Nayoung Kim

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RESEARCH INTERESTS

My research is mainly about Trustworthy AI. My recent focus is studying fairness and robustness of AI/ML systems.

EDUCATION

Arizona State University **Spring 2021 – 2024**
PhD, Computer Science *Tempe, AZ*
- Data Mining & Machine Learning Lab (Advisor: Prof. Huan Liu)
- Funded by **DHS-CAOE**, **ONR**, **Mathpresso**

Korea University **2017 – 2019**
MS, Computer Science & Engineering *Seoul, South Korea*

Korea University **2013 – 2017**
BE, Computer Science & Engineering *Seoul, South Korea*

TECHNICAL SKILLS

Languages: Python, C, Java, Javascript, SQL
Skills: Data analysis using Python, PyTorch, Keras, Numpy, Scikit, Docker, Google Cloud Platform and AWS

WORK EXPERIENCE

DHS-CAOE **May 2022 – Present**
Graduate Research Assistant *Tempe, AZ*
- Creating and managing a comprehensive dashboard of data analysis and visualization using NodeJS and Flask
- Building and implementing BERT-based topic modeling and text summarization models

ONR **Jan 2021 – Aug 2022**
Graduate Research Assistant *Tempe, AZ*
- Researched on COVID-19-related online data to offline data connection using topic modeling
- Performed comprehensive analysis on COVID-19-related tweets

Mathpresso **Jan 2021 – May 2021**
Research Assistant *Tempe, AZ*
- Lead a project to automatically classify image-based mathematical problems according to its difficulty level
- Implemented LaTeX format mathematical formula embeddings using Tangent-s and word embeddings

Korea University **2016**
Undergrad Researcher *Seoul, South Korea*
- Collected and annotated biomedical reference dataset for training RNN-based relation extraction model

SELECTED PROJECTS

Interpreting Text Classifiers with Counterfactual Explanation **2021**
- The final project of CSE 472 (Social Media Mining)
- Implemented SOTA counterfactual models for a multi-layer neural network for classification.

Fake/Bot Detection in Twitter Activity **2021**

- The project of CSE 573 (Semantic Web Mining)
- Discovered uncovered bots and detect top manipulators using community detection

Biomedical Entity Relation Extraction **2017**

- Extracted Biomedical entities and identify their relation existence
- Dataset: Comparative Toxicogenomics Database(CTD) provided chemical-gene, chemical-disease, and gene-disease relation data collection through distant supervision due to lack of training data
- Implemented and trained tree-RNN based model SPINN along with word-character embedding model CharWNN

PUBLICATIONS (Google Scholar: Nayoung Kim - Google Scholar)

Domain Adaptative Stance Detection via Counterfactuals, In progress
Nayoung Kim, Ahmadreza Mosallanezhad, Lu Cheng, Huan Liu

Bridge the Gap: the Commonality and Differences Between Online and Offline COVID-19 Data **SBP-BRiMS'22**
Nayoung Kim, Ahmadreza Mosallanezhad, Lu Cheng, Baoxin Li, Huan Liu

Debiasing Word Embeddings with Nonlinear Geometry **COLING'22**
Lu Cheng, **Nayoung Kim**, Huan Liu

TEACHING EXPERIENCE

Teaching Assistant **Aug 2021 – May 2022**
CSE 205: Object-Oriented Programming and Data Structures, Arizona State University *Tempe, AZ*

- Instructed data structures and object-oriented programming with Java

KU JUMP Tutor **Mar 2015 – Feb 2016**
Korea University, Seongbuk-gu Office, JUMP, Inc. *Seoul, South Korea*

- Taught high school students the 'Artificial Intelligence Basic course'.
- Specialization in the basics of A.I. theory and machine learning.
- Held practice sessions for implementation of machine learning applications.

PRESENTATIONS

Debiasing Word Embeddings with Nonlinear Geometry **2022**
The 29th International Conference on Computational Linguistics (COLING '22), Gyeongju, Republic of Korea

Bridge the Gap: the Commonality and Differences Between Online and Offline COVID-19 Data. **2022**
The 15th International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS '22), Pittsburgh, USA

Entity Relation Extraction on Multiple Sentences with Encoder and Relation Representation. **2018**
Korea Computer Congress (KCC '18), Jeju, Republic of Korea

AWARDS AND HONORS

Conference Scholarship **2022**
SBP-BRIMS 2022

Fulton Scholarship **2021**
Ira A. Fulton Schools of Engineering, Arizona State University
Offered in recognition of academic achievements

General Scholarship. **2017**
College of Information, Korea University
Offered in recognition of extraordinary academic achievements to MSc students

Work-Study Scholarships **2015**
College of Information, Korea University
Offered in recognition of extraordinary academic achievements to work-study students

Academic Excellence Scholarships **2013**
College of Information & Communication, Korea University
Offered to top 6% freshmen in the College of Information & Communication

EXTRACURRICULAR ACTIVITIES

Reviewer at ECML-PKDD, ACM MultiMedia, ASONAM, AAAI conferences **2022**
Volunteer at WSDM 2022 conference **2022**
Volunteer at KDD 2021 conference **2021**
Reviewer at ASONAM, IEEE CogMI conferences **2021**