

# Keefer C. Rourke

Computer Science Student · Back-end Software Developer

📍 494-A Harbour View Cres., Waterloo, ON

✉ mail@krourke.org

☎ +1 519.807.1217

🌐 krourke.org

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## 🏛 Education

Honours Bachelor of Computer Science (Co-op), Minor Mathematics Sept 2016 – Present 📅

University of Guelph

- Expected graduation 2021
- Cumulative weighted grade point average: 4.0

## 👜 Experience

Research Assistant & Web Developer Jan. 2019 – Present 📅

University of Guelph School of Computer Science Guelph, ON 📍

- Led development, integration, and testing of the web API for the eNuk environmental and health monitoring application
- Trained new research assistants to accelerate their understanding and contribution towards project goals
- Collaborated and liaised with external development team who was consuming our API

Software Developer Co-op Apr. 2018 – Dec. 2018 📅

Left Inc. – RightMesh Metro Vancouver, BC 📍

- Developed and automated deployment of modular software stacks on Amazon Web Services
- Led refactoring of monolithic codebase into platform-independent modules, thereby improving build and deployment processes
- Identified problems and proposed solutions for software security and reliability, particularly focused on trust models in decentralized systems
- Assisted in creation of successful \$2.13M Mitacs Research Grant application
- Awarded 2018 Co-op Student of the Year at the University of Guelph

Research Assistant & Web Developer Jan. 2018 – Apr. 2018 📅

University of Guelph School of Computer Science Guelph, ON 📍

- Designed and developed secure, modular web framework with NodeJS using the model-view-controller pattern
- Investigated capabilities and interoperability of mobile mesh networking with the web application server
- Led and participated in regular design meetings, ensuring organization and clear communication during development

## # Skills

### Programming

Object-oriented, concurrent, asynchronous, & systems programming with:

Golang C C++ Python3

JavaScript (ES6) Java 8+

### Back-end/DevOps

Development, integration, deployment, and use of:

REST APIs Microservices

Docker Shell Git GitLab CI

RDBMSs (SQL) NoSQL

JSON YAML Ansible Cron

Nginx Systemd

### Operating Systems

System administration, automation & deployment with:

GNU/Linux POSIX Unix



Fedora RHEL Debian

Ubuntu OpenBSD macOS

### Methodologies



Agile Scrum Modular design

Test-driven development

**Research Assistant & Web Developer** Jan. 2017 – Dec. 2017   
**University of Guelph School of Computer Science** Guelph, ON 



- Developed full-stack e-learning software platform for programming and essay writing using NodeJS and Python as part of a PhD research project
- Wrote comprehensive documentation and robust scripts to simplify installation on Debian servers

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**Application Engineering Intern** Jul. 2016 – Sept.2016   
**Xylem Inc.** Guelph, ON 

- Corrected legacy databases to eliminate thousands of data inconsistencies, measurably improving business accuracy and efficiency
- Created guidelines for improved process efficiency through the use of automation technologies
- Created documentation for specialized business software to simplify technical training

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**Founder & Lead Developer/Designer** Nov. 2015 – Present   
**Tokumei Co. – Anonymous Microblogging** tokumei.co/ 

- Designed and implemented scalable ranking algorithms for trending posts and tags
- Attracted international interest for use and development of the platform from software developers in 4 countries
- Currently rewriting entire code-base in Golang, implementing a redesigned concurrent server model



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## Projects



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**eNuk – Mobile Health and Environmental Monitoring** Jan 2018 – Present   
**Community of Rigolet, Nunatsiavut** enuk.eco/ 

eNuk is a peer-to-peer enabled health and environmental monitoring application for the web and Android devices, built for and by the Inuit community of Rigolet, Nunatsiavut in partnership with the University of Guelph, Labrador Institute of Memorial University, and the Nunatsiavut Government.  
*Associated publications and presentations: 5*

**Tokumei – Anonymous Microblogging** Nov. 2015 – Present   
**Ontario Centres for Excellence** tokumei.co/ 

Tokumei is a free, self-hostable, alternative media platform featuring strong anonymity, easily discoverable content, and an intuitive user experience. Fighting the trend of mass data collection, Tokumei provides a software platform for hosting public and private online communities without requiring any personal information from its users.  
*Associated presentations: 3*

**Immediate Feedback System** Jan. 2017 – Dec. 2017   
**University of Guelph School of Computer Science** Guelph, ON 

The Immediate Feed Back System (IFS) is a web application for student programming and essay writing assessment. Feedback is generated based on the output of a set of configurable tools which students can enable or disable as they choose.  
*Associated publications and presentations: 2*

## Volunteer Work

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Hour of Code Maple Ridge, BC 

Left Inc. Dec. 2018 

Assisted in running introductory programming activities for small groups of elementary school aged children to encourage creative and critical thinking and development of technical literacy.

