

SEDEEQ AL-KHAZRAJI

Experience

Graduate Research Assistant.

May 2016 – Present

Center for Accessibility and Inclusion Research (CAIR) at the Rochester Institute of Technology (RIT), Rochester, NY, USA. Supervised by: Dr. Matt Huenerfauth.

Research Areas: Accessibility for People with Disabilities, Human Computer Interaction, Natural Language Processing, and Machine Learning.

- Conducted research on modeling 3D motion data of human movements, based on a large dataset of recordings of people performing American Sign Language (ASL), to create predictive models of aspects of human movement, which can be used to synthesis ASL animations.
- Completed individual research projects in the areas of feature engineering, optimization, classification, regression, clustering, and visualization – using Python, R and SQL – in courses on Quantitative Foundations, Statistical Machine Learning, Regression Analysis, and Intro to Big Data.

Selected Publication:

Sedeeq Al-khazraji, Larwan Berke, Sushant Kafle, Peter Yeung, and Matt Huenerfauth. 2018. "Modeling the Speed and Timing of American Sign Language to Generate Realistic Animations." *The 20th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '18)*, Galway, Ireland.

🏆 **2018 SIGACCESS Best Paper award.**

Conference acceptance rate of 26%.

Sedeeq Al-khazraji. 2018. "Using Data-Driven Approach for Modeling Timing Parameters of American Sign Language". In *Proceedings of the 20th ACM International Conference on Multimodal Interaction (ICMI '18)*. ACM, New York, NY, USA, 497-500.

Projects

Modeling Signing Rate for American Sign Language (ASL) Animations

Trained Gradient Boosted Regression Trees model to adjust signing speed in ASL. My model lowered RMSE by 23.8% compared to the state of the art rule-based model.

Modeling and Predicting the Pauses Locations for ASL Animations

Analyzed data of ASL recordings using Python and engineered features based on the sentence syntax, for training and evaluating classification models to predict, where to insert pauses in ASL animations. Trained Linear-Chain CRF, Tree Based, and SVM models. My model outperformed the baseline with 80% F1-Score accuracy.

Modeling the Use of Space for Pointing in American Sign Language Animation

Analyzed the locational distribution of spatial reference points established by an ASL signer in motion captured dataset and modeled them using Gaussian Mixture Model (GMM) in three most common pointed clusters which helped in improving the pointing feature of existing ASL animation tool.

Automatic Speech Recognition (ASR) For Meeting

Work on developing a research tool that investigates the automatic captioning benefit between hearing and hard-of-hearing individuals in group meetings.

Education

Computing and Information Science Rochester Institute of Technology

PhD Graduate Program
Expected 2019

Awards: Ph.D. Merit Scholarship, (HCED)

Master of Science

Computer Sciences and Mathematics

University of Mosul, Mosul, Iraq

Bachelor of Science

Computer Sciences and Mathematics

University of Mosul, Mosul, Iraq

Awards: Ranked 2nd out of 73 B.S.

Technical Skills

Machine Learning

Python, scikit-learn, SciPy (NumPy and Pandas), R, Matlab, Minitab, JMP, and Weka.

Databases & Query Languages

SQL, SQL Server, Excel, and SQLite.

Visualization

Tableau, Matplotlib, Tidyverse, and PowerBI.

Programming Languages

C++, Java, C#.Net, and VB.Net.

Service

Research Mentor

Summer 2017

National Science Foundation (NSF-REU) Mentored undergraduate students in summer 2017 on research methods and statistics.

Data Analyst Tutor

April 2018– August 2018

One Million Arab Coders, [Udacity & Dubai Future Foundation].

Tutoring students on SQL, statistics, and data analysis.