

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, Database Systems, Machine Learning, Computer Vision

TA Experience: Conduct ME270(Fall 2023) weekly discussions, create lab materials, and performe 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, JavaScript, Python, SQL, NoSQL

Technologies: Node.js, Git, Docker, MongoDB

Additional: React, HTML, CSS, npm, Pytorch, Express, ROS

PROJECT

Interactive Trip Planning Web Application (Full-Stack)

Jul 2023 - Present

Initiated during UIUC Database System Course

Champaign, IL

- Utilized **MySQL** for backend management, employed **React** for frontend development, and harnessed **Node.js & Express** for server-side functionalities
- 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
- Developed multi-page and user-friendly user interfaces featuring interactive elements such as login, stop search, and trip planning
- Maintained the database and enhanced application functionality by integrating stored procedures and triggers within the database

Chess Game Application(Java)

Mar 2023 - May 2023

- Implemented chess game logic, including moves and checkmate conditions, and created an interactive user interface using **Java AWT/Swing**
- Developed a **UML model** and performed class-level unit testing to improve the project's design

PROFESSIONAL EXPERIENCE

Research Assistant (Machine Learning)

Advisor Timothy Bretl

Sep 2022 - Aug 2023

Coordinated Science Laboratory, UIUC

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 fine-tuning the rendering logic
- Trained Mask R-CNN and PvNet models using a dataset comprising over 20,000 augmented synthetic and real images. Achieved sub-centimeter precision in pose estimation

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

PATENTS

- Dai, Yangfei. 2021. Wrinkle-removing lifting facial mask base body or facial mask and preparation method. CN202110328550, filed March 26, 2021, and issued April 19, 2022