studio, VS Code

- **Operating Systems**:

  - Linux, MacOS, Windows

- **Hardware**:

  - Arduino, NVIDIA Jetson, Soldering, Raspberry Pi