

# Inwon Kang

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## Research Interests

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Deep Learning, Efficient Learning, Explainable Machine Learning

## Education

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**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

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**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

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### 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

### Web Frameworks

- Comfortable with: Django, FastAPI, Flask, React.js, Next.js
- Have used: .Net

## Environments

- Comfortable with: Linux (Debian-based), OsX
- Have used: Docker

## Awards & Achievements

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- *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

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- Reviewer for WebSci-24

## Publications

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### *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