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Shoreline Cleanup Port Moody, BC 

Left Inc. Jul. 2018 

Collected and disposed of waste from the shoreline of Port Moody with a volunteer group from Left Inc.

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Non-profit Hardware Refurbisher Kitchener, ON 

Computer Recycling — The Working Centre Aug. 2014–Aug. 2016 

Identified and solved hardware problems using software diagnosis tools in an effort to reduce e-waste and recover usable parts from discarded computers.

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Technical Support Kitchener, ON 

Software Freedom Day Sept. 2014 

Assisted with the installation and configuration of operating systems and productivity software, teaching these skills to event attendees in the process.

## Honours & Awards

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### Received

Jan. 2019 **Co-op Student of the Year Award (B. Computing) (\$1000 CAD)** University of Guelph

Awarded by the University of Guelph in recognition of outstanding workplace performance, academic achievement, innovation, and involvement within the community. Nominated by Left Inc.

Jul. 2018 **Major League Hacking Ethical Tech Award (\$10 000 USD)** Omidyar Network

Awarded for authoring a series of essays on the subject of technology and society. Funding used to attend the *35th annual Chaos Computing Congress* in Leipzig, Germany.

2016–2018 **Dean's List: College of Physical and Engineering Sciences** University of Guelph

Achieved greater than 80% semesterly averages in all full-time academic semesters.

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### Nominated

Jan. 2019 **EWO Co-op Student of the Year Award** Education at Work Ontario

Nominated as the sole candidate from the University of Guelph in recognition of outstanding workplace performance, academic achievement, innovation, and involvement within the community.

Jan. 2019 **CEWIL Co-op Student of the Year Award** CEWIL Canada  
Nominated as the sole candidate from the University of Guelph in recognition of outstanding workplace performance, academic achievement, innovation, and involvement within the community.

## Scholarships & Grants

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Oct. 2018 **Michele and Maria Vannelli Scholarship (\$1000 CAD)** University of Guelph  
Awarded by the Dean of the College of Physical and Engineering Sciences for academic excellence and community leadership.

Nov. 2017 **Jay Majithia Scholarship (\$1000 CAD)** University of Guelph  
Awarded for contributions to departmental research in the School of Computer Science.

May 2017 **OCE Youth Entrepreneurial Grant (approx. \$1000 CAD)** Ontario Centres for Excellence  
Awarded funding to exhibit at the 2017 OCE Discovery business and technology conference in Toronto, ON.

Sept. 2016 **University of Guelph Entrance Scholarship (\$3000 CAD)** University of Guelph  
Awarded upon acceptance to the University of Guelph for attaining greater than a 90% admission average.

## Presentations

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### Innovations & Business Pitches

May 2017 **Ontario Centres for Excellence: Discovery Business Conference** Toronto, ON  
Exhibited Tokumei Co. to investors over the course of the three day conference.  
Attendance was funded via a grant as a youth entrepreneur.  
*Farwell, K. & Rourke, K.*

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### Oral Presentations

May 2019 **Labrador Research Forum** Happy Valley-Goose Bay, NL  
Supporting Community-Based Monitoring With Technology In The Circumpolar North.  
*Gillis, D., Durish, N., Rourke, K., Asch, M., Knarr, J., Kipp, A., Sawatzky, A., Middleton, J., Borish, D., Bell, I., Cunsolo, A., Shiwak, I., Flowers, C., Wood, M. & Harper, S.*  
Bridging the Digital Divide in the Circumpolar North.  
*Durish, N., Gillis, D., Seymour, F., Rourke, K., Asch, M., Raturi, S., Hughes, B., Flowers, C., Shiwak, I., Wood, M. & Ernst, J.*

