Ryan Dielhenn

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Experience

Confluent *Mountain View, CA*

SOFTWARE ENGINEER *Jan 2021 – Jul 2022*
- Collaborated with cross-functional teams to improve system reliability during Kafka's transition to a ZooKeeper-free architecture (KRaft).
- Built tooling and metrics pipelines to monitor Kafka's internal state during KRaft migration, enabling proactive cluster health tracking and quorum validation.

SOFTWARE ENGINEERING INTERN *May 2020 – Aug 2020*
- Designed and implemented a Kafka feature for dynamic client reconfiguration, allowing updates to producer and consumer settings without restarts, reducing operational overhead.
- Enhanced cluster rebalance tooling in Confluent Cloud to support asynchronous log replicas; delivered and deployed the fix within first month, restoring service for impacted customers.

University of San Francisco *San Francisco, CA*

RESEARCH ASSISTANT *Jan 2020 – Dec 2020*
- Conducted research on distributed systems and edge computing architectures.
- Developed prototypes and benchmarked system performance across varied workloads and programming languages.

TEACHING ASSISTANT, BIG DATA & OPERATING SYSTEMS *Aug 2019 – May 2020*
- Led weekly office hours, provided project design/debugging support, and graded assignments.

ASSISTANT SYSTEMS ADMINISTRATOR *May 2019 – Aug 2019*
- Automated maintenance and updates for Linux lab machines, reducing manual workload.
- Diagnosed and resolved hardware/software issues for faculty and students.

Projects

Geopresence

GEOSPATIAL EDGE COMPUTING PLATFORM
- Designed and implemented a geospatial index and query system optimized for IoT and low-power devices using RoaringBitmap for bitmap compression and HyperLogLog++ for cardinality estimation.
- Enabled location-aware queries from distributed edge devices, such as retrieving air quality or weather data from nearby sensors instead of centralized APIs.

Distributed File System

FAULT-TOLERANT DISTRIBUTED FILE SYSTEM
- Implemented a distributed storage system in Java using Google Protocol Buffers, Bloom Filters, and Netty for scalable and efficient request handling.
- Added replication, dynamic node scaling, and data compression to ensure high availability and optimized storage utilization.

Fire-Engine

IN-MEMORY MULTI-THREADED SEARCH ENGINE
- Built a search engine that constructs and queries an inverted index from crawled web pages entirely in memory for high-speed lookups.
- Implemented multi-threaded index construction and query execution, significantly improving search performance on large datasets.

Education

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

M.S. IN COMPUTER SCIENCE (IN PROGRESS) *Expected 2026*
- Relevant Coursework: Advanced Artificial Intelligence, Advanced Software Engineering, Data Science

University of San Francisco *San Francisco, CA*

B.S. IN COMPUTER SCIENCE, MINOR IN MATHEMATICS, GPA: 3.75 *2016 – 2020*
- Relevant CS Coursework: Big Data, Software Development, Data Structures & Algorithms, Operating Systems, Computer Architecture, Programming Language Paradigms, Senior Capstone
- Relevant Math Coursework: Calculus I & II, Formal Methods, Linear Algebra, Abstract Algebra

Technical Skills

Languages	Java, Scala, Go, C, Python, JS
Technologies	Kafka, Spark, Docker, Git, Netty
Concepts	Distributed Systems, Systems Design, ML