Jiyoon Pyo

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Education

University of Minnesota Twin Cities | *Minneapolis, MN* Sept 2023 – Present
Ph.D. in Computer Science
Advisor: Dr. Yao-Yi Chiang

The Cooper Union for the Advancement of Science and Art | *New York, NY* Aug 2019 – May 2023
M.E. in Electrical Engineering
Advisor: Dr. Carl Sable
Thesis: Detection and Replacement of Neologisms for Translation

The Cooper Union for the Advancement of Science and Art | *New York, NY* Aug 2019 – May 2023
B.E. in Electrical Engineering
Minor: Computer Science

Projects

Automatic Neologism Detection and Translation | *The Cooper Union* In Progress

- Currently developing a program that can draw connections between Korean and English neologism based on the context of the newly-coined term. The possibility of improving machine translation quality on informal text through the preservation of the informal nuance is being explored.
- Developed an automatic neologism detection program that compiles a potential list of newly coined term during the given time period from a set of scraped Twitter data. After additional validation and filtering process, the recall value will be calculated from the manually collected neologism dataset provided by the National Institute of the Korean Language.

This project is being completed in partial fulfillment of the requirements for the degree of Master of Engineering

MCI Detection through Transcript and EHR Analysis | *The Cooper Union & Mount Sinai* In Progress

- Developing a system that can automatically detect mild cognitive impairment (MCI) from transcripts of patient and doctor regular check-up conversation and electronic health records (EHR). Currently the BlueBERT-based pipeline is being modified to take in EHR values as tokens, and the model is being tested on the MIMIC-III dataset. After obtaining the actual transcript and patients' corresponding health records, adequate data pre-processing scheme would be programmed, and the pipeline would be tested to determine its accuracy in detecting MCI.

Sentiment Analysis on Multilingual Survey Data | *Reykjavik University & Iceland Air* May 2022 – Aug 2022

- Interned at the Language and Voice Lab of Reykjavík University as part of the Language Technology of Icelandic 2018-2022 project, which aims to make Icelandic available in the technological environment.
- Completed a benchmark study of multiple automated sentiment analysis methods, such as BiLSTM, CNN, and BERT-based transformers to analyze the feasibility of an automated model in survey analysis. The performance of the automated model was compared against the baseline code designed with TF-IDF vectorization. The performance of architectures and models designed as part of the Language Technology project (Reynir and IceBERT) was compared against well-known English-based technologies (SpaCy, RoBERTa, xlm-RoBERTa) to demonstrate its performance in actual implementation.

The technical document written through the project is in preparation for publication.

Sentiment Analysis and Clustering on Customer Exit Surveys | *The Cooper Union & Grameen America* Jan 2022 – May 2022

- Performed a data analysis on customer exit surveys by translating texts into English, performing data-clustering through K-means clustering algorithm, automatically extracting keywords from each group, and performing sentiment analysis on individual sentences using a distilBERT-based pipeline. A thorough report on the methods and analysis results was provided to the organization and a physical installation was built based on the output.

Volunteer Experience

Mount Sinai Volunteer August 2022 – Present
Research Volunteer *New York, NY*

- Collaborate with the Pandey Lab at Mount Sinai to design an automatic MCI detection pipeline through transcript and EHR analysis.
- Related with 'MCI Detection through Transcript and EHR Analysis' project listed in the 'Projects' section.

Teaching

The Cooper Union for the Advancement of Science and Art
something

Physics Lab Aug 2021 – Present
Head Teaching Assistant *New York, NY*

- Prepare and distribute necessary equipment required for the introductory physics lab course prior to the lab session. Modifications to the lab guides are made based on the availability of the lab. A group of 12 TAs are managed to schedule lab sessions for all students every week.
- Answer students' questions regarding the physical concepts related to the lab and provide additional session for those who need additional time to process the lab. During this session, the main concept of the lab is highlighted and students are guided through the experiment to reach the conclusion. If students express a difficulty with the experiment, I meet with the professors and lab technician to discuss ways to enhance students' lab experience.

Communication Theory Aug 2022 – Present
Teaching Assistant *New York, NY*

- Check and proofread quizzes prior to distribution and create answer keys/grading guidelines biweekly. If a common misunderstanding is noticed while grading, the topic is notified to the professor for additional clarification on the subject. If students have questions regarding the course material, the question is answered or additional materials are provided to clear the confusion.
- Run students' code and conduct code reviews to check the program output and efficiency of the code. Comments on errors and possible improvements are recorded on the code file.

Circuit Analysis Aug 2022 – Present
Teaching Assistant *New York, NY*

- Provide feed-back on students' assignments and exams. Expected way of approaching the question and potential alternative ways of solving the problem are provided to the student through the comments. When students ask questions regarding the course material, out of class sessions are arranged to teach the concept or give references that will answer their confusion. Interact with students to address additional needs in comprehending the study topics.

Honors / Awards

Jesse Sherman Book Award Spring 2023

Norman Perry Internship Award Fall 2022

Dean's List Fall 2019 - Spring 2023

Half-Tuition Merit Scholarship Fall 2019 - Spring 2023

Innovator Merit Scholarship Fall 2019 - Spring 2023

Memberships / Affiliations

Society of Women Engineers Aug 2019 – May 2023
Treasurer *Aug 2021 – May 2023*

Tau Beta Pi Dec 2021 – May 2023
Vice President *May 2021 – May 2023*

Skills

Programming/Scripting Languages (Proficient)Python, MATLAB, Javascript; (Familiar)Java, C/C++, HTML/CSS

Frameworks/Tools PyTorch, Tensorflow, SQL, MongoDB

Language English, Korean