

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 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, 2018-2023 (*expected*)

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. *OOPSLA*. October 2023.

Live Exploration of AI-Generated Programs

Kasra Ferdowsi*, Ruanqianqian (Lisa) Huang*, **Michael B. James**, Nadia Polikarpova, Sorin Lerner. *ArXiv*. June 2023.

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 go lang, through anti-fraud microservice

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

PLDI Student Volunteer 2022

ICFP Artifact Evaluation Committee 2021

ICFP Artifact Evaluation Committee 2020