ZHAO HAIBO

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Education

B.S. in Tongji University, Shanghai, China **2020 – 2024**

Software Engineering (major in Machine Learning) *GPA: 88.45/100*

Preprints

Paper Title: A Stochastic Polyhedral Approximation Method for Decentralized Composite Bilevel Optimization
Author: Ya Liu, Kai Yang* , **Haibo Zhao**, Yu Zhu, Keying Yang
Submitted: NeurIPS 2023 | *Publication link*

Research Experience

Kai Yang lab, Tongji University **Apr 2022 – Oct 2022, China**

Research Topic: Developing a novel algorithmic framework to address bi-level programming problems using the cutting-plane method.

- Derived the specific elaboration of the general algorithmic framework in the field of meta-learning.
- Utilized PyTorch to complete the code implementation of the algorithm.
- Reproduced the code from similar papers (ANIL, iMAML) and conducted a comparison with our method.

Result: The paper was published at ICLR 2023, and my experimental results were adopted.

Kai Yang lab, Tongji University **Oct 2022 – Now, China**

Research Topic: Expanding the previous algorithmic framework to a distributed setting and incorporating gradient tracing and proximal gradient.

- Completed the mathematical derivation of the algorithmic framework incorporating the proximal gradient.
- Implemented the algorithm for meta-learning and hyperparameter optimization using the PyTorch framework.
- Reproduced the code from similar papers and conducted a comparison with our method.

Result: Co-authoring a paper currently under submission to NeurIPS 2023.

SITP(Student Innovation Training Program), Tongji University **May 2021 – May 2022, China**

Research Topic: Designing a community travel system tailored for the visually impaired population.

- Conducted on-site investigations and recorded the travel conditions of the visually impaired community.
- Used the Huawei HarmonyOS development kit to create a smart sensing device.

Result: Developed a functional travel system and successfully completed the project.

Projects

Camera Calibration Tool | *Project link* **Computer Vision Course's Final Project**

- Built a user-friendly visual interface using Qt.
- Implemented camera calibration functionality using C++ and OpenCV library functions.

Diabetic Retinopathy Detection | *Project link* **Generalized Project of Research Stream Course's Final Project**

- Conducted filtering, cleaning, and other preprocessing on the DDR dataset.
- Built a Unet+ResNet50 model and completed the diabetic retinopathy classification task.
- Built a BiRA-Net model and accomplished the diabetic retinopathy grading task.

Club Management Platform | *Project link* **Software Engineering Course's Final Project**

- Developed the front-end webpage using the Vue framework.
- Conducted back-end development using the Spring Boot framework.
- Performed database management using MySQL.

Honors

Second Prize, ChinaUndergraduate Mathematical Contest in Modelling at University-level. **May 2021**

First Prize, International College Students' 'Internet+' Innovation and Entrepreneurship at University-level. **Jun 2021**

Second Prize, ChinaUndergraduate Mathematical Contest in Modelling at Province-level. **Nov 2021**

Second Prize, National College Student Electrical and Mathematical Modeling Competition at National-level. **May 2023**