

# Yanhao Bai

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## EDUCATION BACKGROUND

### University of California, Berkeley, Department of Electrical Engineering and Computer Science

Berkeley, CA

B.S. Exchange Student in Computer Science

Aug 2023 - May 2024

- Course: Full Stack Web Development, User Interface Design, Computer Architecture, ML, Optimization Models and Algorithms
- 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

- Course: Data Structures and Algorithms, Computer Principles, Computer Architecture, Operating Systems, Database Systems, OOP/OOD, Software Engineering, Full Stack Web Development, Computer Network, Cloud/SaaS, Entrepreneurship Practices
- 2022 Winter Exchange at Technical University of Munich in Computer Science
- 2023 Summer Bootcamp at Oxford University Summer Student in Machine Learning
- 2022-23 DUT Model Student Scholarship, 2023-24 DUT International Communications Association President Role

## PROFESSIONAL SKILLS

JavaScript, Java, Python, C++, Go, SQL, MySQL, MongoDB Atlas, Redis, Angular, React, Vue.js, Node.js, Express, Gin, Spring, Django, HTML/DOM, CSS, Webpack, REST API, Microservice Kafka, Message Queue, AWS, GCP, Azure, Docker, Kubernetes, Nginx, CI/CD, Jenkins, Git, Linux, VS Code, IntelliJ, Jira, Agile, OOP/OOD, Design Patterns, JUnit, A/B Testing, TCP, UDP, QUIC, AIGC, Hugging Face

**CERTIFICATES:** AWS Certified Solutions Architect Associate, Microsoft Certified Azure Developer Associate, Administrator Associate

## WORK EXPERIENCE

### ByteDance

Beijing, China

Software Engineer Backend Intern

Aug 2024 - Dec 2024

- Designed a multi-tenant partitioned kvstore in Base, ByteDance's data mgmt platform, by programming in **Go** with **etcd/raft, gRPC, RocksDB**, ensured strict tenant isolation and supported horizontal scaling with below 1ms avg write latency.
- Contributed to routing gateway logic for server APIs in Feishu(Lark), a collaboration superapp for teams, by using **Go HTTP, Consul**, led to a 0.1% backend partition misrouting percentile, a 99.8% requests recovery, and a 25ms to 5ms redirection latency.
- Engineered a **FaaS** public support in trigger layer in API Gateway service, via **REST bridge**, event routing, autoscaling orchestration; also, instrumented observability thru **OpenTelemetry** to monitor qps, latency, failures, anomalies.
- Coordinated event propagation in collaborative editing docs system via **Kafka** pub/sub, delivered sharding pattern on partitioned workload in storage device, applied leader election and consensus group reconfiguration for backend clusters thru **Raft** consensus.

### Microsoft

Redmond, WA

Software Engineer Fullstack Intern

May 2024 - Aug 2024

- Added a new feature in Fabric, Microsoft's **SaaS** content analytics platform, by separating **REST APIs** and all 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 programming in query language, aided users in real-time observability into 70+ metrics configuration and **CI/CD** pipeline monitoring.
- Built in 5 app architectures (**Single-Page Apps, Web Apps, Web APIs, Mobile Native Apps, Daemon Scripts**) respective authentication flows under protocol OAuth2.0, offered users a high-level overview before writing code.

### ISCAS

Beijing, China

Software Engineer Intern

Jun 2024 - Jul 2023

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

### BMW Group

Munich, Germany

Autonomous Vehicles System Design Co-op

Oct 2022 - Feb 2023

- Defined **system requirements** in real-world autonomous driving deployment scenes (.xml); **high-level architected** end-to-end signals (.grc/.py/.mat) featuring de/modulation, sync, error correction, packet handling, enabled **scalable** v2x communication.
- Built transceiver **prototypes** and radar sensing **modules implemented** in Python via gnu software toolkit syncing hardware devices, reduced bit error rate by 35% in multipath fading conditions; wrapped up **system performance evaluation** over mobility shifts.

## RESEARCH EXPERIENCE & PUBLICATION

### Beam Predication Based on Multimodal Fusion

Oct 2022 - Jul 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 and building and training **resnet, transformers** on a dataset with comprehensive real-world environmental features; via **generative adversarial network**, the original dataset was purposely enlarged.
- The multimodal fusion model finally achieved over 97.55% Top-5 ACC for prediction tasks in DeepSense6G Scenarios, outcomes:  
[1] **Y. Bai**, X. Li, et.al. "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**, X. Li, et.al. "UAV Intelligent Trajectory Planning and Synesthesia Resource Allocation Based on Reinforcement Learning," [in Chinese]. Patent, 202310689260.3, published on 12th Jun 2023.

## PROJECT EXPERIENCE

### Cloud Infrastructure and Services

<https://github.com/yanhao13/>

- Developed in **Terraform** a scalable infrastructure for processing Hadoop jobs by deploying **Jenkins, SonarQube** on AWS, executed jobs like code quality without manual intervention in a CI/CD pipeline.
- Setup a social media platform for big data processing via **Hadoop**, by installing platform on a private **OpenStack** cloud automating daily report generation and timely insights into user activities were delivered directly to the admin.