

Vahab Jabrayilov

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[vjabrayilov.github.io](https://github.com/vjabrayilov)

Low-latency systems engineer: kernel-bypass networking, scheduling, and ML-systems performance.

In US with work authorization (CPT/OPT)

Education

- 2023 - 2027 **Ph.D., Computer Science**, *Columbia University*, New York, NY, USA
(Expected) Advisor: Prof. Kostis Kaffes
Interests: Low Latency Systems Optimization, Scheduling, Networking, ML Systems Performance
- 2023 - 2025 **M.Sc., Computer Science**, *Columbia University*, New York, NY, USA
- 2019 - 2023 **B.Sc., Computer Engineering**, *Middle East Technical University*, Ankara, Turkey
GPA: 3.8/4.0 Ranking: 7/305

Work Experience

- May-Aug 2026 **Google**, *Software Engineer Intern*, Sunnyvale, CA, USA
- Currently working on TPU Performance Team to analyze and optimize Google TPU fleet utilization.
- Aug 2023 - Current **Columbia University**, *Graduate Research Assistant*, New York, NY, USA
- Built Machnet, a DPDK-based C++ messaging library for public cloud virtual machines, reaching 750K RPS on Azure at $61\mu s$ P99.9.
- Built Rorke, a Rust/sched_ext/eBPF based microsecond-scale virtual machine scheduler.
- Jun-Sep 2024 **Microsoft Research**, *Research Software Engineer Intern*, Redmond, WA, USA
- Built a DPDK-based Rust packet processor for Azure real-time data ingestion pipeline, processing millions of flow logs/sec with deterministic sub-ms latency.
- Jun-Aug 2023 **EPFL**, *Research Intern*, Lausanne, Vaud, Switzerland
- Analyzed metastable failures in distributed systems and designed mitigations.

Publications

- ASPLOS, 2026 Enabling Fast Networking in the Public Cloud
Vahab Jabrayilov^{*}, Alireza Sanaee^{*}, Ilias Marinos, Farbod Shahinfar, Divyanshu Saxena, Gianni Antichi, Kostis Kaffes (^{*} equal contribution)
- NeurIPS MLSys, 2025 An Expert in Residence: LLM Agents for Always-On Operating System Tuning
Georgios Liargkovas, **Vahab Jabrayilov**, Hubertus Franke, Kostis Kaffes
- VLDB, 2025 HoliPaxos: Towards More Predictable Performance in State Machine Replication
Zhiying Liang, **Vahab Jabrayilov**, Aleksey Charapko, Abutalib Aghayev
- ACM SoCC, 2024 Rethinking the Networking Stack for Serverless Environments: A Sidecar Approach
Vishwanath Seshagiri, Abhinav Gupta, **Vahab Jabrayilov**, Avani Wildani, Kostis Kaffes
- Under Review Rorke: Black-box Microsecond-scale VM Scheduling
Vahab Jabrayilov, Teng Jian, Jason Nieh, Kostis Kaffes

Projects

- [GitHub Repo](#) **Machnet: Ultra-Low Latency Networking Library**
[GitHub Repo](#) **Replicant: Strongly Consistent Key-Value Store**

Skills

- Languages/Platforms C/C++, Rust, CUDA, Assembly (x86, Arm), Python, PyTorch, TensorFlow, Go, Java, SQL
- Tools DPDK, RDMA, eBPF, JAX/XLA, Linux, perf, bpftrace, Abseil, AWS, Azure, Boost, Docker, Git, Kubernetes, TLA+, Tokio