

Muhammed Uluyol

uluyol0@gmail.com

EDUCATION

- Ph.D. Computer Science**, University of Michigan, Ann Arbor 2022
Advisor: Prof. Harsha V. Madhyastha
Thesis: "Predictable Performance and Low Cost for Geo-Distributed Applications"
- B.S. Computer Science & Mathematics**, University of Minnesota, Twin Cities 2015
-

WORK EXPERIENCE

- University of Michigan**, *Research Assistant* Sep 2015–Apr 2022
- Developed new designs for cross-data center storage systems and wide area networks that offer near-optimal tradeoffs between predictable performance and low cost.
- Google**, *Software Engineering Intern* Jan 2019–Feb 2020, May 2021–Aug 2021
- Teams: Traffic Engineering, Bandwidth Enforcer
 - Simulated multiple network designs to evaluate the effects of dynamics present in software-defined networks.
 - In a testbed, compared multiple approaches of isolating bundles of traffic from one another.
- Nutanix**, *Member of Technical Staff Intern* May–Dec 2018
- Outlined an inter-data center storage strategy and replication library for upcoming storage offerings.
- Google**, *Software Engineering Intern* May–Aug 2014, Jun–Aug 2015
- Teams: Kubernetes, Gmail (Site Reliability)
- University of Minnesota**, *Research Assistant* Nov 2012–Aug 2013, Sep 2014–May 2015
- Adventium Labs**, Minneapolis, MN, *Intern* May–Aug 2012, Sep 2013–May 2014
-

RESEARCH EXPERIENCE

- HEYP: Highly available bandwidth guarantees on highly utilized cloud WANs** 2018–2022
- Wide area networks (WANs) are a scarce but vital resource for geo-distributed applications.
 - For efficiency, state-of-the-art WANs reconfigure the network as demands change, but since this takes time, cloud tenants may be short on bandwidth for several minutes. HEYP (under submission, SIGCOMM'22) guarantees each tenant a baseline level of bandwidth while also maintaining the efficiency of current WANs.
- Pando: Near-optimal latency–cost tradeoffs in geo-distributed storage** 2017–2020
- Showed that global web services incur unnecessary latency and cost to access data with strong consistency.
 - Existing approaches suffer because they conflate multiple concerns (e.g. the detection and recovery of conflicting data). Pando (NSDI'20) separates these to achieve near-optimal performance across many workloads.
-

SKILLS Go · C++ · Python · Bash · Basic iptables/tc

HONORS AND AWARDS

- Outstanding Graduate Student Instructor 2021
- IRTF Applied Networking Research Prize 2018
- NSF Graduate Fellowship Honorable Mention 2016
- University of Michigan Computer Science & Engineering Full First-Year Fellowship 2015–2016
- University of Minnesota College of Science & Engineering Scholarship 2014
- Microsoft Coding Challenge Event First-Place Winner 2014
- CRA Outstanding Undergraduate Award Honorable Mention 2014