

Daniel Patterson

Northeastern University
Khoury College of Computer Sciences
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EDUCATION	<i>Ph.D., Computer Science (2022)</i> <i>Interoperability Through Realizability: Expressing High-level Abstractions using Low-level code.</i> Northeastern University, Boston MA <i>Bachelor of Science, Math and Computer Science (2014)</i> Brown University, Providence RI	
EMPLOYMENT	<i>Northeastern University, Boston MA</i>	2022-present
	Assistant Teaching Professor	
	<i>Northeastern University, Boston MA</i>	2016-2022
	Research Assistant, Teaching Assistant, Instructor of Record	
	<i>Position Development, New York, NY</i>	2014-2016
	Founder / CTO of small software consulting company.	
	<i>Brown University</i>	Summer 2013
	Research internship, codesigned Pyret programming language, CaptainTeach educational platform.	
AWARDS	<i>Northeastern University Center for Advancing Teaching and Learning Through Research, Future Faculty Program</i> <i>Northeastern University, 2019 Khoury College Graduate Teaching Award</i> <i>National Science Foundation, GRFP 2018 Honorable Mention</i>	
TEACHING EXPERIENCE	<i>Fundamentals of Computer Science 1 (CS2500), Northeastern University</i>	
	Fall 2022, Fall 2023, Fall 2024 (coordinator).	
	<i>Fundamentals of Computer Science 1, accelerated (CS2500), Northeastern University</i>	
	Fall 2023.	
	<i>Logic and Computation (CS2800), Northeastern University</i>	
	Spring 2023 (redesigned), Spring 2024 (redesigned).	
	<i>Verified Compilers (CS4910) (novel course), Northeastern University</i>	
	Fall 2019.	
STUDENTS SUPERVISED	<ul style="list-style-type: none">• Rachel Chen (<i>BS expected 2026</i>), 2023• Renuka Ganesh (<i>MS 2023</i>), Summer 2023• Noble Mushtak (<i>BS 2023</i>), 2020-2021	
UNIVERSITY SERVICE	<i>Undergraduate Committee</i>	2023-2024, 2024-2025
	<i>Teaching Assistant Committee</i>	2024-2025
	<i>Systems Advisory Committee</i>	2023-2024

**ACADEMIC
PUBLICATIONS**

- Semantic Encapsulation using Linking Types.*
- Daniel Patterson, Andrew Wagner, Amal Ahmed. (TyDE 2023)
- Semantic Soundness for Language Interoperability.*
- Daniel Patterson, Noble Mushtak, Andrew Wagner, and Amal Ahmed. (PLDI 2022).
- Foreign Function Typing: Semantic Type Soundness for FFIs.*
- Daniel Patterson and Amal Ahmed. First ACM SIGPLAN Workshop on Gradual Typing (WGT 2020).
- The Next 700 Compiler Correctness Theorems (Functional Pearl).*
- Daniel Patterson and Amal Ahmed. 24th Conference on Functional Programming (ICFP 2019).
- Rust Distilled: An Expressive Tower of Languages.*
- Aaron Weiss, Daniel Patterson, and Amal Ahmed. ML Workshop 2018 (ML 2018).
- FunTAL: Reasonably Mixing a Functional Language with Assembly.*
- Daniel Patterson, Jamie Perconti, Christos Dimoulas, and Amal Ahmed. 38th Conference on Programming Language Design and Implementation (PLDI 2017).
- Linking Types for Multi-Language Software: Have Your Cake and Eat It Too.*
- Daniel Patterson and Amal Ahmed. 2nd Summit on Advances in Programming Languages (SNAPL 2017).
- CaptainTeach: Multi-Stage, In-Flow Peer Review for Programming Assignments.*
- Joe Gibbs Politz, Daniel Patterson, Kathi Fisler, and Shriram Krishnamurthi. 2014 Conference on Innovation & Technology in Computer Science Education (ITiCSE 2014).
- Python: The Full Monty - A Tested Semantics for the Python Programming Language.*
- Joe Gibbs Politz, Alejandro Martinez, Matthew Milano, Sumner Warren, Daniel Patterson, Junsong Li, Anand Chitipothu, and Shriram Krishnamurthi. 2013 International Conference on Object Oriented Programming Systems Languages & Applications (OOPSLA 2013).

**ACADEMIC
SERVICE**

- 2024 Journal of Functional Programming
- *Review*
- 2024 Transaction on Software Engineering
- *Review*
- 2024 Innovation and Technology in Computer Science Education (ITiCSE 2024)
- *Program Committee Member (Full papers: Experience Reports and Tools)*
- 2024 Technical Symposium on Computer Science Education (SIGSCE TS 2024)
- *Program Committee Member (Experience Reports and Tools)*
- 2023 Trends in Functional Programming (TFP 2023)
- *Program Committee Member*
- 2022 International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2022)
- *External Review Committee Member*
 - *Artifact Evaluation Committee Member*
- 24rd International Conference on Foundations of Software Science and Computation Structures (FoSSaCS 2021)
- *External Reviewer*
- 23rd International Conference on Foundations of Software Science and Computation

Structures (FoSSaCS 2020)

- *External Reviewer*

Principles of Secure Compilation 2020 (PriSC 2020)

- *Program Committee Member*

40th Conference on Programming Language Design and Implementation (PLDI 2019)

- *Artifact Evaluation Committee Member*

46th Symposium on Principles of Programming Languages (POPL 2019).

- *External Reviewer*
- *Artifact Evaluation Committee Member*

22nd International Conference on Functional Programming (ICFP 2017).

- *External Reviewer*