

## EDUCATION

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### Ph.D. in Computer Science

University of Illinois Chicago, Chicago, IL

2024.9 — 2029.5(expected)

### BA in Chemical Engineering

Sichuan University, Chengdu, Sichuan

2020.9 — 2024.6

## REASEARCH EXPERIENCE

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### DESCRIPTION

I'm generally interested in improving the generalization of large language models across various domains, including text generation and healthcare, by focusing on the representation within the models and also solving the generalization problem through fine-tuning. I'm good at using Python and related tools for machine learning and deep learning.

### Natural Language Processing Laboratory

*Advised by Dr.Parde*, working on language model generalization and linear representation hypothesis on Alzheimer's disease domain

### R2 Lab

*Advised by Dr.Cheng*, working on social bias and the uncertainty of large language models.

### Interactive Image Segmentation

*As an important part of lifelong learning automation closed Loop in KubeEdge SIG AI*

- Survey: Investigate papers on interactive image Segmentation
- Proposal: Finish a proposal of integrating interactive image segmentation into KubeEdge SIG AI project

### Optical Camera Communication and Computer Vision

*Research Optical Camera Communication and Computer Vision in Yang' lab:*

Working on how does the optical camera communication(OCC) impacts the objective-tracking algorithm and the potential that OCC works as a backdoor attack trigger in image classifier neural network.

## PUBLICATION

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Threshold Filtering Packing for Supervised Fine-Tuning: Training Related Samples within Packs. Jiancheng Dong, **Lei Jiang**, Wei Jin, Lu Cheng. In NAACL'25 Main Conference

Diagnosing Moral Reasoning Acquisition in Language Models: Pragmatics and Generalization. Guangliang Liu, Zimo Qi, Xitong Zhang, **Lei Jiang**, Kristen Marie Johnson. In EMNLP'25 Findings.

## PROJECTS

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### Edge Computing Based Removable Surveillance Alarm Camera

*Considering the problem that in temporary construction sites it's expensive and time-consuming to set up a complete surveillance camera system, I propose to use edge computing technique to implement a plug-and-play camera with alarm function. I finish:*

- Implement image preprocessing with OpenCV python lib.
- Use yolov5 to recognize a series of wearable objects like masks, safety helmets, protective clothing
- Transfer it to Jeston Nano as the computing equipment, using the USB camera as the input.

### Kaggle Leaves Classification

*The purpose of this competition is to classify 176 categories of leaves and achieve as high as possible accuracy. Here is what I do:*

- Implement the whole framework for preprocessing, training, and inference from scratch with PyTorch.
- Test a variety of models' performance considering the different sizes and structures and choose SEResNet.
- Use techniques like data augmentation, cross-validation, and multimodel inference to achieve 0.98159 accuracy.

### KubeEdge-Sedna Python SDK Integration with MindSpore

*Sedna is an open-source edge-cloud synergy AI project running on K8S, supporting functions like incremental learning and federated learning, but doesn't support users to facilitate it's edge-cloud synergy capabilities with the model developed by MindSpore deep learning framework*

- Integrate MindSpore deep learning framework in Sedna lib.
- Implement a classification demo based on the Mindspor framework, with incremental learning ability on the K8S cluster.
- Write the proposal of integrating TinyMS framework which running on the top of MindSpore and provide high-level API

## HONOR & AWARD

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- Huawei-ZhiNengJiZuo Fellowship 2022 (1/30 in the whole university)
- 2022 Open Source Promotion Plan Most Promising Award (1/5 in 449 students)
- ALCF Director's Discretionary (DD) allocation award from Argonne Leadership Computing Facility