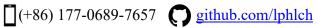
Pinhao Lyu

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Education

Tongji University, Shanghai, China

Sep 2020 — Jul 2024

Bachelor of Engineering in Computer Science and Technology

CGPA: 4.73/5.0 (92%), Major GPA: 4.90/5.0 (94%)

Relevant Courses: Computer Architecture, Computer Network, Artificial Intelligence, Software, Engineering, Operating Systems, Principles of Compilers, Methodology of Software Development, etc.

Honors: 2020 and 2021 scholarships for excellent undergraduate students of *Tongji* University



Internships

Cisco Systems

Apr 2023—Sep 2023

Software Developer Intern

- Created efficient data crawling scripts using asyncio and aiohttp to facilitate concurrent operations at the coroutine level, improving data acquisition and processing efficiency. Deployed a robust website using Diango and an intuitive dashboard to streamline content management and improve user experience
- Collaborated with cross-functional teams for seamless integration across business groups

SAP Oct 2023 — Present

DevOps Engineer Intern

- Assisted in enhancing software development and deployment processes using version control (Git), continuous integration and continuous deployment (CI/CD, Jenkins), and containerisation technologies (Docker, Kubernetes). Work with cross-functional teams to automate key aspects of the software development lifecycle
- Analysed, troubleshot and supported various production components in an automated environment based on Linux and Kubernetes. Investigated innovations in cutting-edge cloud solutions and explored the possibilities of landing them.



Researches & Projects

Design and Development of PIS Intelligent Operation and Maintenance System Based on **Microservices (Graduation Project & Thesis)**

Python, JavaScript, Django, Flask, React, MySQL, Kubernetes, Docker, Jenkins, Kafka, Nginx

- Implemented microservices based on Kubernetes and Docker for flexible deployment and rapid scaling. Used Jenkins for continuous integration and continuous delivery (CI/CD) to simplify the deployment process
- Microservices backends were written using Django and Flask in Python, while retaining the compatibility of other programming languages and frameworks. Built front-end pages using React with interactive and reusable components. Communication between front-end and back-end services uses RESTful APIs to simplify URLs and enhance readability. Each microservice has its own MySQL database
- Implemented efficient load balancing using Nginx. Used Kafka for publishing and subscribing messages between microservices to maintain data consistency

3D Tunnel Leakage Assessment through Enhanced GAN and Swin Transformer Model Sep 2022 — Feb 2023 Python, Pytorch

Sourced tunnel face images from various projects and improved dataset management by optimizing a

- Generative Adversarial Network (GAN) model
- Created a robust tunnel leakage detection and segmentation system using self-attention Deep Learning (DL) models built on the innovative *Swin-Transformer* architecture
- Contributed to introducing an automated procedure for pinpointing 3D leakage locations on rock tunnel faces, enabling suitable visualization

House Price Visualization Information Platform

Oct 2022 — Jan 2023

Python, Django, MySQL, HTML+CSS+JavaScript, Bootstrap, Docker

- Developed an online information visualization platform offering a dynamic heat-map view of house prices and surrounding amenities, improving user accessibility
- Collected and cleaned public house pricing data using web crawlers and *MySQL* database for efficient retrieval and used HTML, CSS, *JavaScript*, and *Bootstrap* framework for creating a front-end interface
- Implemented an interaction between user inputs and the database through *Django's ModelForm*, creating customized CSS styling, data validation, and comprehensive error display
- Improved UI/UX via asynchronous data submission using *Ajax* technology, supporting seamless data interaction, integrating *Baidu Maps* interface for visualizing house prices data geographically
- Deployed the app using *Docker* containers, ensuring effective distribution

Gobang Minigame

Apr 2022— Jun 2022

Python, PyQt

- Developed a *Gobang* mini-game using *Python* in *PyQt* framework, featuring an AI opponent empowered by the *Alpha-Beta Pruning* algorithm. The game's primary attributes include human-computer gameplay mode, incorporating automatic win/loss determination and the *undo-moves* feature.
- Leveraged multithreading to ensure smooth gameplay by preventing interface freezes during AI-based computations and optimized through improved cache hit rates, leading to 3x improvement in efficiency.

FPGA-based 79-key Electronic Piano with Autoplay and GUI

Nov 2021 — Jan 2022

Verilog HDL, Vivado

- Implemented a 79-key piano using *Verilog HDL* on the *Nexys4* FPGA board and tested it via *Logisim*, *Modelsim*, and *Vivado*
- Developed features like manual and automatic play, pitch and tempo adjustments, and a user-friendly GUI, which incorporated a display, keyboard, and *buzzer* for a complete UI/UX
- Created four integral piano components: an input and decoding system, a dynamic display system, an immersive buzzer system, and an inbuilt track playback mechanism

Skills

- **Programming Languages**: Python, JavaScript, C++, MySQL
- Frameworks: Django, Flask, React, PyQt, PyTorch
- Others: Git, Docker, Kubernetes, Linux, Jenkins, Kafka, Nginx, Microsoft Office
- Languages: Chinese (Native), English (Fluent, IELTS: 7.0)



Trainings

- Microservices Architecture Skill Path, Oct 2023 Dec 2023 Pluralsight
- IBM DevOps and Software Engineering Professional Certificate, Jan 2023 May 2023 Coursera
- IBM Full Stack Software Developer Professional Certificate, Oct 2022 Jan 2023 Coursera