

JASPER GEER

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EDUCATION

University of British Columbia <i>Vancouver, British Columbia, Canada</i> Computer Science, PhD Supervised by Prof. Alexander J. Summers	<i>2024-Present</i>
Tufts University <i>Medford, Massachusetts, USA</i> Computer Science, BS <i>summa cum laude</i>	<i>2020-2024</i>

RESEARCH EXPERIENCES

Verifying Safe Clients of Interior Mutability with Alexander J. Summers <i>University of British Columbia</i>	<i>August 2025 - Present</i>
<ul style="list-style-type: none">Developing formal underpinnings in separation logic for a verification methodology for safe clients of interior-mutable modules in Rust.Exploring extensions to the specification language and proof technique to support a wider range of use cases.	
Place Capability Graphs with Alexander J. Summers <i>University of British Columbia</i>	<i>January 2025 - 2025</i>
<ul style="list-style-type: none">Developed a MIR-level mutation testing tool for the Rust compiler to evaluate the trustworthiness of Place Capabilitiy Graphs, a model of Rust's type checking results.Co-author on paper published in OOPSLA 2025.	
Type- and Name-Guided Program Synthesis with Jeffrey Foster <i>Tufts University</i>	<i>September 2023 - September 2025</i>
<ul style="list-style-type: none">Implemented and formalized a subtyping constraint-guided program synthesis technique for Java programs.Developed search heuristics to make a larger class of synthesis problems tractable.	
Technical Limitations and Novel Use Cases for Symbolic Execution with Daniel Votipka <i>Tufts University</i>	<i>September 2023 - May 2024</i>
<ul style="list-style-type: none">Participated in an extensive review of recent symbolic execution and automated testing literature.Qualitatively coded rounds of 5-10 research papers and contributed to codebook development.	

PROFESSIONAL EXPERIENCES

Vehicle Software Intern <i>Tesla</i>	<i>May 2023 - August 2023</i>
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- End-to-end feature development in Haskell for an incremental compiler frontend.
- Refactored compiler passes into incremental build rules for a monadic build system.
- Created embedded domain-specific languages to implement new language server features.
- Received offer for full-time conversion.

TEACHING

University of British Columbia, Graduate Teaching Assistant	<i>September 2024 - Present</i>
• CPSC411, Compilers. <i>Spring 2024</i> .	
• CPSC311, Definition of Programming Languages. <i>Fall 2024</i> .	
Tufts University, Teaching Fellow	<i>January 2024 - May 2024</i>
• CS170, Computation Theory. <i>Spring 2024</i> .	
Tufts University, Course Assistant	<i>September 2022 - December 2023</i>
• CS170, Computation Theory. <i>Fall 2022, Spring 2023, Fall 2023</i> .	
Coding With Kids	<i>May 2022 - September 2022</i>
• Taught week-long programming classes for primary and secondary school students.	

PUBLICATIONS

Zachary Grannan, Aurel Bílý, Jonáš Fiala, **Jasper Geer**, Markus de Medeiros, Peter Müller, and Alexander J. Summers. 2025. *Place Capability Graphs: A General-Purpose Model of Rust's Ownership and Borrowing Guarantees*. Proc. ACM Program. Lang. 9, OOPSLA2, Article 344 (October 2025), 28 pages. <https://doi.org/10.1145/3763122>

AWARDS

Four Year Doctoral Fellowship (4YF) , University of British Columbia	<i>Jan 2026 - Dec 2029</i>
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SERVICE

Reviewer , UBC Computer Science Student Research Conference	<i>January 2026</i>
VP Social , UBC Computer Science Graduate Student Association	<i>May 2025 - April 2026</i>
Tuesday Tea Organizer , UBC Computer Science Graduate Student Association	<i>May 2025 - April 2026</i>
PL Reading Group Organizer , UBC Software Practices Lab	<i>September 2024 - Present</i>

PROGRAMMING BACKGROUND

Recent experience with Rust and Scala.
Previous experience with OCaml, Standard ML, Haskell, Racket, C, and Java.