

# 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 filing 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](#)