Qi (Leo) Yu

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Education

- **University of Illinois at Urbana-Champaign** — Champaign, U.S.
  Master of Computer Science; GPA: 3.94/4.0 — *Aug. 2022 - May. 2024*
  Courses: *Distributed Systems, Database Systems, Applied Parallel Programming, Manycore Parallel Algorithms, Machine Learning*
- **Dalian University of Technology** — Dalian, China
  Bachelor of Engineering - Computer Science; GPA: 90.4/100, 4.04/5.0 — *Sept. 2018 - Jul. 2022*
  Courses: *Computer Architecture, Numeric Methods, Operating Systems, Algorithms & Data Structures, Computer Networks, OOP*

Skills Summary

- **Programming & Databases**: JavaScript, Java, Python, Node.js, C++, Golang, MySQL, MongoDB, Neo4j
- **Web Dev**: React, React Native, Redux, Vue, Vuex, TypeScript, HTML, CSS
- **Cloud & Libraries**: AWS, GCP, PyTorch, TensorFlow, CUDA
- **Miscellaneous**: DevOps, CI/CD, REST API, Git, Linux, Vim, Gurobi, LaTeX

Work Experience

- **Meituan** — Shanghai, China
  Software Engineer Intern, Front-End — *May.2023 - Aug. 2023*
  - **DevOps**: Implement **CI/CD** using Meituan's DevTools, streamlining integration & deployment flows
  - **CRM**: Worked individually in adding features to the front-end of Meituan's CRM application Apollo using **Vue3**, boosting the quarterly revenue generated by Meituan's sales force by **more than 20%**
  - **Mobile Development**: Assisting in building and deploying the front-end of Aesthetic Medicine Product section in Meituan's mobile app, which is used by **600+ million** users, using **React Native** and **Redux Toolkit**

Projects

- **Raft implementation in Go**: Implemented Raft Concensus Algorithm using **Go** among **distributed machines** on unreliable networks, with **strong consistency** and **high efficiency** on Leader Election and Log Consensus. Implementation passed **fault-tolerance** tests under assorted network failures.
  Tech: Golang, Multi-threading, Distributed Algorithms *(Mar.2023)*
- **RateMyRSOs - A review website for RSOs at UIUC**: Built a **full-stack** web application, RateMyRSOs, which allows students at UIUC to post reviews and ratings to UIUC's different Registered Student Organizations (RSOs). Developed the backend and frontend of the application using **Express.js** and **React**, and hosted the **MySQL** Database on **GCP**.
  Tech: React, Express.js, Node.js, MySQL, GCP *(Jan.2023)*
- **Drug-drug Interaction Detection through Drug Knowledge Graph (Data Mining, Knowledge Graph, Graph Neural Network)**: Constructed large-scale drug knowledge graph and proposed a **DNN** model based on **Conv-LSTM** to predict drug-drug interaction with **AUPR of 0.99** and **MCC of 0.88**.
  Tech: TensorFlow, PyTorch, PHP, SPARQL. *(Mar. 2022)*

Research Experience

- **Prioritized List Scheduling** — Dalian University of Technology
  Software Developer & Undergraduate Research Assistant — *Feb. 2022 - Jul. 2022*
  - **IP**: Encoded priority assignment problem for a DAG task into an Integer Programming (IP) formulation.
  - **Gurobi - Python**: Designed an iterative algorithm to derive minimum WCRT using Python Gurobi solver.
  - **Result**: Proposed algorithm capable of solving IP formulation optimally by involving only 12.67% variables on average.
- **UCInspire - Personalized ML for Edge Computing** — University of California, Irvine
  Undergraduate Researcher — *Jun. 2021 - Oct. 2021*
  - **Personalized ML**: Proposed a specialized machine learning schema for resource-constrained distributed systems by exploiting temporal correlations among data and enabling local training.
  - **Test on HAR**: Implemented a two-stage system in PyTorch for task-offloading and tested it on the HAR dataset.
  - **Result**: Proposed method improved resource utilization by 91% and reduced network communications by 84%.
- **Static Job-shop Scheduling** — Dalian University of Technology
  Software Developer & Undergraduate Researcher — *Nov. 2020 - Jul. 2021*
  - **JSP**: Formulated the static Job-Shop Scheduling Problem (JSP) into a programmable model in Factor Graph.
  - **Max-sum Algorithm**: Proposed and Implemented a derivative of the distributed max-sum algorithm in C++, which is commonly used for message passing through multi-agent systems, to iterate on the formulated Factor Graph model.
  - **Result**: Proposed algorithm capable of resolving large-scale JSPs in an industrial environment with a 3-time faster speed than that of state-of-the-art heuristic methods.

Publications

- **Journal**: Chang, S., Bi, R., Sun, J., Liu, W., **Yu, Q.**, Deng, Q., & Gu, Z. (2022). Towards Minimum WCRT Bound for DAG Tasks under Prioritized List Scheduling Algorithms. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems.*
- **Patent**: **Qi Yu**, Yuhan Wang, Jinghao Sun. 2021. A Distributed Max-Sum Algorithm for Job Shop Scheduling in an Industry 4.0 Environment, CN 202110789792.5.