Zilinghan Li

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Education

University of Illinois at Urbana–Champaign — Champaign, IL
Master of Science in Computer Science | GPA: 4.0/4.0 — Aug. 2022 – May. 2024
Bachelor of Science in Computer Engineering | GPA: 3.89/4.0 — Sep. 2018 – May. 2022

Zhejiang University — Hangzhou, China
Bachelor of Engineering in Computer Engineering | GPA: 3.97/4.0 — Sep. 2018 – Jun. 2022

- Selected Honors: UIUC **Highest** Honor at Graduation (2022), National Scholarship ($< 1\%$, 2019).
- Teaching Assistant: Artificial Intelligence (2022), Introduction to Computing (2021, 2022), Calculus III (2020).

Publications

- **Li Z.**, Wang X., Zhang Z., Kindratenko V. ViCTer: A Semi-supervised Video Character Tracker. Submitted to *Machine Learning with Applications.* **[Paper]**
- Yuan X.*, **Li Z.***, Wang G. ActiveMatch: End-to-end Semi-supervised Active Representation Learning. In *IEEE International Conference on Image Processing (ICIP) 2022.* (*: equal contributions) **[Paper]**
- **Li Z.**, He S., Du Y., González S., Schewe KD. Unbounded Barrier-Synchronized Concurrent ASMs for Effective MapReduce Processing on Streams. In *Rigorous State-Based Methods. ABZ 2021.* **[Paper]**

Selected Projects

Full Stack Project: GroupToDo | ***JS, React, Node.js, MongoDB*** — Champaign, IL, Nov. 2022 - Dec. 2022
- Designed a todo list web application suitable for group collaboration, GroupToDo, in which users can manage both their personal tasks and assigned group tasks. **[Demo]**
- Built the frontend webpages using React and JavaScript, and developed the user authentication via Firebase.
- Implemented backend APIs via Node.js and MongoDB, and deployed the backend to Heroku.

Ebook Service and Management System | ***JS, Vue, SQL*** — Champaign, IL, Sep. 2021 - Dec. 2021
- Developed a webpage which displays the contents of **1000+** ebooks according to the two-level category.
- Set up ebook management pages with user authentication to safely access and modify the database from frontend.

GAN-based Missing Data Imputation Toolbox | ***Python*** — Hangzhou, China, Jun. 2021 - Sep. 2021
- Proposed an improved generative adversarial network (GAN) based missing data imputation method, which speeds up the model training by **7.5x** on average, and embedded the model into a GUI toolbox using **PyQt**.
- Employed pagination to decrease the time for opening large files with millions of items to less than 5 seconds.
- Supported more than 10 data pre-processing methods and 2 post-analysis methods in the toolbox.

Linux-like Operating System Supporting Multiple Terminals | ***C, x86-Assembly*** — Remote, Mar. 2021 - May. 2021
- Developed an operating system with three students from scratch, including OS functionalities such as basic device supports, interrupt handlers, system calls, dynamic memory allocation, and writable file system.
- Implemented a round-robin scheduler to support three terminals running at the same time.

Research Experience

A Semi-supervised Video Character Tracker | ***Python*** **[Code]** — Champaign, IL, Oct. 2021 - Jun. 2022
- Proposed a semi-supervised learning method with triplet loss to achieve more than **98%** face recognition accuracy by using two face images per person for training.
- Designed a video character tracker to return character appearing time slots by combining the semi-supervised face recognizer and multi-human tracker, which reaches **70%**~**80%** tracking accuracy on collected datasets.

End-to-end Semi-supervised Active Representation Learning | ***Python*** — Haining, China, Jun. 2021 - Feb. 2022
- Proposed a semi-supervised learning (SSL) method which solves the current drawbacks such as ambiguous representations for inter-class samples, sensitivity to initialization, and inconvenience in building labeled sets.
- Reached **state-of-the-art** performance on CIFAR-10 (**1%**~**2%** improvement) and CIFAR-100 (**4%** improvement).

Skills

Programming Languages: Python, C++, C, Java, System Verilog, MATLAB, SQL, HTML, CSS, JavaScript
Tools: PyTorch, React, Vue, Git, CUDA, LaTeX, MongoDB
Relevant Coursework: Artificial Intelligence, Art of Web Programming, Communication Networks, Computer Systems Engineering, Database Systems, Data Structures, Distributed Systems, Introduction to Algorithms