Yanhao Bai

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EDUCATION BACKGROUND

University of California, Berkeley, Department of Electrical Engineering and Computer Sciences — **Berkeley, CA**
B.S. Exchange Student in Computer Science (GPA: 4.0/4.0) — *Aug 2023 - May 2024*

- Courses: Full Stack Web Development, User Interface Design, Computer Architecture, Computer Graphics, Machine Learning
- 2024 BISP Exchange Student Scholarship, 2023 San Francisco APEC Summit Volunteer Role

Dalian University of Technology, School of Computer Science and Technology — **Dalian, China**
B.S. in Computer Science (GPA: 3.9/4.0) — *Aug 2020 - Jun 2024*

- Courses: Data Structures and Algorithms, Computer Principles, Computer Networks, Operating Systems, Database Systems, Compilers, Object-Oriented Language and C++, Software Engineering, Innovation Entrepreneurship Practices
- 2022 Winter Exchange at Technical University of Munich in Informatics
- 2023 Summer Bootcamp at Oxford University in AI &ML
- 2022~23 DUT Model Student Scholarship, 2023~24 DUT International Communications Association President Role

PROFESSIONAL SKILLS

Programming Languages: C++, Go, SQL, Java, Node.js, Python, HTML/CSS, JavaScript, Swift, https://github.com/yanhao13/
Technology Stack: MySQL, Redis, Spring, Express, Django, React, Angular, DevOps Nginx, A/B Testing, JUnit, Jenkins, Jira, AWS, Google Cloud, Docker, Kubernetes, CI/CD, Microservice Kafka, Message Queue, AIGC, Prompt Engineering, **Systems:** Linux, Git, IntelliJ, Visual Studio, XCode, **Concepts:** Design Patterns, OOP/OOD, Agile, RESTful API, Cloud Deployment, QUIC, TCP, UDP

WORK EXPERIENCE

ByteDance — **Beijing, China**
Backend Software Engineer Intern, worked for Feishu Team — *Aug 2024 - Present*

Microsoft — **Redmond, WA**
Software Engineer Intern — *May 2024 - Aug 2024*

- Added a new feature in Fabric, Microsoft's **SaaS** content analytics platform, by separating **REST** and all the other APIs from each, enabled users to seemingly **CRUD** data pipelines in an innovative modular-and-flexible manner.
- Developed the actuator admin design in Azure **Spring Apps** Insights page, by writing in query language, aided users in real-time observability into 70+ metrics configuration and **CI/CD** pipeline monitoring.
- Implemented in 5 app architectures (**Single-Page Apps, Web Apps, Web APIs, Mobile Native Apps, Daemon Scripts**) the authentication flows corresponded under protocol OAuth2.0, offered users a high-level overview before writing code.

ISCAS — **Beijing, China**
Software Engineer Intern — *Jun 2023 - Jul 2023*

- Facilitated **Docker Engine** in an HMI web application Dreamview, by writing in **Domain-Specific-Language** for 3 dockerfile images (CyberRT, Dev, Runtime Imgs), ensured over 95% compatibility and performance across AV simulation platforms.
- Wrote a program, frontend in **JavaScript**, backend in **C++**, covered a 772 sq-mi bustling area with optimal AV routes enduring improvements, enhanced navigation efficiency from 64% to 90%.

EdTech — **Munich, Germany**
iOS Developer Co-op — *Jan 2023 - Feb 2023*

- Wrote a program in **React** to showcase 2000+ TAs' feedbacks for student assignments in multimodal format on an interactive heat map, out of 10+ departments on campus, finally adopted in local **AppStore** - Applied Education Technologies.
- Designed a scribble-with-iPencil interaction pattern in **Swift** to allow course TAs quickly jot down automated suggested feedbacks for in-class student assignments, reducing over 82% in documentation time, leading to an Educational **iOS App**.

RESEARCH EXPERIENCE & PUBLICATION

Beam Predication Based on Multimodal Fusion — **Oct 2022 - Dec 2023**
Leader of Research Group, supervisor: Prof. Xuanheng LI

- Proposed a proactive beamforming scheme to effectively integrate **multimodal** sensing and communication data by programming in python to build neural network models like **resnet** and **transformer**, which were then trained on *DeepSense6G* Dataset featuring comprehensive real-world environmental features; furtherly, **generative adversarial networks** were deployed to enlarge dataset.
- The multimodal fusion model finally achieved over 97.55% Top-5 ACC for prediction tasks in *DeepSense6G* Scenarios, leading to the publication and patent as listed:

  [1] Y. Bai, D. Ge, S. Cheng, &X. Li. "Intelligent Beam Prediction Based on Vision-Radar Integration: A Multimodal Fusion Approach," *2024 Institute of Electrical and Electronics Engineers (IEEE) Transactions on Vehicular Technology*, VT-2024-03827, editor assigned for review.

  [2] Y. Bai, D. Ge, S. Cheng, C. Jin, &X. Li. "Intelligent Trajectory Planning and ISAC Resource Allocation for UAV Based on Reinforcement Learning," [in Chinese]. Patent, 202310689260.3, published on 12th Jun 2023.

PROJECT EXPERIENCE

Distributed Systems, Course Project

- Programmed in **Go**. Built a concurrent client operations **Key-Value** database server, and a post-and-subscribe service based on backend key-value store, lease-based caching, ensured robust communication across multiple server replicas via **RAFT** consensus algorithm deployed.
- Applied **Live Sequence Protocol** to enable reliable and efficient client-server communications in a distributed mining system; also, leveraged task partitioning to reduce computation time for proof-of-work problems.

Cloud Infrastructure and Services, Course Project

- Implemented in **Terraform** a scalable infrastructure for processing Hadoop jobs by deploying **Jenkins** and **SonarQube** on **AWS**, executed jobs like code quality without manual intervention in a CI/CD pipeline.
- Developed a keyword search engine in large datasets scenarios by deploying a lightweight client application and a Cluster-based application that processes queries via Kafka, ensured efficient indexing and retrieval of search results.
- Built a social media platform featured by big data processing via **Hadoop**, by deploying the platform on a private **OpenStack** cloud automating daily report generation, and the timely insights into user activities were delivered directly to the admin.