Anders Miltner

Simon Fraser University
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miltner@cs.sfu.ca

RESEARCH INTERESTS

My primary research interest lies in Programming Languages. Primarily, I am interested in building and using domain-specific languages to solve real-life problems.

EDUCATION

Ph.D. Computer Science 2020
Princeton University, Princeton, NJ
Advisor: David Walker
Thesis: Synthesizing Lenses

M.A. Computer Science 2017
Princeton University, Princeton, NJ
Advisor: David Walker

M.A. Mathematics 2013
University of Pennsylvania, Philadelphia, PA
Advisors: Scott Weinstein and Val Tannen

B.S.E. Computer Science and Mathematics 2013
University of Pennsylvania, Philadelphia, PA
Advisors: Zachary Ives and Philip Gressman

RESEARCH EXPERIENCE

Assistant Professor 2022 - Present
Simon Fraser University, Burnaby, BC

Postdoctoral Fellow 2020 - 2022
UT Austin, Austin, TX
Advisors: Isil Dillig and Swarat Chaudhuri

Graduate Researcher 2015 - 2020
Princeton University, Princeton, NJ
Advisor: David Walker

Research Intern 2019
Microsoft, Redmond, WA
Advisors: Sumit Gulwani and Gustavo Soares

Undergraduate Researcher 2011-2012
University of Pennsylvania, Philadelphia, PA
Advisors: Insup Lee and Krishna Venkatasubramanian

AWARDS

DARPA Risers 2022

Distinguished Paper Award POPL 2022
For the paper *Bottom-up Synthesis of Recursive Functional Programs using Angelic Execution*

	Distinguished Paper Award For the paper *Data-Driven Inference of Representation Invariants*	PLDI 2020
	Student Research Competition First Place For the work on *Synthesizing Bijective Lenses*	ICFP 2017
GRANTS	*National Cybersecurity Consortium - Spearhead* Preserving Relationship Privacy in Large Networks	2025-2028 50% of $500,000
	NSERC Discovery Launch Automating Data Representation Changes	2023-2028 $12,500
	NSERC Discovery Automating Data Representation Changes	2023-2028 $180,000
TEACHING EXPERIENCE	*SFU CMPT Instructor* CMPT 384 – Symbolic Computation	2025
	SFU CMPT Instructor c CMPT 489/980 – Special Topics in Programming Languages	2023,2024,2025
	SFU CMPT Instructor CMPT 383 – Comparative Programming Languages	2022,2023,2024,2025
	Princeton PTI Pod Instructor MAT 030 – Intermediate Algebra	Spring 2018
	Princeton PTI Pod Instructor MAT 020 – Elementary Algebra	Spring 2017, Fall 2017
	Princeton CS Teaching Assistant COS 226 – Algorithms and Data Structures	Spring 2017
	Princeton CS Teaching Assistant COS 326 – Functional Programming	Fall 2016
	Princeton PTI Pod Instructor MAT 015 – Basic Mathematics	Fall 2016
	Princeton PTI Pod Instructor MAT 037 – Beginning Algebra	Spring 2016
	Penn CS Teaching Assistant CIS 160 – Mathematical Foundations of Computer Science	Spring 2012, Fall 2012
	Penn CS Teaching Assistant CIS 120 – Programming Languages and Techniques I	Spring 2011, Fall 2011
INDUSTRY EXPERIENCE	*Software Engineer* Microsoft, Redmond, WA	2013 - 2015
	Engineering Intern Ampush, San Francisco, CA	2012

CONFERENCE PUBLICATIONS

CAV 2024
Anders Miltner, Ziteng Wang, Swarat Chaudhuri, and Isil Dillig. Relational Synthesis of Recursive Programs via Constraint Annotated Tree Automata. In Computer Aided Verification, 2024.

S&P 2024
Junrui Liu, Ian Kretz, Hanzhi Liu, Bryan Tan, Jonathan Wang, Yi Sun, Luke Pearson, **Anders Miltner**, Isil Dillig, and Yu Feng. Certifying Zero-Knowledge Circuits with Refinement Types. In IEEE Symposium on Security and Privacy, 2024.

OOPSLA 2023
Anders Miltner, Devon Loehr, Arnold Mong, Kathleen Fisher, and David Walker. Saggitarius: A DSL for Specifying Grammatical Domains. In Object-oriented Programming, Systems, Languages, and Applications, 2023.

POPL 2022
Anders Miltner, Adrian Trejo Nuñez, Ana Brendel, Swarat Chaudhuri, and Isil Dillig. Bottom-up Synthesis of Recursive Functional Programs using Angelic Execution. In Principles of Programming Languages, 2022. *Distinguished Paper Award.*

PLDI 2020
Anders Miltner, Saswat Padhi, Todd Millstein, and David Walker. Data-Driven Inference of Representation Invariants. In Programming Language Design and Implementation, 2020. *Distinguished Paper Award.*

OOPSLA 2019
Anders Miltner, Sumit Gulwani, Vu Le, Alan Leung, Arjun Radhakrishna, Gustavo Soares, Ashish Tiwari, Abhishek Udupa. On the Fly Synthesis of Edit Suggestions. In Object-oriented Programming, Systems, Languages, and Applications, 2019.

ICFP 2019
Anders Miltner, Solomon Maina, Kathleen Fisher, Benjamin C. Pierce, David Walker, Steve Zdancewic. Synthesizing Symmetric Lenses. In The International Conference on Functional Programming, 2019.

ICFP 2018
Solomon Maina, **Anders Miltner**, Kathleen Fisher, Benjamin C. Pierce, David Walker, Steve Zdancewic. Synthesizing Quotient Lenses. In The International Conference on Functional Programming, 2018.

POPL 2018
Anders Miltner, Kathleen Fisher, Benjamin C. Pierce, David Walker, Steve Zdancewic. Synthesizing Bijective Lenses. In Principles of Programming Languages, 2018.

WORKSHOP PUBLICATIONS

LangSec 2022
Anders Miltner, Devon Loehr, Arnold Mong, Kathleen Fisher, David Walker. Linguistic Tools for Managing Grammatical Domains (Work in Progress). In The LangSec Workshop, 2022.

IWC 2020
Anders Miltner, Kathleen Fisher, Benjamin C. Pierce, David Walker, Steve Zdancewic. Confluence in Lens Synthesis. In The International Workshop on Confluence, 2020.

PATENTS

2021
Sumit Gulwani, Arjun Radhakrishna, Abhishek Udupa, Gustavo Soares, Vu Le, **Anders Miltner**, Mark Wilson-Thomas. Automatic Repetition of Context-Specific Code Edits.

SERVICE

OOPSLA 2024
Student Research Competition Chair

PLDI 2024
Program Committee

PLDI 2024
Publicity Co-Chair

ESOP 2024
Program Committee

POPL 2024
Workshops Co-Chair

PLDI 2023
Publicity Co-Chair

POPL 2023
Workshops Co-Chair

APLAS 2022
Program Committee

PLDI 2022
Program Committee

ICFP 2021
Student Research Competition Chair

OOPSLA 2020
Artifact Evaluation Committee

BX 2019
Program Committee

ESOP 2019
External Reviewer

TOPLAS 2017
External Reviewer

PLDI 2017
Artifact Evaluation Committee