Sean Bocirnea

Updated September 6th, 2024

Education

Bachelor of Science, Honours in Computer Science with Software Engineering

University of British Columbia, Vancouver, Canada

Sept. 2019 – May 2023. 92.2% GPA Overall

Selected Coursework:
Algebra and Coding Theory (MATH342, 2020W, 94%),
Machine Learning and Data Mining (CPSC340, 2021W, 99%),
Topics in Computer Science – NLP (CPSC436N, 2022W, 96%),
Advanced Algorithms (CPSC420, 2023W, 92%),
Compiler Construction (CPSC411, 2023W, 90%)

Ph.D.-Track Master of Science, Computer Science

University of British Columbia, Vancouver, Canada

Sept. 2023 – Present. Supervisor: Dr. William J. Bowman

Research in UBC's Software Practices Lab. Currently interested in gradual dependent types, performance evaluation, type preserving compilation. Currently performing research in extensible language frameworks and metaprogramming.

Selected Coursework:
Dependent Types (CPSC539B, 2023W, 98%),
Programming Language Principles (CPSC509, 2023W, 94%)

Experience

Software Development Consultant

Motivity Systems, Honolulu, Hawaii

Part-time 2018-2023

Web and server-side development in F# with FRP concepts, product aimed at facilitating ABA therapy. Autonomously performed requirements elicitation, UX/UI design, development and testing of high-priority user-facing features in a fully reactive web application. Development of server-side data structures to support feature additions and interaction with external systems.

Notable Achievements: Interval data collection methodology and interface; result: Motivity application rated best in interval data collection for ABA therapy by the Behavioral Collective. Reactive pagination over arbitrary server queries with live state updates. API surface design for AlohaABA integration. Bulk data collection.

Honours Thesis Research

Sept. 2022 – May 2023. UBC, Supervisor: Dr. William J. Bowman

Implementation of gradual dependent typed language embedded into Racket. Exploration of interoperability with Racket terms across gradual boundary. Exposure to concepts including the Calculus of Inductive Constructions, Martin-Löf type theory, normalization and decidability of type checking, definitional and propositional equalities.

Awards

NSERC CGS-M – UBC, 2024W
BC Graduate Scholarship – UBC, 2024W

Science Scholar – *UBC, 2019W, 2020W, 2021W*
Dean's Honour List – *UBC, 2019W, 2020W, 2021W, 2022W*
Trek Excellence Scholarship – *UBC, 2020W, 2021W, 2022W*
Charles and Jane Banks Scholarship – *UBC, 2020W, 2022W*
J Fred Muir Memorial Scholarship in Science – *UBC, 2021W*

Projects

Music DSL – *UBC, 2022W*

CPSC 410 Group project (Team of 5) – Developed a domain-specific language implemented in Python, utilizing ANTLRv4 for grammar specification and parser generation. Responsible for recursive note evaluation with subdivision and sustain of notes within and across beats, measure composition and loop syntax. Developed internal data structures facilitating rapid development and division of labor. Won class vote for best project.

Associated Engineering Resume Management System – *UBC, 2021W*

CPSC 319 Group project (Team of 6) – Task provided by sponsor Associated Engineering. Developed a resume management web application complete with backend API, SQL server and a professional identity provider solution, hosted in Microsoft Azure. UX design lead. Backend and deployment lead. Managed and created continuous integration pipelines, testing and production deployments. Solely responsible for backend framework selection and identity service development, able to successfully and quickly learn multiple novel enterprise-level tools.

Proficiency

Languages:	*Proficient:*	F#, Java, Racket
	Familiar:	Agda, Python, C++, Java/TypeScript, C#, Haskell
Tools:	*Proficient:*	Microsoft Visual Studio, Git
	Familiar:	Microsoft Entity Framework, Microsoft Azure, Duende IdentityServer, PyTorch, ANTLR, GitHub CI, Docker