

# Bunyod Suvonov

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## EDUCATION

**University of Michigan — Shanghai Jiao Tong University Joint Institute** Shanghai, China  
*B.E. in Electrical and Computer Engineering, Minor in Computer Science* Sep. 2022 – Aug. 2026

- Awarded **SJTU First-Class Scholarship** for outstanding academics.
- Serving as a **Mentor** for **Teaching Assistants** in Center for Learning and Teaching.
- Researched at RAP-Lab [🔗](#), IBDSys [🔗](#) and IPADS [🔗](#)

## INDUSTRY EXPERIENCE

**Software Engineer Intern** Dec 2024 – Apr 2025  
*Dlang.ai - 达朗 (上海) 智能科技有限公司* Shanghai, China

- Implemented **querying database** with **natural language** through **NL2SQL** agent on nice **Streamlit UI**.
- Implemented tool usage, **human-in-the-loop** and memory features, queried with **SQLAlchemy ORM**.
- Set up and maintained databases in **Apache Doris** and **MySQL** servers, configured for **remote querying**.

## RESEARCH EXPERIENCE

**E-mem: An Engram-Centric Paradigm for Episodic LLM Agent Memory Management** [📄](#)  
Kaixiang Wang\*, Yidan Lin\*, Jiong Lou, Zhaojiacheng Zhou, [Bunyod Suvonov](#), Jie Li Under review by ICML

**SolidWall: Achieving Security and Efficiency in Decentralized LLM MAS** [📄](#)  
Kaixiang Wang\*, [Bunyod Suvonov](#)\*, Zhaojiacheng Zhou, Jiong Lou, Jie Li Under review by IJCAI

**AgentShield: A Defense Framework for Secure and Efficient LLM MAS** [📄](#)  
Kaixiang Wang\*, Zhaojiacheng Zhou\*, [Bunyod Suvonov](#), Jiong Lou, Jie Li Under review by ACL

**Search-Based Path Planning in Interactive Environments among Movable Obstacles** [📄](#)  
Zhongqiang Ren, [Bunyod Suvonov](#), Guofei Chen, Botao He, Yijie Liao, Cornelia Fermuller, Ji Zhang ICRA 2025

## PROJECT EXPERIENCE

**Find Next Hit: Big Data Recommendation System on Million Song Dataset** [📄](#) [📄](#)

- Analyzed** data attributes and trends **instantly** by running **SQL** queries on four-node **Drill** cluster.
- Implemented recommendation system using **MapReduce** based **parallel BFS** on **Hadoop** cluster.
- Achieved **2.7x** system runtime speedup by running in parallel with **Apache Spark**.
- Experimented with **K-means** and **DBSCAN** for song clustering as alternative recommendation algorithms.

**LemonDB: Multi-threaded Database** [📄](#)

- Built **SQL query engine** in **C++20** over **in-memory tables** with modular parser and execution pipeline.
- Drove **>2x** throughput by splitting across **worker threads** while preserving deterministic result ordering.
- Used work queues with `std::counting_semaphore` for destructive operations to **minimize lock contention**.

## SCHOOL EXPERIENCE

**Teaching Assistant** Fall 2025  
*Course: ECE482 — Intro to Operating Systems* Shanghai Jiao Tong University

- Guiding students through OS, modern C++, coding clean with clang-tools, **agile development** and eBPF.
- Designed **IPC messaging** task on **sshfs**, FIFO pipes, **locking**. Configured **user & file permissions** in server.
- Optimized online judge with compile scripts and **CMakeLists** in **LXC** for efficient testing; Optimized testcases.

**Teaching Assistant** Summer 2025  
*Course: ECE472 — Methods and Tools for Big Data* Shanghai Jiao Tong University

- Ran **distributed data analysis** by forming interconnected **twelve machine cluster** using **docker tools**.
- Tools & Frameworks: **Hadoop Ecosystem**, Spark, Drill, **Docker**, Kubernetes, SQLite, **MapReduce**, Linux.
- Methods: PCA, Matrix Decomposition, Cosine similarity, Stochastic gradient descent, Regression.

**Teaching Assistant** Fall 2024  
*Course: ENGR151 — Accelerated Intro to Computers and Programming* Shanghai Jiao Tong University

- Assisted students with **Matlab**, **C** and **C++**; graded coding assignments and projects pushed to **Gitea** server.
- Maintained **Python scripts** for **management of repos** and channels using Gitea and Canvas **APIs**.
- Weekly reviewed assignment progress and **CI/CD** procedures of students, and provided feedback in **issues**.

## TECHNICAL SKILLS

**Languages:** English (advanced), Chinese (intermediate), Russian (intermediate), Uzbek (native)  
**Programming:** C/C++ (proficient), Go (advanced), Python (advanced), JS (good), SQL (advanced), Shell (good)  
**Tools & Frameworks:** Docker, Kubernetes, Hadoop Ecosystem, LangGraph, ROS, Unity, Linux, Git, Vim