

# Justin Miron

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## EDUCATION

**Ph.D. Student, Cornell University**

August 2017 -

Department of Computer Science

Advisor: [Prof. Rachit Agarwal](#)

**B.S., University of Illinois at Urbana-Champaign**

August 2013 - May 2017

Department of Computer Engineering

## RELEVANT COURSEWORK

Graduate {Computer Networks, Distributed Algorithms, Programming Languages & Compilers}, Computer Architecture, Networking with Big Data, Operating System Design

## PROJECTS & RESEARCH

**Maestro: Orchestrating network transfers through co-designing scheduling and caching**

From the observation that network transfers in disaggregated storage systems are a function of task placement and the state of compute server caches: we built an end-to-end batch processing system to orchestrate network transfers to optimize performance objectives (AJCT, utilization, network load).

**Secure and scalable cloud key-value store**

Design of a distributed cloud-hosted key-value store that hides access patterns from passive persistent adversaries (i.e. compromised cloud service providers). The key component is the co-design of a scalable, distributed storage access protocol with a particular data organization protocol that provides security guarantees similar to oblivious memory.

**Jiffy: Ephemeral storage for stateful short-lived applications**

*Under Review*

A scalable storage service for providing high throughput and low latency to tenants, while multiplexing memory resources at fine-granularities - reducing cost for service providers.

**Five years of system design for a production storage disaggregated database**

*Under Review*

A design analysis of a production database built on disaggregated storage to expose initial solutions and new challenges for building applications backed by disaggregated storage.

## WORK EXPERIENCE

Summer 2018

**Software Engineering Intern at Google, Sunnyvale, CA**

[Network Infrastructure](#)

Built a framework for pluggable demand estimation policies for fine-grained groups of flows on Google's inter-datacenter WANs. Prototyped new techniques for estimating demand on top of the framework and performed analysis of existing bandwidth allocation techniques.

Summer 2017

**Software Engineering Intern at Microsoft, Aliso Viejo, CA**

[Azure Data Warehouse Group](#)

Implemented a distributed query monitoring system for Azure Data Warehouse through instrumentation and communication across distributed query execution components. This enabled understanding query execution for easier debuggability and performance profiling.

2017	<b>Research Assistant at University of Illinois at Urbana-Champaign, Urbana, IL</b> Co-designed algorithms for load balancing and replication of compute objects to quickly respond to load imbalance in clusters. Lowered latency of communication protocols for a parallel runtime system through (1) a no-copy RDMA protocol, removing a data copy from the end-to-end latency; and (2) a new design for a near-unbounded multi-producer multi-consumer queue.
2017	<b>Software Engineer at Charmworks Inc., Champaign, IL</b>
Summer 2016	<b>Intern with Google Compute Engine at Google, Seattle, WA</b>
Summer 2015	<b>Intern at ViaSat Inc., Carlsbad, CA</b>

## SIDE-PROJECTS

**Programmable caching** (*C++*, *Bazel*, *gRPC*): A framework for easily programming a cluster caching layer to implement flexible and dynamic caching policies.

**Never stop bouncing** (*C*, *SDL*, *CMake*): A 2D side-scroller game built in SDL about a bouncy ball trying to find true love.

**Web-scraping Detroit Red Wing statistics** (*Python*): Web-scraping hockey statistics to show that the Detroit Red Wings are statistically the single greatest hockey team.

**Music-swap** (*Android*, *Java*): Android app that allows users to chat with other users that share music tastes.

## RELEVANT TEACHING EXPERIENCE

Jan 2018 - May 2018 | **Computer Networks**, Cornell University, *Graduate Teaching Assistant*

Aug 2017 - Dec 2017 | **Database Systems**, Cornell University, *Graduate Teaching Assistant*

Aug 2015 - May 2017 | **Data Structures**, University of Illinois at Urbana-Champaign, *Course Assistant*

## PROGRAMMING SKILLS

**Languages:** C, C++, Python, Java

*Familiar with various parallel computing, RPC, build, and version control frameworks/systems.*