

Michael B. James

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Research Interests

I am interested in *Programming Languages* in the context of *Program Synthesis* and *Human-Computer Interactions*. Languages and their tools are how programmers bridge the gap between their goal and their system's abilities. I work to make *usability* automatic program generation tools to bridge that gap, allowing programmers complete their task faster, safer, and more simply.

Education

University of California, San Diego

Ph.D., Computer Science, 2018-*present*.

M.S., Computer Science, 2021.

Advisor: Nadia Polikarpova

Fields: Programming Languages, Program Synthesis, Human-Computer Interactions

Tufts University

B.S., Computer Science, 2015.

Publications

Grounded Copilot: How Programmers Interact with Code-Generating Models.

Shraddha Barke*, Michael B. James*, Nadia Polikarpova. *Under Review*. October 2022.

Program Recognition in Synthesis. Michael B. James, Nadia Polikarpova. *PLATEAU*. November 2021.

Digging for Fold: Synthesis-aided API Discovery for Haskell. Michael B. James, Zheng Guo, Ziteng Wang, Shivani Dosh, Hila Peleg, Ranjit Jhala, Nadia Polikarpova *OOPSLA*. November 2020.

Program Synthesis by Type-Guided Abstraction Refinement. Zheng Guo, Michael B. James, David Justo, Jiaxiao Zhou, Ziteng Wang, Ranjit Jhala, Nadia Polikarpova *47th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2020)*. January 2020.

Work Experience

Research Intern

Microsoft, Remote, Summer 2022

Mentors: Arjun Raghakrishna, Gustavo Soares

Prototyped novel interactive program synthesis tool

Software Engineer II

Jana Mobile, Boston, Massachusetts, Feb 2017 - Jun 2018

2018 Created mobile anti-fraud mechanisms and data collection streams

2017 managed data scientists' data collection APIs

Software Engineer I

Uber Technologies, San Francisco, Jul 2015 - Dec 2016

2016 Lead team migration to golang, through anti-fraud miroservice

2015 Owned business.uber.com. Migrated to React, using FRP styles

Elm Intern

Prezi, Budapest, Hungary, Summer 2014

Mentor: Evan Czaplicki

Built first interactive, time-traveling debugger for Elm-lang.

This was the first such production tool for any language.

Skills

Haskell, Python, Javascript, Go, Java, C, Bash, Elm, Functional Programming, React, Redux, Human-subject study design & execution

Talks

Program Recognition in Synthesis

2021 - PLATEAU 2021 (Carnegie Mellon University)

Digging for Fold: Synthesis-aided API Discovery for Haskell

2021 - OOPSLA 2021 (Chicago)

2020 - OOPSLA 2020 (virtual)

Component-based Type Driven Synthesis

2019 - University of California, San Diego

Teaching

Graduate Teaching Assistant

Fall 2023. UC San Diego.

Supervisor: Nadia Polikarpova

Course: graduate-level programming languages.

Graduate Teaching Assistant

Spring 2022, Spring 2021, Fall 2019. UC San Diego.

Supervisor: Nadia Polikarpova

Course: undergraduate intro-to-programming languages.

Undergraduate Teaching Assistant

Tufts University, Fall 2014

Supervisor: Kathleen Fisher

Course: undergraduate intro-to-programming-languages

Service

PLDI Student Volunteer Co-Chair 2023-24

PLDI Student Volunteer 2022

ICFP Artifact Evaluation Committee 2021

ICFP Artifact Evaluation Committee 2020