

EDUCATION

- **Carnegie Mellon University** Pittsburgh, PA
Master of Science in Information Networking; GPA: 4.00 Aug. 2024 – Dec. 2025
Related Courseworks: Distributed Systems, Database Systems, Storage Systems
- **Nanjing University** Nanjing, China
Bachelor of Science in Computer Science; GPA: 4.70/5.00, Rank: 1/115 Sept. 2020 – June 2024
Honors: Outstanding graduates, China National Scholarship (Top 0.2% nationwide)

EXPERIENCE

- **TikTok (ByteDance)** Shanghai, China
Software Development Engineer Intern (Golang; Gin, Thrift, Protobuf, GORM, ServiceMesh) April 2024 – Aug. 2024
 - Developed a data access control backend for data usage limitation using Golang, **Apache Thrift** for RPC framework, **Protocol Buffers** for data serialization, and **Hertz** and **Kitex** for building **microservices**.
 - Built a **MySQL**-based distributed database with multi-region support using **GORM**, optimized database performance with **Redis** caching. Improved performance and stability by transforming from cronjobs to asynchronous order processing with **RabbitMQ** transactional messages, reducing query delay by **90%**.
 - Integrated a platform for user registration for data permissions, utilizing **Elasticsearch** for search functionality and **Service Mesh** for network proxies, and **Kubernetes** for container orchestration, supporting intercontinental RPC microservice with more than **4** virtual regions including SG, US, EU, ROW etc.
- **UC Berkeley** Berkeley, CA
Research Assistant (Python; PyTorch, Data Parallelism, Llama, Azure) Aug. 2023 - Jan. 2024
 - Introduced PhyGrasp, which integrates large language models (Llama) and vision-language models (PointNeXt), combining language instructions and 3D shapes to generate contact-aware manipulation strategies for robots. It achieves about a **10%** higher success rate compared to known strategies such as GraspNet.
 - Constructed PhyPartNet, a comprehensive **dataset** containing **195K** object instances with their detailed physical properties and language descriptions, providing a rich variety of object types and physical scenarios.
 - Trained a bridge model incorporating physical commonsense reasoning with strong generalization capabilities. Utilized **data parallelism** with **Azure** Clouding Computing, speeding up by **80%**.

PROJECTS

- **Online Psychological Consulting Web Service** (*Java; Spring Boot, AWS, Docker, Hibernate, Kafka, ReactJS*)
 - Developed a web service for online consulting using **Java** with **Spring Boot**, **Hibernate**, and **ReactJS**.
 - Created an **Ajax-based** frontend using **Yarn**, **Webpack**, **ReactJS**, and **Redux** for middleware and reducers, incorporating **WebSocket** for real-time chatting and notifications.
 - Automated system deployment using **Docker** and **Nginx** on AWS EC2/ECS, with **AWS ELB** as load balancer.
 - Designed strategies enhancing read-update performance by **50%** with **Apache Kafka** for log/event analysis.
- **BusTub** (*C++; Relational Database, Index, Hash, Query Executor, Lock Manager, MVCC*)
 - Implemented a **buffer pool manager** moving data back and forth between disk and memory.
 - Developed a disk-backed hash index based on the **extensible hashing** scheme, reducing query delay by **70%**.
 - Built **volcano style query executors** (sequential scan, hash-join, aggregation, etc.).
 - Implemented a **lock manager** supporting different **4** isolation levels on transactions.
- **Custom Linux Kernel Module Development** (*C; Concurrency, Memory Allocation, Thread Schedule, Perf*)
 - Used the Buddy system (page-sized allocations) and Slab strategy (small allocations) to implement **multi processor safe** memory allocation and recovery, utilizing **producer-consumer model** for efficiency testing.
 - Managed kernel multi-threading, by implementing synchronization mechanisms like **Spinlocks** and **Semaphores**, and a **Multi-level Feedback Queue thread scheduling algorithm** to enhance thread coordination.
 - Designed performance benchmarks and reduced space amplification by **2x** using tools like **perf** and **stress-ng**.

PROGRAMMING SKILLS

- **Languages:** Golang, C/C++, Python, Java, JavaScript, Swift, SQL, HTML5, CSS
- **Cloud Technologies:** Docker, Microservices, Service Mesh, Kubernetes, AWS, Nacos, GCP, Azure