Ruipeng (Ray) Han

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EDUCATION

University of Illinois Urbana-Champaign Master of Computer Science (MCS)

University of Illinois Urbana-ChampaignB.S. with Highest Distinction in Math and Computer ScienceB.S. with Highest Distinction in StatisticsHonors: Edmund J James Scholar, Dean's List every semester, Cum Laude

PUBLICATIONS

Large Language Model-Guided Disentangled Belief Representation Learning on Polarized Social Graphs (33rd ICCCN 2024, p.583-9)

Jinning Li, **Ruipeng Han**, Chenkai Sun, Dachun Sun, Ruijie Wang, Jingying Zeng, Yuchen Yan, Hanghang Tong, Tarek Abdelzaher.

Perturbation-based Graph Active Learning for Weakly-Supervised Belief Representation Learning (arXiv preprint arXiv:2410.19176)

Dachun Sun, Ruijie Wang, Jinning Li, Ruipeng Han, Xinyi Liu, You Lyu, Tarek Abdelzaher.

TEACHING EXPERIENCE

 Graduate Teaching Assistant (Formal Software Development Methods, CS 477) University of Illinois Urbana-Champaign Developed scripts and autograders to automate the grading of homework, attendance records, and reg Developed and maintained the course website; managed the administrative tasks of the website and compared tasks of the website administrative tasks of tasks o	Jan 2024 - May 2024 Champaign, IL grades requests purse forums
 Graduate Teaching Assistant (Database Systems, CS 411) University of Illinois Urbana-Champaign Prepare and develop course materials on MongoDB, Neo4j, database indexing, and transactions, incluquizzes, exam problems, and designing grading rubrics Held daily office hours and guide 13 groups of students on their semester-long full-stack application processing for the semister-long full	Aug 2023 - Dec 2023 Champaign, IL ding creating homework, rojects
 Course Assistant (Software Design Lab, CS 222) University of Illinois Urbana-Champaign Supported students during weekly sessions through which they design, build, and maintain web and n on software development lifecycles and best practices as they relate to software projects Implemented and configured robust GitHub CI/CD workflows, streamlining project development by a processes, testing, and deployments 	Aug. 2022 – May 2023 Champaign, IL nobile projects; advising sutomating building
 Course Assistant (Numerical Analysis, CS 450) University of Illinois Urbana-Champaign Partnered with instructor and TAs in crafting and delivering engaging course materials, while support knowledge and development of students Graded homework on topics of linear/non-linear problems, optimizations, and eigenvalue/eigenvectors 	Aug. 2022 – May 2023 Champaign, IL ting the continued

Software Research Assistant

Coordinated Science Lab, University of Illinois at Urbana Champaign

- Developed an automated sentiment analysis pipeline in **Python** to retrieve raw tweets, preprocess data, and perform sentiment analysis and chain-of-thought prompting using **LangChain**, **vllm**, OpenAI GPT-4 API, and **NLTK**
- Implemented and fine-tuned baseline models for classifying tweets, including RoBERTa, TwinBert, and Mixtral models

Expected Dec 2024 GPA: 3.96/4.0

Aug 2019 - May 2023 GPA: 3.95/4.0

> Dec 2023 – Present Champaign, IL

PROFESSIONAL EXPERIENCE

Software Engineer Intern

Pure Storage Inc.

- Integrated Broadcom Thor RDMA network interface cards in the flash array system across various layers, including RoCEv2 between controllers for high availability, NVMe-RoCE on the frontend, and NVMe-oF between controllers and shelf
- Adapted existing user-space code and Linux kernel patches in C, including Infiniband RDMA and NVMe modules, to ensure system compatibility with Broadcom RDMA cards, achieving performance parity with Mellanox NICs

Software Engineer Intern

Foxconn Industrial Internet (FII-USA)

- Led the design and development of RESTful APIs using FastAPIs to retrieve real-time IoT machine data from the production line, enabling seamless integration with user and client applications and effectively handling 10K+ daily requests
- Developed microservices architectures using Django-REST framework that communicated with Microsoft Graph APIs and provided access to Microsoft cloud services, including emails, Teams messages, cloud communications, and search functions

Software Engineer Intern

Foxconn Industrial Internet (FII-USA)

- Developed and maintained an ERP web application using Django and React. is with PostgreSQL databases, automating human resources' business workflow and affairs, including form approvals, production planning, document management, etc
- Implemented an admin portal to visualize thousands-scaled sales forms and materials documents, enhancing business analysis
- Implemented health checks and monitoring mechanisms in **HAProxy** to constantly monitor the availability and responsiveness of web servers, automatically routing traffic away from underperforming servers and ensuring 99.999% host uptime

IT Technician Intern

Foxconn Technology Group

- Collaborated with system engineers to optimize PostgreSQL replications, load-balancing protocols, and failover performance. Achieved 30% latency reduction, enhancing data sync between primary and standby databases
- Leveraged GitLab CI/CD and developed shell scripts to automate deployments, server updates, testings, and database migrations and failovers, enhancing the DevOps cycle and continuous integration efficiency under Linux OS.

TECHNICAL SKILLS

Languages: Python, C, C++, Go, C#, Java, JavaScript/TypeScript, R, SQL, Linux Shell, HTML5&CSS Frameworks: Django, Flask, Java Spring Boot, Node.js, React.js, Next.js, gRPC, FastAPI Developer Tools: Docker, Git, Gitlab, Github, VMware, GCP, AWS, DigitalOcean, VScode, Rstudio Databases: PostgreSQL, MongoDB, MySQL, Oracle

PROJECTS

Distributed Machine Learning Computing Scheduler

- Developed a fault-tolerant distributed file system in Golang using gRPC, enabling efficient file operations such as fetching, deleting, and uploading files while ensuring system reliability.
- Implemented the **Bully Algorithm** for automatic master node election, providing seamless failover capabilities in case of master node failures, ensuring uninterrupted system functionality.
- Designed and implemented a Round-Robin style resource scheduler for efficient task allocation among ML models/inference tasks, optimizing resource utilization and ensuring fair distribution of computing resources.

Algorithmic Trading Strategy (semester-long project for the course IE 498 "High Frequency Trading")

- Designed and implemented a robust C++ parser for NASDAQ TotalView-ITCH 5.0 and IEX DEEP market data, enabling efficient extraction and processing of critical market information.
- Developed a mean-reversion strategy using C++ in Strategy Studio (RCM-X), leveraging statistical analysis and algorithmic trading techniques to identify and exploit market inefficiencies.
- Tuned strategy parameters and backtested on 2022 April's data, yielding pnl rate 90% on AAPL and 50% on SPY

RELEVANT COURSEWORK

System & Network: Distributed System, Database System, System Programming, Compilers, IoTs, Networks ML & DL: Machine Learning, Artificial Intelligence, Deep Learning, Statistical Modelling, NLP Math & Analysis: Numerical Analysis, Linear Algebra, Differential Equations, Real Analysis, Abstract Algebra, Algorithms, Statistical Programming Methods, Data Structure, Probability Theory, Formal Method for Software Verification, Data Management

May 2021 – Aug. 2021

May 2020 - Aug. 2020

Mt. Pleasant, WI

May 2024 – Aug. 2024 Santa Clara, CA

May 2022 – Aug. 2022

Mt. Pleasant, WI

Mt. Pleasant, WI