Aug. 2018 **2018 Indigenous Mapping Workshop (Invited)** Montréal, QC  
Using Mesh Technology to Support Climate Change Monitoring.  
*Durish, N., Rourke, K. & Gillis, D.*

Oct. 2018 **People, Places, and Public Engagement** St. John's, NL  
Bridging the Digital Divide & Improving Community-Based Monitoring Programs in the Circumpolar North.  
*Durish, N., Seymour, F., Rourke, K., Raturi, S., Hughes, B., Harper, S., Cunsolo, A., Flowers, C., Shiwak, I., Wood, M., Gillis, D., Ernst, J. & Rigolet Inuit Community Government*

- Jan. 2018 **StarCon – Software Engineering Conference** Waterloo, ON  
 Gloom, Doom, and the Internet, a talk about internet privacy, security, and data ownership.  
*Rourke, K.* <https://krourke.org/projects/pres/starcon18>
- Aug. 2017 **Graduate Student University Teaching Conference** Guelph, ON  
 Teaching with Tech: How to Upgrade In-class Teaching.  
*Fraser, I.J. & Rourke, K.*
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## Workshops

- Aug. 2018 **2018 Indigenous Mapping Workshop (Invited)** Montréal, QC  
 Ideation Process: Identifying Problems RightMesh Can Solve I & II.  
*Gillis D., Rourke, K. & Durish, N.*
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## Poster Presentations

- Dec. 2018 **ArcticNet** Ottawa, ON  
 Bridging the Digital Divide to Support Community-based Monitoring in the Circumpolar North  
*Durish, N., Gillis, D., Seymour, F., Rourke, K., Asch, M., Raturi, S., Hughes, B., Flowers, C., Shiwak, I., Wood, M. & Ernst, J.*
- Aug. 2017 **CPES Undergraduate Poster Session** Guelph, ON  
 Investigating the impact of automated feedback in e-learning environments.  
*Rourke, K., Fraser, I.J., McCuiag J. & Gillis, D.*
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## Essays

- June 2018 **Major League Hacking Ethical Tech Initiative** Ann Arbor, MI  
 Award winning series of short essays on ethics in technology.  
*Rourke, K. & Parent, A.*
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## Submitted Abstracts

- Mar. 2019 **Western Student Research Conference (Pending)** London, ON  
 Bridging the Digital Divide & Improving Community-Based Monitoring Programs in the Circumpolar North.  
*Asch, M., Rourke, K., Durish, N., Seymour, F., Flowers, C., Wood, M., Ernst, J. & Gillis, D.*












## Extracurricular Activities

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- 2018–2019 **Vice President External – Society of Computing and Information Sciences** University of Guelph  
 Representative of student body to external organizations and college government.
- 2018 **Lead Organizer – Guelph Coding Community** University of Guelph  
 Coordinated and organized bi-weekly student-run technology seminar sessions and demonstrations.

## Media Links

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Jan. 2019		<a href="#"><u>2018 Co-op of the Year Awarded to Keefer Rourke</u></a>	RightMesh Blog
Jan. 2019		<a href="#"><u>Computer Science Student Keefer Rourke Wins Co-op Student of the Year</u></a>	UoG Computing
Nov. 2018		<a href="#"><u>School of Computer Science and Left ... \$2.13M Mitacs Research Project ...</u></a>	UoG Computing
Aug. 2018		<a href="#"><u>Meshing with Maps: Empowering Indigenous Communities</u></a>	RightMesh Blog
Aug. 2018		<a href="#"><u>Announcing the Winner of the MLH Ethical Tech Initiative</u></a>	MLH News
July 2018		<a href="#"><u>SoCS Undergrads Win Ethical Tech Initiative</u></a>	UoG Computing
July 2018		<a href="#"><u>Hacking a More Ethical Future</u></a>	Omidyar Network
2018-2019		<a href="#"><u>Guelph Computing: Meet Our Students</u></a>	UoG Computing
Sept. 2017		<a href="#"><u>Student Success at Hack the North</u></a>	UoG Computing
May 2017		<a href="#"><u>Three clients debut at Canada's leading technology and innovation event</u></a>	YouLaunch
Feb. 2016		<a href="#"><u>People need a place to share and debate things without fear of prosecution</u></a>	S-MAP Project