LINDA (CHUYI) Z.

Medford, MA | Personal Webpage: lindazha0.github.io

EDUCATION

Tufts University — Medford, MA
M.S. in Computer Science | GPA:3.93/ 4 — *Sep. 2022 – May 2024*

ShanghaiTech University — Shanghai, China
B.E. in Computer Science and Technology | GPA:3.5/ 4 — *Sep. 2018 – Jul 2022*

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, HTML/CSS, JavaScript, Assembly(RISCV)
Frameworks & Technologies: Vue.js, React.js, Node.js, SQL(PostgreSQL), MongoDB, Django, PyTorch
Developer Tools: Git, Linux, Docker, MATLAB, Logisim

WORK EXPERIENCE

Tufts University – Operating Systems, Software Engineering — Medford, MA
Teaching Assistant | C/C++, Java, Bash, Git — *Feb 2023 – May, Sep – Now*

- Set and support the auto-grading system and customized unit test for effective teaching.
- Hold office hours for classes of over 200 to help with coding and concepts, and meet the professor regularly.

Siemens EDA – Emulator Visibility Team — Waltham, MA
Software Engineer Intern | C/C++, Bash, Python, Verilog — *May 2023 – Aug 2023*

- Optimized the Hardware-assisted Verification System with a 90+% max speedup in a critical compile time.
- Engineered hundreds of single-static-operation compiler-level experiments using **Bash** and **Python** automation.
- Identified three features yielding over 50% performance enhancement by minimizing SSA density.
- Extended a daily-used query tool for 4 new databases in **C++**, improving debugging efficiency by 80%.

ShanghaiTech University – ViSeer Lab — Shanghai, China
Research Assistant | HTML/CSS, Javascript, Figma, Python, MongoDB — *Jul 2021 – Sep 2022*

- Served as a lead developer on three Visual Analytics projects, two accepted by top conferences. Focused on full-stack development and integrated AI models for enhanced data analysis.
- Engineered research applications with **D3.js** for visualization and utilized **PyTorch** for data mining tasks.
- Crafted visual graphs in **Figma** and **Adobe XD**, and produced supplementary videos for academic papers..

Neogenint Technology — Shanghai, China
Software Developer Intern | HTML/CSS, JavaScript, Python, Java, Bash — *Jul 2021 – Oct 2021*

- Independently developed and tested *JetBot* software in **Javascript, Java** on servers, then deployed and validated on Nvidia Jetson edge devices for real-world performance.
- Developed a learning-based crack detectior in **PyTorch** with 90+% accuracy and a multimodal interface.
- Accomplished server performance profiling using *MLPerf Benchmark* to enhance the server design workflow.

PROJECTS

GNN-based Call Graph Encoder | *Python, HPC Cluster* | *project link*

- Implement a framework to generate graph structural embedding vectors with **PyG** and experimented 4 GNNs.
- Achieved a 70% speedup on average and reduced space complexity from O(n^2) to O(1) with over 60% accuracy.
- Processed trace data of over 200GB using **NumPy** and **pandas**, and reconstructed dependency call graphs.

Web App for Commercial Visual Analytics: *PromotionLens* | *Javascript, Python, MongoDB*

- Developed a full-stack web application with **Vue.js, React.js** for frontend, **MongoDB** for backend.
- Extracted and trained data from a 4GB promotional dataset using **pandas** and **PyTorch**. Utilized D3.js for data visualization and integrated models with **Flask** for interactive evaluation and promotion strategy development.
- Worked closely with specialists and stakeholders, as a research assistant, to refine the application designs based on studies, with findings published in *IEEE VIS2022 conference*.

Embedded App on Nvidia Jetson Nano: JetBot | *Javascript, Java, Python, Bash, SQL, Docker*

- Assembled the JetBot, a compact robot equipped with cameras, motors, and various components. Configured the software environment using **Docker**, **Python**, and **Bash** scripts.
- Engineered a control interface with **Vue.js, D3.js** for frontend, and **Spring** framework with **SQL** backend.
- Implemented multimodal functional features, including face recognition, voice prompts, etc. Utilized **OpenCV** for camera functionality and **Tracking.js** for face detection, while integrating commercial APIs for others.
- The work reduced a 20% reduction in budget estimates and also laid the foundation for future robotic projects.

Bioinformatics: PPI Prediction Based on Multi-Channel Deep Learning | *Python*

- Developed a deep learning framework with **PyTorch** to evaluate *Protein Data Bank(PDB)* data for bioinformatics research and evaluated the model with state-of-the-art benchmarks.
- Preprocessed nearly 20,000 PDB datasets using scripts on high-performance computing servers.
- Developed a deep learning framework with **PyTorch** and trained a predictive model with an accuracy of 92.7%.

Operating System Projects: *PintOS from Stanford* | *C/C++* | *project link*

- Developed OS functions, including synchronized threads, virtual memory, user programs and file system.
- Implemented thread concurrency with semaphore-based locks to schedule threads with different priorities.
- Handled system calls of the user program through argument parsing and kernel operations.
- Implemented file systems with directory tree structures and virtual memory with mappings to deal with page faults.

HACKATHON AWARDS

TechTogether Boston 2023 | *UI Design, Full-stack* | Winner of 3 prizes [*project link*] *Oct. 2022*

SC21 Student Cluster Competition | *HPC* | Winner of the Reproducibility Challenge [*publication*] *Nov. 2021*