Dongbai Li

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RESEARCH INTERESTS

Trustworthy AI, OOD generalization, Domain generalization, Stable learning

EDUCATION

Tsinghua University, Beijing, China   9 2022 — Present
Department of Computer Science and Technology   Cumulative GPA: 3.87

RESEARCH EXPERIENCE

Prof. Huan Zhang's lab   University of Illinois Urbana-Champaign (UIUC)
Research intern   7 2024 — Present

- **Performance Prediction**
  Subpopulation shifts, where the distribution of subgroups between training and target datasets differs, pose significant challenges to machine learning models, making performance prediction prior to deployment particularly important. Existing performance prediction methods often fail to address this type of shift effectively. We propose a novel two-stage performance prediction method specifically designed to tackle subpopulation shifts. I led the entire project.

Prof. Peng Cui's lab   Tsinghua University
Research intern   3 2023 — Present

- **Domain Generalization**
  From a data-centric perspective, we addressed a practical requirement of acquiring training samples from various domains on a limited budget to facilitate model generalization to target domain with distribution shift. To handle this, we introduced a Domain-wise Active Acquiring framework which iteratively optimizes the data acquisition strategy. I contributed some ideas and conducted all the experiments in this work.

- **Stable Learning**
  Enhanced the sample-reweighting approach in stable learning by incorporating a loss function to emphasize the training of challenging samples. I took charge of translating the conceptual framework into executable code, alongside curating datasets and crafting graphical representations.

PUBLICATIONS

- Yue He, **Dongbai Li** (co-first authors), Pengfei Tian, Han Yu, Jiashuo Liu, Hao Zou, Peng Cui. Domain-wise Data Acquisition to Improve Performance under Distribution Shift. **ICML 2024**.

- Han Yu, Yue He, Renzhe Xu, **Dongbai Li**, Jiayin Zhang, Wenchao Zou, Peng Cui. Sample Weight Averaging for Stable Prediction. **Under review**.

SKILLS

- **Programming:** C++, Python

- **Machine learning:** principles, model utilization, data processing and analysis

- **Deep learning:** Pytorch

SELECTED COURSES

- Fundamentals of Programming(C++)   A
- Programming and Training(Python)   A
- Probability and Statistics   A

REFERENCES

Prof. Peng Cui

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Scholar Profiles: Personal Page — Google Scholar

Prof. Huan Zhang

Assistant Professor, Department of Electrical and Computer Engineering, University of Illinois Urbana-Champaign

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