Daniel Amir

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Education

Cornell University

Ph.D. Candidate in Computer Science — Expected August 2024
Advisor: Hakim Weatherspoon

M.S. in Computer Science — August 2021
Advisor: Hakim Weatherspoon

University of Illinois Urbana-Champaign

B.S. in Computer Science — May 2018

B.S. in Engineering Physics — May 2018

Publications

- **Daniel Amir**, Nitika Saran, Tegan Wilson, Robert Kleinberg, Vishal Shrivastav, and Hakim Weatherspoon. *Shale: A Practical, Scalable Oblivious Reconfigurable Network* To appear in *ACM SIGCOMM 2024 Conference (ACM SIGCOMM '24), August 4–8, 2024, Sydney, NSW, Australia.*

- Tegan Wilson, **Daniel Amir**, Nitika Saran, Robert Kleinberg, Vishal Shrivastav, and Hakim Weatherspoon. *Breaking the VLB Barrier for Oblivious Reconfigurable Networks.* In *Proceedings of the 56th Annual ACM Symposium on Theory of Computing (STOC '24), June 24–28, 2024, Vancouver, BC, Canada.*

- **Daniel Amir**, Tegan Wilson, Vishal Shrivastav, Hakim Weatherspoon, and Robert Kleinberg. *Scalabilitiy and Congestion Control in Oblivious Reconfigurable Networks.* Accepted poster in *ACM SIGCOMM 2023 conference (SIGCOMM '23 poster), September 10-14, 2023, New York, NY, USA.*

- Tegan Wilson, **Daniel Amir**, Vishal Shrivastav, Hakim Weatherspoon, and Robert Kleinberg. *Extending Optimal Oblivious Reconfigurable Networks to all N.* In *Proceedings of the 2023 Symposium on Algorithmic Principles of Computer Systems (APOCS '23), January 25, 2023, Florence, Italy.*

- **Daniel Amir**, Tegan Wilson, Vishal Shrivastav, Hakim Weatherspoon, Robert Kleinberg, and Rachit Agarwal. *Optimal Oblivious Reconfigurable Networks.* In *Proceedings of the 54th Annual ACM SIGACT Symposium on Theory of Computing (STOC '22), June 20–24, 2022, Rome, Italy.*

Invited Talks

- "Next-Generation Networks for Digital Agriculture" – CROPPS FEED seminar, December 11, 2023, Ithaca, NY, USA.

- "Optimal Oblivious Reconfigurable Networks" – 18th Coordinated Sciences Laboratory Student Conference, February 24, 2023, Urbana, IL, USA.

- "Optimal Oblivious Reconfigurable Networks" – Massachusetts Institute of Technology, January 25, 2023, Boston, MA, USA.

- "Optimal Oblivious Reconfigurable Networks" – Cornell Industry-Academic Partnership Workshop, October 14, 2022, Ithaca, NY, USA.

- "Optimal Oblivious Reconfigurable Networks for Digital Agriculture" – First Annual CROPPS Symposium, October 10, 2022, Ithaca, NY, USA.

- "Optimal Oblivious Reconfigurable Networks" – Microsoft Research, June 21, 2022, Cambridge, UK.

- "Optimal Oblivious Circuit-Switched Datacenter Networks" – University of Washington, November 12, 2021, Seattle, WA, USA.

Awards

- Best Poster Award - Cornell Industry-Academic Partnership Workshop (2022)

Teaching

- Head TA, CS 6410: Advanced Systems   Cornell University, Fall 2019
- Head TA, CS 4450: Introduction to Computer Networks   Cornell University, Spring 2019
- TA, CS 4410: Operating Systems   Cornell University, Fall 2018
- TA, CS 233: Computer Architecture   University of Illinois Urbana-Champaign, Spring 2016 - Spring 2018

Experience

Solar-powered UAV Energy Modelling | University of Illinois Urbana-Champaign   December 2016 - May 2018
Advisors: Marco Cacchamo, Or Dantsker, Renato Mancuso

During my undergraduate studies, I joined a research project to build an autonomous solar-powered UAV. This UAV would collect data and process it onboard in real time, while planning its trajectory to ensure it had sufficient available energy for the desired computation. I helped to model the power consumption of the NVidia Tegra SoC used in the prototype UAV.

LTN Leaf Development | LTN Global Communications   Summers 2014-2016
Advisors: Jacob Green, Jonathan Stanton

LTN Global Communications was an early pioneer in transporting real-time broadcast-quality video over the internet, using a managed wide-area network. During my summer internships there, this emerged as the next-generation network for the broadcast industry, replacing expensive satellite uplinks and eliminating interview delay. I helped to develop the LTN Leaf customer appliance and integrate video encoding, WiFi configuration, and remote cellular management capabilities. The LTN Leaf is now deployed at several thousand endpoints and is used by networks like CNN, Fox, NBC, and more to connect affiliate sites to LTN's network.

Photovoltaic Cell Characterization | University of Maryland   Summer 2013
Advisors: Mario Dagenais, Robert Bartolo

During the development of novel chemistries and fabrication techniques for photovoltaic cells, an important step is characterizing the cells by fitting theoretical models to the observed electrical properties, aiding the understanding of the cell's performance characteristics. During my summer research experience, I automated this process for Dagenais' lab, including both measurement and model fitting.