Marshall Asch

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I am a Master of Computer Science with a love for wireless mesh networks and Infrastructure as Code. Over the past several years I have been working on a project to help close the digital divide in Northern Canada with Dr. Dan Gillis.

The other academic area of interest to me is bringing over the knowledge, skills, and experiences that have been developed in industry and applying them in an Academic setting. Whether that be to improve repeatability and maintainability, or to provide teaching resources that do not require access to the internet.

I have a passion for command-line tools, networking, servers, and open source projects. Most of my work has been on cli tools, DevOps tasks, and backend systems.

Education

2019 – 2022	**M.Sc. Computer Science, University of Guelph, Canada** in Mesh Networking.
2015 – 2019	**B.Comp. (Hons) Computer Science, University of Guelph, Canada.** *Degree with Distinction* Recognition for Outstanding Academic Performance.

Open Source Projects

10/2021 - Present	**OO Resources** 💬 Offline Open source teaching resource to provide interactive course content and development dependencies in one place that does not require internet access.
05/2021 - Present	**ns-3 Github CI pipeline** 💬 Continuous development tool to verify that modules built of the ns-3 network simulator compile and run as intended.
2021 - Present	**ns-3 Static Access Frequency Module** 💬 Implemented and maintaining a module for the ns-3 network simulator.
	ns-3 RHPMAN Module 💬 Implemented and maintaining a module for the ns-3 network simulator.
2020 - Present	**liquidctl maintainer** 💬 Active Maintainer on the python liquid cooler controller CLI application
2021 - Present	**Botomir maintainer** 💬 Active Maintainer on the nodeJS Discord Bot application

Certification and Training

2021	**M001 - MongoDB Basics Course**. MonogoDB University.
	M103 - MongoDB Basic Cluster Administration Course. MonogoDB University.
	M121 - MongoDB Aggregation Framework Course. MonogoDB University.

Employment History

05/2022 – Present	**DevOps Engineer**, Plex.tv.
01/2021 – 05/2022	**DevOps Engineer**, Value Connect, Guelph, ON.
01/2021 – 06/2021	**Graduate Teaching Assistant (Compilers)**, University of Guelph, ON.
09/2020 – 12/2020	**Graduate Teaching Assistant (Cloud Computing)**, University of Guelph, ON.
01/2020 – 04/2020	**Graduate Teaching Assistant (Operating Systems)**, University of Guelph, ON.
09/2019 – 08/2020	**Left Mitacs Accelerate Intern**, University of Guelph, ON.

Employment History (continued)

09/2019 – 12/2019   **Graduate Teaching Assistant (Microcomputers)**, University of Guelph, ON.

05/2019 – 08/2019   **University of Guelph Mitacs Accelerate Intern**, Left, Maple Ridge, BC.

01/2019 – 04/2019   **Lead Developer and Undergraduate Research Assistant**, Working on the eNuk project, University of Guelph, ON.

   Undergraduate Teaching Assistant (Introduction to Computer Applications), University of Guelph, ON.

05/2018 – 08/2018   **Mobile App Developer**, Left, Maple Ridge, BC.

05/2017 – 08/2017   **IT Student**, Lakeridge Health, Oshawa, ON.

06/2016 – 08/2016   **High Ropes Instructor**, Camp New Moon, ON

06/2015 – 08/2015   **High Ropes Instructor**, Camp New Moon, ON

06/2014 – 08/2014   **High Ropes Instructor**, Camp New Moon, ON

Volunteer and Extra-Curricular Experience

Volunteering

01/2021 - Present   **Road2IR**, Provided technical and networking infrastructure advice.

10/2019   **Ontario University Fair**, Represented the University of Guelph, Toronto,ON.

09/2019 – 04/2020   **Guelph Coding Community**, Student club executive, Guelph, ON.

09/2019 – 12/2019   **Climbing Gym Monitor**, University of Guelph, ON.

12/2019   **Major League Hacking, Local Hack Day event Organizer**, Society of Computing and Information Science, Guelph, ON.

12/2018   **Major League Hacking, Local Hack Day event Organizer**, Society of Computing and Information Science, Guelph, ON.

09/2018 – 04/2020   **Society of Computing and Information Science, System Administrator**, University of Guelph, ON.

04/2017 – 06/2018   **Full Stack Developer**, ActivNtel, Guelph, ON.

01/2016 – 02/2017   **Climbing Gym Monitor**, University of Guelph, ON.

09/2016 – 06/2017   **Web Developer**, NGTronix, Guelph, ON.

Committees

09/2019 – 03/2022   **IT Strategy Advisory Committee**. University of Guelph, ON.

01/2018 – 04/2019   **Roboticon Planning Committee** Society of Computing and Information Science, Guelph, ON.

09/2017 – 04/2019   **Computer Infrastructure Committee** School of Computer Science, University of Guelph, ON.

09/2018 – 04/2019   **Curriculum Committee** School of Computer Science, University of Guelph, ON.

Awards and Recognitions

05/2022   **D.F. Forster Magisteriate Medal Nominee**, Nominated for the 2022 D.F. Forster Magisteriate Meda, the University of Guelph's highest graduate convocation honour.

09/2020   **University of Guelph GSA Conference Runner up**, Awarded to the two runner-up presenters for the student run conference.

Awards and Recognitions (continued)

04/2020   ▌ **Erin Angus Graduate Student Award**. Awarded to a graduate student for making significant contributions to student life by Graduate Student Association.

