

ABDU MOHAMDY

Software Engineer

Hard-working Backend and Systems Software Engineer with 2+ years of experience in both Big Tech and Startups, working on secure and reliable distributed systems , networking, and operating systems. I'm a fast learner and a pragmatic opinionated engineer with a bias for action.

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EDUCATION

- B.S. Computer Science - Systems Track**
09/2018 - 06/2022
QuestBridge Scholar.
- M.S. Computer Science - Computer & Network Security Specialization**
01/2022 - 06/2023
Coterminal Program.
Stanford University

Relevant Coursework

Advanced Operating Systems, Advanced Networking, Advanced Computer & Network Security, Advanced Cryptography, Digital System Architecture, Parallel Computing, Distributed Systems, Graph Theory, Applied Number Theory and Field Theory.

WORK EXPERIENCE

- Software Engineer**
Hive AI (06/2024 - Present)
San Francisco, CA.
 - Changed the static partitioning strategy for our ScyllaDB (NoSQL) database to a dynamic time-unit partitioning strategy allowing us to scale and support bursts of up to 250K/min/project which would have otherwise taken down our entire system.
 - Refactored the async system coordinators to use the actor model and message passing for multi-threading which significantly improved reliability and eliminated outages caused by race conditions and deadlocks.
 - Led a few months long initiative to reduce our RabbitMQ usage and proposed, designed and started working on moving from Quorum Queues to RabbitMQ Streams (Kafka streams-like) eliminating our async bottleneck during bursts to meet SLA.
 - Changed our task storage to encode tasks using Protobuf and MessagePack reducing our storage cost by 10%.
 - Lead Rust engineer, I gave talks on a few Rust topics including: Ownership & RAII, Traits & Generics, Concurrency & Parallelism.
- Software Engineer (Codepoint Fellow)**
Sutter Hill Ventures: Working with Lacework Edge & Sigma Computing. (08/2023 - 04/2024)
Palo Alto, CA.
 - Added android client support for L3 and L4 traffic capture through a VPN service tunnel.
 - Added android support for split-tunnel VPN by proxying L7 traffic through local DNS server on the client.
 - Designed and implemented a new service to migrate customer data (SQL and Object Storage) across clouds and regions.
- Software Engineer Intern**
Meta (06/2022 - 09/2022)
Menlo Park, CA.
 - Part of the WAN Controller team, I developed a new tool to measure traffic loss across Meta's Express Backbone network that connects their Data Centers. I also proposed and developed an extension to the project that uses Next Hop Group versions in Arista's LSP Agents for improved accuracy down to packet granularity.
- Google** (06/2021 - 09/2021)
Mountain View, CA.
 - Worked with the gSSD team to create a fuzzing tool to test Google-designed NVMe SSD flash drives used in GCloud. I researched, and identified the best technical approaches and technology to base the tool off of.
- NVIDIA** (03/2021 - 06/2021)
Santa Clara, CA.
 - Part of the Neural graphics team, I worked on low-level drivers to support Nvidia's proprietary ML upscaling technology, DLSS.
 - I designed, prototyped, and implemented, a new tool for AI scaled video quality comparison.

PERSONAL PROJECTS

- LoRaWAN MANET** (05/2025 - Present)
Ongoing project trying to connect a LoRa Mobile Ad-hoc Net (MANET) to the internet through a gateway. So far I've managed to ping the internet through a LoRa gateway connected to a rpi/5.
- El-Nazer Homelab** (01/2025 - 04/2025)
Proxmox cluster running off a mini pc running docker swarm HomeAssistant, Nginx, JellyFin and OpenMediaVault + 2 rpi/4 running WireGuard, PiHole and MQTTX. In truth an over-engineered system to watch movies and water my plants.
- Ruban** (01/2023 - 03/2023)
Mutually distrustful turn-based P2P transaction system that builds on 2PC protocol to let nodes commit and challenge actions with a novel majority-based challenge resolution mechanism. I'm using it for my Yu-Gi-Oh dueling disk project.
- TockOS** (03/2022 - 06/2022)
Added TockOS [tockos.org] support for the Teensy 4.0 Board including implementing peripherals such as SPI and Watchdog.
- PintOS Operating System** [Class Project] (03/2020 - 06/2020)

C++ / C **Rust** **Go** **Python** **JS / TS** **Lua** **SQL** **NoSQL** **Docker** **Kubernetes** **System Design** **Embedded Development**
Networking **TCP** **Security & Cryptography** **Infra** **Cloud** **gRPC** **Service Mesh** **Cassandra** **RabbitMQ** **HAProxy** **Nginx**