# Samuel Naser

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## Education

**Northwestern University** Evanston, IL
*BS, Computer Science,* 3.900 GPA *September 2017 to June 2020*
Relevant coursework: Data Structures and Management, Human Computer Interaction, Introduction to Computer Systems, Introduction to Computer Graphics, Machine Learning: Foundations and Algorithms, Operating Systems, Distributed Systems, Database Systems

**University of Louisville** Louisville, KY
*BS, Computer Science,* 4.000 GPA *August 2016 to August 2017*
Relevant coursework: Object Oriented Design with Java, Introduction to Programming Languages (C), Data Science, Calculus II, Calculus III, Differential Equations

## Work Experience

**Google** Sunnyvale, CA
*Software Engineering Intern, Cloud, Istio Security Team* *June 2019 to September 2019*

- Authored design proposal for and implemented Istio feature that reworked the mechanism through which Citadel (cluster component which enables service-to-service and end-user authentication) targets namespaces
- Implemented feature which allowed Istio Gateways (ingress and egress points for Istio mesh traffic) to communicate over encrypted connections with and enforce policies for internal workloads with Istio's Secret Discovery Service (SDS) mode enabled
- Implemented debug endpoint for the Citadel node agent (critical component for SDS)
- Designed and implemented subcommand for *"istioctl proxy-status"* which compared the active secrets on an Envoy sidecar with the secrets active on its Citadel node agent, created the *"istioctl proxy-config secret"* command to examine active Envoy sidecar secrets
- Created and tested the default Grafana dashboard for visualizing Citadel metrics, contributed to Istio's migration from Prometheus to OpenCensus metrics

**Belvedere Trading** Chicago, IL
*Software Engineering Intern* *January 2019 to March 2019*

- Designed and implemented application which enabled traders to toggle which strike prices should be evaluated in our internal option pricing engine, now in active use through all trading teams across the firm
- Spearheaded effort to Dockerize web-team applications, created internal base image with core dependencies for other teams to base their images on
- Created full stack web application with which traders and tech leads were able to communicate with one another through posting, voting, and commenting on project proposals

**Google** Sunnyvale, CA
*Software Engineering Intern, Cloud, Kubernetes Node Team* *September 2018 to December 2018*

- Leveraged the OpenCensus framework to add distributed tracing to Kubernetes object lifecycles, made it possible to visualize these traces in Stackdriver, Zipkin, and various other tracing backends
- Authored Kubernetes Enhancement Proposal which introduced a model for distributed tracing in Kubernetes (titled *"Leveraging Distributed Tracing to Understand Kubernetes Object Lifecycles"*)
- Created mutating admission webhook which injects trace context into Kubernetes objects, which is now a kubernetes-sigs repo (`https://github.com/kubernetes-sigs/mutating-trace-admission-controller`)
- Utilized the custom trace tooling I created to isolate bugs in production Google Kubernetes Engine clusters

**Amino Payments** Philadelphia, PA
*Software Engineering Intern* *June 2018 to August 2018*

- Processed high-throughput advertisement transaction data using Apache Kafka and Apache Samza, reassembled the digital transaction chain in real-time, deployed data-streaming backend onto AWS infrastructure
- Migrated from JSON to redesigned Apache Avro models at each step of our Java data-streaming backend, dramatically increased message transmission speeds and improved code structure with this refactor
- Developed and maintained critical Python utilities which transformed outputs from our data pipeline into a format usable by our API, configured CircleCI test environment and wrote integration tests for these utilities

## Research Background

**Design, Technology, and Research (DTR) Lab** Northwestern University
*Undergraduate Researcher* *January 2018 to June 2018*

- Pioneered systems that allowed users to contribute to physical tasks, such as picking up packages or delivering food, with minimal disruption to their existing routines. Researched incentive structures for unpaid user-contributions to non-monetized community platforms
- Leveraged Node.js, Swift, and MongoDB to implement an application stack that allowed users to post food order requests, and intelligently notified users passing restaurants to pick up the order if it's conveniently on their route

**Knowledge Discovery and Web Mining Lab** University of Louisville
*Undergraduate Researcher* *November 2016 to August 2017*

- Implemented novel recommendation engine in Python with the Django framework that analyzed user news consumption patterns and recommended articles which negated political biases
- Designed and implemented mobile and web interfaces for user studies using Typescript and AngularJS with the Ionic cross-platform framework to collect data and test models