   ▌ **CEPS Dean's Tri-Council Scholarship**, ($5,000) Deans Scholarship awarded to NSERC award holders, University of Guelph, ON.

   ▌ **Canada Graduate Scholarships-Master's Program**, ($17,500) Natural Sciences and Engineering Research Council of Canada (NSERC) Scholarship, University of Guelph, ON.

02/2020   ▌ **Ontario Graduate Scholarship**, ($5,000) A merit based academic scholarship, University of Guelph, ON.

05/2019   ▌ **College of Engineering and Physical Sciences Society of Excellence**, Demonstrated academic excellence and outstanding contributions to the university community, University of Guelph, ON.

   ▌ **College of Engineering and Physical Science Deans Honours List**, University of Guelph, ON. F15, W16, F16, W17, F17, W18, F18, W19

10/2018   ▌ **Dr. James Linders Scholarship**. ($500) Awarded for achieving the highest third year average by the School of Computer Science, University of Guelph, ON.

09/2015   ▌ **University of Guelph Entrance Scholarship**. ($2,000) Awarded for being admitted with an average greater than 85% by the University of Guelph, ON.

Research Grants

03/2022   ▌ **eCampus Virtual Learning Strategy Grant**, ($50,000) Research grant to develop open source, open teaching resources.

04/2020   ▌ **Northern Scientific Training Program**. ($2,150) Awarded to conduct fieldwork in Northern Canada by Polar Knowledge Canada.

04/2019   ▌ **Northern Scientific Training Program**. ($2,307) Awarded to conduct fieldwork in Northern Canada by Polar Knowledge Canada.

Non Academic Presentations

09/2020   ▌ **Introduction to Git**, Guelph Coding Community, Guelph, ON.

03/2020   ▌ **MSc. Seminar - Incorporation of Human Mobility in Data Replication Schemes in Mobile Ad Hoc Networks**, Guelph Coding Community, Guelph, ON.

09/2019   ▌ **Advanced Git**, Guelph Coding Community, Guelph, ON.

   ▌ **Introduction to BASH and Git**, Guelph Coding Community, Guelph, ON.

04/2019   ▌ **Bridging the Digital Divide with Mobile Ad Hoc Networks in the Circumpolar North**, Guelph Coding Community, Guelph, ON.

12/2018   ▌ **Major League Hacking Localhost Workshop**, Society of Computing and Information Science, Guelph, ON.

11/2018   ▌ **Mesh Networking**, Guelph Coding Community, Guelph, ON.

Research Publications

Conference Proceedings

1.   **Asch**, **M.**, Versluis, A., Gillis, D., & McCuaig, J. (2022). A self contained, interactive open educational resource for object oriented programming. In *Inted2022 proceedings* (pp. 5781–5788).
🔗 doi:10.21125/inted.2022.1481

2   Savić, I., **Asch**, **M.**, Rourke, K., Safari, F., Houlding, P., de Veubeke, J. F., … Gillis, D. (2022). M-ODD: A standard protocol for reporting MANET related models, simulations, and findings. In W. Bao, X. Yuan, L. Gao, T. H. Luan, & D. B. J. Choi (Eds.), *Ad hoc networks and tools for IT* (Vol. 428, pp. 114–129). Series Title: Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering. 🔗 doi:10.1007/978-3-030-98005-4_9

3   **Asch**, **M.**, Seymour, P. F., Ernst, J., & Gillis, D. (2019). Incorporation of Node Mobility in Data Replication Schemes in Mobile Ad Hoc Networks. In *2019 IEEE 10th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)* (pp. 0230–0236). Oral presentation and Preceding. 🔗 doi:10.1109/IEMCON.2019.8936268

4   Durish, N., Gillis, D., Seymour, P. F., Rourke, K., **Asch**, **M.**, Raturi, S., … Ernst, J. (2019). Bridging the Digital Divide in the Circumpolar North [abstract]. In *Labrador research forum*, Happy Valley-Goose Bay, Labrador, Canada.

5   Gillis, D., Durish, N., Rourke, K., **Asch**, **M.**, Knarr, J., Samuels, J., … Harper, S. L. (2019). Supporting Community-Based Monitoring with Technology in the Circumpolar North [abstract]. In *Labrador research forum*, Happy Valley-Goose Bay, Labrador, Canada.

6   Durish, N., Gillis, D., Seymour, P. F., Rourke, K., **Asch**, **M.**, Raturi, S., … Ernst, J. (2018). Bridging the Digital Divide to Support Community-Based Monitoring in the Circumpolar North [abstract]. In *Arcticnet*, Ottawa, Ontario, Canada.

Conference Presentations

1   **Asch**, **M.**, Lin, X., & Gillis, D. (2020). Impact of Social Interactions on Mobile Ad Hoc Networks. Graduate Students Association Virtual Conference, Guelph, Canada.

2   **Asch**, **M.**, Rourke, K., Seymour, P. F., Durish, N., Flowers, C., Wood, M., … Ernst, J. (2019). Bridging the Digital Divide with Mobile Ad Hoc Networks in the Circumpolar North. Western Student Research Conference, London, Canada.

Skills

Languages	🔖	Java, SQL, BASH, LaTeX, C/C++, Javascript, Python
Databases	🔖	MySQL, MongoDB.
Frameworks	🔖	ExpressJS, DiscordJS, ns-3, Nginx Web Server, Spring Boot
Tools	🔖	git, GitHub Actions, Bitbucket Pipelines, AWS, Ansible, Terraform, Docker, Docker-Compose.

References

Available on Request

Last updated: November 12, 2022