Ryan Dielhenn

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Technical Skills

Networking	TCP/IP, UDP, BGP, OSPF, DNS, DHCP, VLANs, ACLs, L2/L3 Protocols, QoS, Gossip Protocols, Phi-accrual Failure Detection
Infrastructure	Docker, Linux Systems Administration, Prometheus, Grafana, Git, Kafka, etcd, Scripting/Automation (Python, Bash)
Languages	Go, C, Java, Python, Scala, SQL
Concepts	Distributed Systems, Network Observability, Byzantine Fault Tolerance, Cluster Replication, API Design

Experience

Confluent — *Mountain View, CA*

Software Engineer — *January 2021 – July 2022*

- Collaborated across engineering teams to improve reliability, observability, and security during Kafka's transition from ZooKeeper to KRaft consensus architecture.
- Adapted Cluster Linking to support KRaft, enabling cross-cluster replication without ZooKeeper.
- Integrated metrics pipelines to monitor cluster health and quorum state, including inter-broker communication patterns in KRaft mode.

Confluent — *Mountain View, CA*

Software Engineering Intern — *May 2020 – August 2020*

- Implemented dynamic client reconfiguration for Apache Kafka, enabling runtime updates to producer/consumer settings (including connection, security, retry, and ack configurations) without service restarts.
- Enhanced Confluent Cloud's rebalance tooling with asynchronous replica movement support.
- Continued contributing to Apache Kafka during Fall 2020 while completing undergraduate degree.

University of San Francisco — *San Francisco, CA*

Research Assistant — *January 2020 – December 2020*

- Conducted research on distributed systems and edge computing architectures under faculty supervision.

Teaching Assistant — Big Data & Operating Systems — *August 2019 – May 2020*

- Led weekly office hours, provided project design/debugging support, and evaluated student assignments.

Assistant Systems Administrator — *May 2019 – August 2019*

- Automated updates and maintenance tasks for Linux lab machines, reducing manual overhead for IT staff.
- Diagnosed and resolved hardware/software issues for faculty and students in a high-demand academic environment.

Projects

ZephyrCache — *Los Angeles, CA*

Distributed Systems Project — *July 2025 – Nov. 2025*

- Built a distributed cache in Go with consistent hashing for request routing and etcd for dynamic node registration, service discovery, and lease-based failure detection.
- Achieved 48,832 ops/sec with 32 concurrent clients over HTTP, benchmarked on a virtual Docker bridge network with inter-node latency monitoring.
- Deployed a Prometheus/Grafana observability stack to monitor network throughput, HTTP latency distributions, and container resource utilization across nodes.

Distributed File System — *San Francisco, CA*

Distributed Systems Project — *2019*

- Built a distributed file system in Java using Netty for inter-node network communication and Protocol Buffers for message serialization.
- Designed a controller-based architecture that routes client requests to storage nodes using Bloom filters to minimize unnecessary lookups.
- Implemented data chunking across storage nodes with replication for fault tolerance and availability.

Education

California State University, Los Angeles — *Los Angeles, CA*

M.S. in Computer Science (In Progress), GPA: 4.0 — *Expected 2026*

- **Thesis:** Machine Learning Approaches to Trust and Reputation in Networked Environments.
- Developing a bare-metal Raspberry Pi cluster to evaluate Byzantine Fault Tolerance using UDP-based Gossip protocols and Phi-accrual failure detection.
- Relevant Coursework: Advanced Computer Networking (BGP, OSPF, TCP/IP), Software Engineering, Artificial Intelligence, Machine Learning.

University of San Francisco — *San Francisco, CA*

B.S. in Computer Science, Minor in Mathematics, GPA: 3.75 — *2016 – 2020*

- Relevant CS Coursework: Operating Systems, Computer Architecture, Data Structures & Algorithms, Big Data, Software Development, Programming Language Paradigms, Senior Capstone
- Relevant Math Coursework: Linear Algebra, Formal Methods (Logic and Proof), Calculus I & II, Modern Algebra