

Nathaniel Yazdani

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Education

GRADUATE

- 2019 - now DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE (*on leave*)
Northeastern University, Boston
- 2017 - 2019 MASTER OF SCIENCE IN COMPUTER SCIENCE & ENGINEERING (*no diploma*)
University of Washington, Seattle

UNDERGRADUATE

- 2015 - 2017 BACHELOR OF SCIENCE IN COMPUTER SCIENCE WITH HONORS
University of Washington, Seattle

Experience

RESEARCH

- 05/2020 - **Intern**, Formal Methods
now *BedRock Systems, Inc.*
Formal verification of C++ hypervisor, implemented with IRIS and automated with proof search
- 09/2019 - **Graduate Student**, Prof. Amal Ahmed
now *Northeastern University Khoury College of Computer Sciences*
Mechanization of source-level Rust semantics in Coq, implemented with SSREFLECT
- 09/2017 - **Graduate Student**, Prof. Dan Grossman
09/2019 *University of Washington Allen School of Computer Science & Engineering*
Proof automation via type-driven ornamentation for Coq, implemented as an OCAML plugin
- 07/2017 - **Research Intern**, Prof. Aleks Nanevski
09/2017 *IMDEA Software Institute*
Compositional verification in FCSL, a Coq framework for concurrent separation logic
- 09/2015 - **Undergraduate Research Assistant**, Prof. Ras Bodik
07/2017 *University of Washington Allen School of Computer Science & Engineering*

Synthesis of parallel tree programs in Rosette, a Racket dialect for symbolic evaluation via SMT

TEACHING

Graduate Teaching Assistant

Northeastern University Khoury College of Computer Sciences

Aut. 2020 • **CS 2500** Fundamentals of Computer Science I

Graduate Teaching Assistant

University of Washington Allen School of Computer Science & Engineering

Aut. 2017 • **CSE 374** Programming Concepts and Tools
Win. 2018 • **CSE 331** Software Design and Implementation
Spr. 2018 • **CSE 401/M501** Compiler Construction
Aut. 2018 • **CSE 401/M501** Compiler Construction
Win. 2019 • **CSE 331** Software Design and Implementation
Spr. 2019 • **CSE 401/M501** Compiler Construction

Undergraduate Teaching Assistant

University of Washington Allen School of Computer Science & Engineering

Win. 2017 • **CSE 341** Programming Languages

INDUSTRY

05/2015 - **Fedora Engineering Intern**
09/2015 *Red Hat, Inc.*
01/2014 - **Technical Intern**
12/2014 *Intel Corporation*

Extracurricular activities

RESEARCH

06/2017 **DeepSpec Summer School**, *University of Pennsylvania*
06/2016 **Oregon Programming Languages Summer School**, *University of Oregon*
01/2016 **Mentoring Workshop**, *ACM Symposium on Principles of Programming Languages*
09/2015 **Mentoring Workshop**, *ACM International Conference on Functional Programming*

VOLUNTEERISM

2016 - 2017 **Research Leader**, *University of Washington Undergraduate Research Program*
01/2017 **Student Volunteer**, *ACM Symposium on Principles of Programming Languages*
01/2016 **Student Volunteer**, *ACM Symposium on Principles of Programming Languages*
09/2015 **Student Volunteer**, *ACM International Conference on Functional Programming*

Scholarships, honors & awards

RESEARCH

- 2017 **Graduate Research Fellowship Honorable Mention**, *National Science Foundation*
2017 **Outstanding Undergraduate Researcher Honorable Mention**, *Computing Research Association*
2016 - 2017 **Washington Research Foundation Fellowship**, *Washington Research Foundation*

GENERAL

- 2016 - 2017 **Washington State Opportunity Scholarship**, *Washington State Legislature*
2016 - 2017 **Jerre Noe Endowed Scholarship**, *U.W. School of Computer Science & Engineering*
2015 - 2016 **Burkhardt Endowed Scholarship**, *U.W. School of Computer Science & Engineering*
2015 - 2017 **Roy F. Mather Scholarship**, *Community Foundation for Southwest Washington*
2015 - 2017 **Rotary Scholarship**, *Lewis River Rotary Club*

Peer-reviewed publications

- [1] Talia Ringer, RanDair Porter, **Nathaniel Yazdani**, John Leo, and Dan Grossman. “Proof Repair Across Type Equivalences”. In: *Proceedings of the 42nd ACM SIGPLAN Conference on Programming Language Design and Implementation*. PLDI 2021. Virtual: ACM, 2021. arXiv: [2010.00774](https://arxiv.org/abs/2010.00774).
- [2] Talia Ringer, **Nathaniel Yazdani**, John Leo, and Dan Grossman. “Ornaments for Proof Reuse in Coq”. In: *Proceedings of the 10th International Conference on Interactive Theorem Proving*. ITP 2019. Portland, OR, USA: LIPIcs, 2019. DOI: [10.4230/LIPIcs.ITP.2019.26](https://doi.org/10.4230/LIPIcs.ITP.2019.26).
- [3] Talia Ringer, **Nathaniel Yazdani**, John Leo, and Dan Grossman. “Adapting Proof Automation to Adapt Proofs”. In: *Proceedings of the 7th ACM SIGPLAN Conference on Certified Programs and Proofs*. CPP 2018. Los Angeles, CA, USA: ACM, 2018. DOI: [10.1145/3167094](https://doi.org/10.1145/3167094).
- [4] Rastislav Bodik, Kartik Chandra, Phitchaya Mangpo Phothilimthana, and **Nathaniel Yazdani**. “Domain-Specific Symbolic Compilation”. In: *2nd Summit on Advances in Programming Languages*. SNAPL 2017. Asilomar, CA, USA: LIPIcs, 2017. DOI: [10.4230/LIPIcs.SNAPL.2017.2](https://doi.org/10.4230/LIPIcs.SNAPL.2017.2).

Et cetera

WHY IS THE TIMELINE OF MY EDUCATION SO UNUSUAL?

My enrollment at the University of Washington was through a joint B.Sc./M.Sc. program that enabled me to fund myself through graduate teaching/research assistantships. Similar to a junior Ph.D. student, my studies comprised both original research and advanced coursework. I do not hold a master’s degree *per se* from the university.

WHAT IS MY CURRENT ACADEMIC ENROLLMENT STATUS?

At Northeastern University, I am taking a leave of absence from my Ph.D. program – with the support of my advisor – and will undertake a research engineering role for a few years before later returning to my Ph.D. program.