

YANGFEI DAI

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EDUCATION

University of Illinois at Urbana-Champaign

Aug 2022 - Expected May 2024

Master of Science in Mechanical Engineering

Champaign, IL

GPA: 4.0/4.0

Relative Coursework: The Art of Web Programming(A), Database Systems(A⁺), Machine Learning(A), Computer Vision(A)

TA Experience: Conduct ME270(Fall 2023, Spring 2024) weekly discussions, create lab materials, and perform grading

Zhejiang University

Aug 2019 - May 2023

Bachelor of Engineering in Mechanical Engineering

Hangzhou, China

GPA: 3.92/4.0 (Top 3%)

Relevant Coursework: C Programming, Artificial Intelligence, Probability & Mathematical Statistics

SKILLS

Programming Language: Java 8, JavaScript, Python, SQL, NoSQL

Technologies: Spring Boot, Spring Security, Maven, Node.js, Git, Docker, MongoDB

Additional: AWS, Netflix Eureka, Netflix Feign, React, HTML 5, CSS, npm, Pytorch, Express, ROS

PROJECTS

Timesheet Management Application (Backend)

Oct 2023 - Jan 2024

- Developed a responsive backend for Timesheet Management App using **Spring Boot** with **microservices**, and optimized **RESTful API** calls through **@Async** and **Executor Service**, achieving efficient multi-threading API calls.
- Designed and built solid microservices backend with **Composite Server** and **Core Server**, configured via **Gateway(load balancer)**, and integrated with **Netflix Eureka** and **Feign** for service registry and streamlined communication.
- Implemented a secure Authentication and Authorization system with **Single Sign-On (SSO)**, fortified by **Spring Security** and **JWT**.
- Employed **MongoDB** to manage profiles and timesheets, while utilizing **AWS S3** for cloud storage and relational database(**MySQL**) for credential storage.
- Constructed the **React** front end, implementing state management through **Reducers** and **Redux** to ensure a seamless user experience.

Interactive Trip Planning Web Application (Full-Stack)

Jul 2023 – Aug 2023

- Harnessed **Node.js & Express** for server-side functionalities, employed **React** for frontend development, and utilized **MySQL** for relational database management
- Designed **UML models** and translated them into relational databases while minimizing redundancies following the principles of the Third Normal Form (3NF)
- Achieved a significant 99.45% reduction in data retrieval costs through the implementation of composite indexing on relations containing 20,000+ records
- Maintained the database and enhanced application functionality by integrating stored procedures and triggers within the database

PROFESSIONAL EXPERIENCE

Research Assistant (Machine Learning)

Sep 2022 - Aug 2023

Coordinated Science Laboratory, UIUC & FIT-Foxconn Interconnect Technology, Ltd

Champaign, IL

- Developed a bespoke data labeling tool in **Python** for annotating instance masks on real images. Improved the GUI speed from 3fps to 25fps by refining the rendering logic
- Deployed and trained two deep learning models(Mask R-CNN and PvNet) using a dataset comprising over 20,000 augmented synthetic and real images. Achieved sub-centimeter precision in pose estimation for robotic assembly
- Proficiently utilized **Docker** for streamlined code delivery and **GIT** for version control in regular project workflows

Robotics Engineer Intern

May 2022 - Jul 2022

Hangzhou Shenhao Technology Co., Ltd.

Hangzhou, China

- Led a team of two in the design and development of a de-icing robot prototype for transmission lines
- Developed fundamental robot functionalities, including movement, vibration initiation, and frequency adjustment, using the C language on an STM32-based embedded system