Ted Zaremba

Chicago, Il · tzarem2@uic.edu · 847-418-7346

Education

University of Illinois - Chicago — Chicago, IL
BS Computer Science *GPA: 3.93* — August 2019 - May 2023

Work Experience

UCCS Machine Learning REU Summer 2021 — Colorado Springs, CO
Undergraduate Researcher — June 2021 - August 2021

- Conducted independent research to make a deep learning model for Brain Computer Interfaces (BCI)
- Learned about signal processing, machine learning, and the specific problems related to EEG data

Activities

Art Institute of Chicago — Chicago, IL
*V*isitor Engagement Volunteer — May 2019 - Present

- Give visitors recommendations on the pieces at the museum and help them navigate the museum
- Help manage crowds during the special exhibitions

Association for Computing Machinery — Chicago, IL
*S*ig Math Member — January 2020 - Present

- Work with my group on solving math related computer science problems such as time and space complexity proofs
- Built sudoku solver with group

Skills

Programming Languages: Python (3.5 Years), C++ (1.5 Years), R (1 Year), Matlab (9 Months)

Projects

"Cross-Subject & Cross-Dataset Subject Transfer in Motor Imagery BCI systems"
*L*anguages: Python, Matlab
*L*ibraries: Tensoreflow, Sklearn, Keras, Keras-Tuner, Scipy, Numpy, MNE, EEGLab

- Developed preprocessing pipeline for imagined movement EEG data
- Generated Short-Time Fourier Transformation representations of the data
- Developed convolutional neural network to classify the STFT representations
- Tested the influence of pretraining on other subjects
- Achieved $> 95\%$ accuracy for right hand vs. left hand on some subjects
- First author paper submitted to IEEE World Congress on Computational Intelligence:

Artificial Intelligence based Earthquake Prediction
*L*anguages: Python, R
*L*ibraries: Sklearn, Pandas, Numpy

- Used earthquake data containing all earthquakes between 1990 and 2018 from the UC Berkeley Seismology Lab.
- Compared the performance between a random forest and a logistic regression
- Predicted whehter an earthquake is likely to happen in the next 30 minutes, 1 hour, 5 hours, 24 hours with $> 90\%$ accuracy
- Compared the performance of a random forest and a logistic regression
- Analyzed how the performance changed as the size of the dataset, the time interval for prediction, and minimum earthquake magnitude grew

Supreme Court Decision Analysis
*L*anguages: Python
*L*ibraries: Pandas, Scipy

- Used pandas to analyze case centered and justice centered data from Washington University's publicly available dataset
- Determined the political leanings of each judge