JASPER GEER

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Education

University of British Columbia Vancouver, British Columbia, Canada Computer Science, MSc (PhD-Track)	2024-Present
• Supervised by Dr. Alexander J. Summers	
Tufts University Medford, Massachussets, USA Computer Science, BS summa cum laude	2020-2024
• Activities: TuPL Reading Group, Tufts Chinese Students' Association H	Event Chair 2022-23
Mercer Island High School Mercer Island, Washington, USA	2016-2020
Research Experiences	
Tufts Programming Languages (TuPL), Tufts University Research Assistant	September 2023 - Present
Conducted program synthesis research under Professor Jeff Foster.Worked on the implementation of a novel constraint-guided Java program	m synthesis technique.
Tufts Security and Privacy Lab , Tufts University Research Assistant	September 2023 - May 2024
Assisted in a review of recent symbolic execution literature under ProfesQualitatively coded rounds of 5-10 research papers and contributed to c	ssor Dan Votipka. zodebook development.
Professional Experiences	
Tesla Vehicle Software Intern	May 2023 - August 2023
 End-to-end feature development in Haskell for an incremental compiler Refactored compiler passes into incremental build rules for a monadic b Created embedded domain-specific languages to implement new language Received offer for full-time conversion. 	frontend. uild system. ge server features.
TEACHING	

University of British Columbia, Graduate Teaching Assistant	September 2024 - Present
• CPSC311, Definition of Programming Languages. Fall 2024.	
Tufts University, Teaching Fellow	January 2024 - May 2024
• CS170, Computation Theory. Spring 2024.	
Tufts University, Course Assistant	September 2022 - December 2023

• CS170, Computation Theory. Fall 2022.

- CS170, Computation Theory. Spring 2023.
- CS170, Computation Theory. Fall 2023.

Coding With Kids

• Taught week-long programming classes for middle and elementary school students.

The Summit at Snoqualmie

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May 2022 - September 2022

Nov 2018 - March 2021

• Taught 8-week long nordic skiing youth programs.

Awards

• Travel Award: Programming Languages Mentoring Workshop (PLMW) at International Conference on Functional Programming (ICFP) 2023

Projects

Compost

- LLVM frontend for a statically-typed functional programming language.
- Designed an affine type system to enforce memory safety without runtime garbage collection.
- Began as a personal summer project, completed as a semester-long group project in a compilers class.
- Written in OCaml.

tinyvalidator

- Artifact produced for directed study with Professor Jeff Foster.
- Translation validation for a C-subset language by means of symbolic execution.
- Devised a big-step operational semantics to describe the execution of programs with symbolic inputs.
- Written in Haskell using the Z3 SMT solver.

PROGRAMMING BACKGROUND

- Recent Experience with Haskell, OCaml, Scala, Agda, and C.
- Some experience with SML, Scheme, C++, Typescript, Python, and Java.