Andrew Blinn

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Vision

I use semantic theory to design contextual, conversational, and compositional interfaces, trying to make working with abstraction & complexity more accessible, tangible, and fun.

Focuses

Programming Languages + Liveness + Learning · Human-Computer Interaction

Papers

Syntactic Completions with Material Obligations · **OOPSLA** · *2025*
David Moon, Andrew Blinn, Thomas Porter, Cyrus Omar

Statically Contextualizing Large Language Models with Typed Holes · **OOPSLA** · *2024*
Andrew Blinn, Kevin Li, June Hyung Kim, Cyrus Omar

Total Type Error Localization and Recovery with Holes · **POPL** · *2024*
Eric Zhao, Raef Maroof, Anand Dukkipati, Andrew Blinn, Zoe Pan, Cyrus Omar

Gradual Structure Editing with Obligations · **VL/HCC** · *2023*
David Moon, Andrew Blinn, Cyrus Omar

An Integrative Human-Centered Architecture for Interactive Programming Assistants · **VL/HCC** · *2022*
Andrew Blinn, David Moon, Eric Griffis, Cyrus Omar (addendum formalizing suggestion sensibility)

Filling Typed Holes with Live GUIs · **PLDI** · *2021*
Cyrus Omar, David Moon, Andrew Blinn, Ian Voysey, Nick Collins, Ravi Chugh

Workshop Papers

Toward a Live, Rich, Composable, and Collaborative Planetary Compute Engine · **PROPL** · *2024*
Alexander Bandukwala, Andrew Blinn, Cyrus Omar

Tylr - A Tiny Tile-based Structure Editor · **TyDe** · *2022*
David Moon, Andrew Blinn, Cyrus Omar

School

University of Michigan / FPLab · **Ph.D Candidate (ABD), Computer Science** · *Now*
Researching code context enrichment for humans & LLMs, advised by Cyrus Omar.
Lead engineer on the Hazel IDE, deployed to hundreds of students + external researchers

University of Michigan · **Master's of Science, Computer Science** · *2023*
Coursework in PL theory, program synthesis, category theory, HCI, & the psychology of learning

University of Toronto · **H.B.Sc, Mathematics & Computer Science** · *2019*
Graduate coursework in abstract algebra, compilers, and computer graphics.
Built Fructure and Containment Patterns as independent study advised by Gary Baumgartner.
Researched variational analysis of SPLs with Marsha Chechik & Ramy Shanin, including SpyShare.

Funding

ARIA Safeguarded AI · **Lead Co-Investigator on Research Grant** · *2025 - Now*
Researching and prototyping an orchestration layer & computational commons to support collaboration with autonomous AI researchers on safety-critical cyberphysical applications

Industry

TODAQ Toronto · **Full-stack development in Clojure** · *2019 - 2020 (2 years)*
Designed new front-end interfaces to sharpen the materiality of distributed digital assets.
Implemented core back-end features for a decentralized digital asset management protocol

Speaking

Invited speaker at RacketCon · *2019* · *Salt Lake City* · *Recorded Talk* · *Slides*
Introduced Fructure, a prototype structured interaction engine for edit-time term-rewriting

Accepted speaker at OOPSLA · *2024* · *Los Angeles* · *Recorded Talk* · *Slides*
Presented work on providing semantic context to language models using typed holes

Accepted speaker at Midwest PL Summit · *2023* · *Ann Arbor* · *Slides*
Progress report on type-directed prompt construction for LLM-powered code completion

Accepted speaker at VL/HCC · *2022* · *Rome* · *Recorded Talk* · *Slides*
Presented an integrative human-centered architecture for interactive programming assistants

Guest Lecturer · *2023 & 2022* · *University of Michigan* · *2023 talk* · *2022 talk*
Introduction to metaprogramming featuring Racket for EECS490 - Programming Languages

Conferences

Programming Committee Member · 2025 LIVE + HATRA · 2024 LIVE + Onward! + HATRA

Student Volunteer · 2021 SPLASH/OOPSLA

Seat Filler · 2025 ARIA Safeguarded AI Summit x2 + Ink & Switch London Social
2024 Ink & Switch Unconf + OOPSLA + LIVE + HATRA + Gradient Retreat
2023 MWPLS + Local First + Fission TrainJam + Strange Loop + Gradient Retreat + Causal Islands
2020 - 2022 VL/HCC + Gradient Retreat + SPLASH/OOPSLA + HATRA + LIVE
2018 - 2019 Racket Summer School + Clojure North + OPLSS + ICFP + Strange Loop + RacketCon

Teaching

Course Development · *2022 - Now* · *University of Michigan*
Led engineering on the Hazel software exercises platform; developed assignments for EECS490

Course Development · *Summer 2018* · *University of Toronto*
Designed course materials for CSC324 including mini algebraic stepper + pattern matching language

Teaching Assistantship · *2018 - Now* · *Universities of Michigan & Toronto*

2023, 2022, 2021	University of Michigan	EECS490: Programming Languages
2019, *2x* 2018, 2017	University of Toronto	CSC324: Principles of Programming Languages
2018	University of Toronto	CSC104: Introduction to Computational Thinking

Mentorship

Russell Rozenbaum & Cyrus Desai — Structured editing for LLMs · *2024 - Now*
Enriching agentic AI coding harnesses with contextual semantic editing actions

June (Jacob) Kim — Typed hole filling with LLMs in TypeScript · *2024 - 2025*
Extracting semantic context for prompt construction using the TypeScript language server

Xiang (Kevin) Li — Type-constrained LLM code completion via token masking · *2023 - 2024*
Modifying LLM decoding to enforce semantic as well as syntactic invariants

Zachary Eichenberger & Eric Fan — Semantic editing + deep reinforcement learning · *2021 - 2023*
Typed structured editing for RL using graph neural networks; co-mentorship with Ethan Brooks

Yash Gaitonde — Interfaces for live feedback in teaching IDEs · *2021 - 2022*
Implementing live test feedback in the Hazel IDE, deployed to a class of 100 undergraduates

Mousefeel Research

Investigations in adding juice and gamefeel to algebraic user interfaces · *2022 - Now*
Figuring out how tangibility impacts explorability in math and coding with nool and furl