

Kaijian(Kai) Zou

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Education

Cornell University (College of Engineering)

Bachelor of Science in Computer Science (Cum laude); Minors: Business
Cumulative GPA: **3.71**; Dean's List (Spring 2019 – Fall 2021)

Ithaca, NY

Fall 2018 - August 2022

University of Michigan

Doctor of Philosophy in Computer Science
Cumulative GPA: **3.82**; Advisor: Lu Wang (Research Area: Natural Language Processing)

Ann Arbor, MI

Expected Spring 2027

Research Experience

Long Context Models Evaluation - LAUNCH Lab @ CSE

Ann Arbor, MI

Graduate Student Research Assistant (Advised by Prof. Lu Wang)

August 2022 – Present

- Investigated whether ICL tasks benefit from additional demonstrations and assess their suitability for evaluating long-context language models with a context length up to 128k tokens
- Developed methods to characterize the primary skills needed for ICL tasks, retrieval capabilities or global context understanding
- Created a many-shot ICL benchmark that focuses on both retrieval and global context understanding skills of models
- Benchmarked 11 long-context models to assess their performance comprehensively

Media Bias - LAUNCH Lab @ CSE

Ann Arbor, MI

Graduate Student Research Assistant (Advised by Prof. Lu Wang)

August 2022 – Present

- Designed an annotation framework for labeling partisan events based on entity and sentiment information
- Led a team of six annotators to produce a high-quality dataset of 300+ news articles
- Evaluated RoBERTa, T5, and ChatGPT on the dataset to test language models' ability to understand news narrative
- Conceptualized bias detection as a dual task of extracting event arguments and classifying events
- Distilled knowledge from ChatGPT to smaller T5 models by generating pseudo-labels on unlabeled datasets

Cornell NLP Research Group

Ithaca, NY

Research Assistant (Advised by Prof. Claire Cardie)

February 2021 – May 2022

- Ran transformer models on the long narrative summarization dataset BookSum and analyzed the resulting text summaries
- Experimented with a two-step neural approach for generating summaries on long documents
- Assisted in creating a dataset that provides summarizations for the movie scripts

Carnegie Mellon University

Pittsburgh, PA

Remote Research Assistant (Advised by Prof. Elaine Shi)

June 2020 – August 2021

- Attended weekly meetings to discuss blockchain related ideas such as Byzantine Broadcast, Blockchain Protocols, and Bitcoin
- Developed a protocol simulator that has GUI, signature, authentication, engine, adversary, and protocol modules in Java
- Structured the skeleton of general protocols and implemented the specific protocols such as dolev-strong, streamlet (blockchain)

McMahon Lab at Cornell

Ithaca, NY

Research Assistant (Advised by Prof. Peter McMahon)

January 2020 – August 2020

- Created a second order ODE solver to simulate a double pendulum system and analyze its non-linear properties
- Implemented an echo state network to correct the simulated equation with experimental data
- Explored the neural ODE to test the possibility of making the system a physical neural network

Publication

Retrieval or Global Context Understanding? On Many-Shot In-Context Learning for Long-Context Evaluation

Kaijian Zou, Muhammad Khalifa, Lu Wang

Unveiling Partisan and Counter-Partisan Events in News Reporting

EMNLP 2023

Kaijian Zou, Frederick Zhang, Winston Wu, Nick Beauchamp, Lu Wang

Findings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)

All Things Considered: Detecting Partisan Events from News Media with Cross-Article Comparison

EMNLP 2023

Yujian Liu, Frederick Zhang, Kaijian Zou, Ruihong Huang, Nick Beauchamp, Lu Wang

Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)

Work Experience

American Express

New York, NY

Software Engineer Summer Intern (The Dream Team – Customer 360)

June 2022 – August 2022

- Built a chatbot application using spring framework in the Customer 360 portal, which has more than 8000 customers
- Designed the chatbot architecture as a frame-based dialogue system to achieve fast and reliable performance
- Used different design patterns like DAO to structure the modular and scalable codebase

American Express

Software Engineer Summer Intern (Global Consumer Technology – AI/ML Center of Excellence)

New York, NY

June 2021 – August 2021

- Built a full-stack production webapp using Flask and React that leverages various NLP techniques to extract keywords from text
- Implemented three keyword extraction algorithms: KeyBERT, TextRank, and RAKE which respectively use BERT, graph-rank algorithms, and co-occurrence relations to achieve fast and accurate keyword extraction
- Constructed an active user feedback loop by collecting users' annotations to fine tune the keyword extraction models
- Developed an algorithm to cluster 300+ 10k documents based on textual and semantic similarities using sentence embeddings

Teaching Experience

University of Michigan

Ann Arbor, MI

Graduate Student Instructor for CSE 592 (Foundations of AI)

Fall 2024

Graduate Student Instructor for EECS 598 (Foundations of LLMs)

Winter 2024

Graduate Student Instructor for EECS 487 (Introduction to NLP)

Fall 2023

Cornell University

Ithaca, NY

Teaching Assistant for CS4740 (Introduction to NLP)

Fall 2021

Teaching Assistant for CS4700 (Foundation of Artificial Intelligence)

Spring 2020, Fall 2020

Service & Leadership

University of Michigan

Ann Arbor, MI

AI Tea Coordinator

2023 – Present

- Organized monthly community events for the AI lab at Michigan

Social Chair of CSEG

2023 - Present

- Planned and organized social events for the computer science graduate students at Michigan

Co-chair of NLP Symposium @Michigan

Spring 2023

- Organized the NLP symposium, which attracted 100+ attendees

Cornell University

Ithaca, NY

VP of Cornell Chinese Students and Scholars Association

Fall 2021 – Spring 2022

- Organized the events to promote Chinese culture on campus

Philanthropy Chair of Chi Psi Fraternity

Fall 2020

- Planned initiatives to help the organization engaged with the community

Project

Nex Platform (Javascript)

Ithaca, NY

Founder

June 2020 – January 2021

- Led a team of 4 developers, UI designers to engage in the continuous product development cycle
- Designed a trading platform that allows users to post/list used items, with design tools such as affinity diagrams, persona, surveys
- Implemented a Nodejs backend server with the DAO pattern to handle requests and database operations between servers

Quolessome-ness (Python)

Spring 2021

- Built an information retrieval system that helps users generate motivational quotes with React and Flask

Question Answering on SQuAD2.0 (Python)

Fall 2020

- Built a modified Stanford Attentive Reader from scratch that handles QA and answerability classification in Pytorch
- Constructed a QA model that consists of two linear output layers by fine-tuning the pre-trained BERT model

Skills

Programming Language: Java, JavaScript, Python

Tools/Others: Flask, React, Nodejs, MongoDB, PyTorch, Algorithm Design and Analysis, Mandarin Chinese (Native), LaTeX