

Inwon Kang

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Research Interests

Deep Learning, Efficient Learning, Explainable Machine Learning

Education

Ph.D. in Computer Science 2022.08 - Current

Rensselaer Polytechnic Institute

Advised by Professor Oshani Seneviratne.

My current research focus is on scalable and decentralized machine learning on structured data.

M.S. in Computer Science 2021.08 - 2022.05

Rensselaer Polytechnic Institute

Advised by Professor Lirong Xia.

My final project was on collection&analysis of a dataset on human perception of Gerrymandering.

B.S. in Computer Science 2017.08 - 2021.05

Rensselaer Polytechnic Institute

Concentration in AI/ML

Experience

Research Assistant | Rensselaer Polytechnic Institute 2024.01 - Current

Deep Learning, Data Distillation, Foundation Model

- Funded by RPI IBM collaboration (AIRC) to investigate data distillation for tabular data using foundational models.
- Continuation of project from research intern experience.

Research Assistant | Rensselaer Polytechnic Institute 2022.08 - 2024.01

Blockchain, Hyperledger

- Funded by CRAFT center to investigate and implement a framework for interoperability in disparate blockchain systems.
- Using Hyperledger Cactus to implement prototype.
- Published a survey paper in IEEE BigData 2022 Workshop.

Research Intern | IBM – T.J. Watson Center, Yorktown NY 2023.05 - 2023.08

Deep Learning, Data Distillation

- Worked as a research intern in AI & Automation department.
- Implemented and experimented with an automated AI pipeline using ray tune and pytorch.
- Accepted to AAAI Student Abstract track, selected for oral presentation.

Undergraduate Researcher | Rensselaer Polytechnic Institute 2020.10 - 2021.05

Crowdsourcing, Explainable AI

- Joined Professor Lirong's group as an undergraduate student and worked on various projects, such as conducting surveys through Amazon Mechanical Turk to collect datasets and using GNNs to build NLP models that improved on past works.
- Built a website using Google sheet's API as a database to collect user responses for a survey on human perception of fairness in Gerrymandering.

Skills

Programming Languages

- Comfortable with: Python, Javascript, TypeScript
- Have used: Java, C, C++, Solidity, C#

Machine Learning Libraries

- Comfortable with: pytorch, pytorch-geometric, scikit-learn, opencv, torchvision, nltk, spacy, pandas, numpy
- Have used: jax, tensorflow, keras
- Comfortable with: Django, FastAPI, Flask, React.js, Next.js
- Have used: .Net

Environments

- Comfortable with: Linux (Debian-based), OSX

- Have used: Docker

Awards & Achievements

- *AAAI-24 Student Scholarship*
- *Letter of Recognition* – Graph Mining (CSCI-4964), Spring '20
- *RPI Dean's Honor List* – Spring '20, Fall '20, Spring '21

Professional Service

- Reviewer for WebSci-24

Publications

Deciphering Crypto Twitter

I. Kang, M. A. Mridul, A. Sanders, Y. Ma, T. Munasinghe, A. Gupta, O. Seneviratne. WebSci-24 – Conference

Effective Distillation for Tabular Datasets (Student Abstract)

I. Kang, P. Ram, Y. Zhou, H. Samolowitz, O. Seneviratne. AAAI-24 – Conference

Using Large Language Models for Generating Smart Contracts for Health Insurance from Textual Policies

I. Kang, W. Van Woensel, O. Seneviratne. W3PHIAI-24 – Workshop (AAAI)

Learning to Explain Voting Rules

I. Kang, Q. Han, L. Xia. AAMAS-23 – Extended Abstract

Dependency and Coreference-boosted Multi-Sentence Preference model

F. Mohsin, **I. Kang**, Y. Chen, J. Shang, L. Xia. DLG-AAAI-23 – Workshop

Blockchain Interoperability Landscape

I. Kang, A. Gupta, O. Seneviratne. IEEE BigData-2022 – Workshop

Making group decisions from natural language-based preferences

F. Mohsin, L. Luo, W. Ma, **I. Kang**, Z. Zhao, A. Liu, R. Vaish, L. Xia. COMSOC-21

Learning Individual and Collective Priorities over Moral Dilemmas

F. Mohsin, **I. Kang**, P.Y. Chen, F. Rossi, L. Xia. MPREF-22 – Workshop (IJCAI)

Analyzing and predicting success of professional musicians

I. Kang, M. Mandulak, B.K. Szymanski. Scientific Reports – Journal, 2022

Crowdsourcing Perceptions of Gerrymandering

B. Kelly, **I. Kang**, L. Xia. HCOMP-22 – Conference/AAAI