# Rohan Bavishi

rohan.bavishi95@gmail.com
rbavishi.github.io
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## Education

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|---|---|
| 2017-2022 | **University of California, Berkeley, Ph.D. in Computer Science**<br>*Area: Programming Systems* |
| 2017-2019 | **University of California, Berkeley, Master's in Computer Science**<br>*GPA: 4.0/4.0* |
| 2013-2017 | **Indian Institute of Technology, Kanpur, B.Tech. in Computer Science and Engineering**<br>*GPA: 9.8/10* |

## Research Interests

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| Areas | Programming Languages, Software Engineering, Systems |
| Topics | Program Synthesis, Code Recommendation, Dynamic Program Analysis |

## Work Experience

**Amazon AGI Autonomy, Member of Technical Staff**

Jun 2024 to Present

- Powered third-party integrations in Alexa with automation technology built at Adept
- Conducted research on new language model pretraining architectures for inter-modality transfer
- Developed infrastructure for agent reinforcement learning and researched novel algorithms for web agents.

**Adept AI Labs, Research Scientist**

Sep 2022 to Jun 2024

- Researched and contributed to the development of novel multimodal foundation model architectures and data pipelines, resulting in the Fuyu-8B and Fuyu-Heavy releases.
- Co-led post-training for computer use agents, including core modeling, evaluation design, and annotator data pipeline design
- Led the design and development of the Adept Workflow Language (AWL) that combines the power of multimodal models with the precision of programming languages to help specify complex workflows.

## Dissertations

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|---|---|
| Ph.D. Thesis 2019 | **Tools and Techniques for Building Programming Assistants for Data Analysis**<br>**Rohan Bavishi** (Advisor: Koushik Sen) |
| Master's Thesis 2019 | **Neural-Backed Generators for Program Synthesis**<br>**Rohan Bavishi** (Advisor: Koushik Sen) |

## Publications

### Peer-reviewed Conference Papers

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|---|---|
| OOPSLA 2022 | **Neurosymbolic Repair for Low-Code Formula Languages**<br>**Rohan Bavishi**, Harshit Joshi, Jose Cambronero, Anna Fariha, Sumit Gulwani, Vu Le, Ivan Radicek, Ashish Tiwari<br>*ACM Int'l Conference on Object Oriented Programming Systems Languages and Applications (OOPSLA) 2022* |
| ASE 2021 | **VizSmith: Automated Visualization Synthesis by Mining Data-Science Notebooks**<br>**Rohan Bavishi**, Shadaj Laddad, Hiroaki Yoshida, Mukul R. Prasad, and Koushik Sen<br>*36th IEEE/ACM International Conference on Automated Software Engineering (ASE) 2021* |
| OOPSLA 2021 | **Gauss: Program Synthesis by Reasoning over Graphs**<br>**Rohan Bavishi**, Caroline Lemieux, Koushik Sen, and Ion Stoica |

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|---|---|
| | *ACM Int'l Conference on Object Oriented Programming Systems Languages and Applications (OOPSLA) 2021* |
| | **AutoPandas: Neural-Backed Generators for Program Synthesis** |
| OOPSLA 2019 | **Rohan Bavishi**, Caroline Lemieux, Roy Fox, Koushik Sen, and Ion Stoica |
| | *ACM Int'l Conference on Object Oriented Programming Systems Languages and Applications (OOPSLA) 2019* |
| ICSE 2020 (Tool Paper) | **Phoenix: A Tool for Automated Data-Driven Synthesis of Repairs for Static Analysis Violations** |
| | Hiroaki Yoshida, **Rohan Bavishi**, Keisuke Hotta, Yusuke Nemoto, Mukul R. Prasad, and Shinji Kikuchi |
| | *ACM/IEEE 42nd International Conference on Software Engineering (ICSE) 2020* |
| FSE 2019 | **Phoenix: Data-Driven Synthesis of Repairs for Static Analysis Violations** |
| | **Rohan Bavishi**, Hiroaki Yoshida, and Mukul R. Prasad |
| | *ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) 2019* |
| OOPSLA 2016 | **To Be Precise: Regression Aware Debugging** |
| | **Rohan Bavishi**, Awanish Pandey, and Subhajit Roy |
| | *ACM Int'l Conference on Object Oriented Programming Systems Languages and Applications (OOPSLA) 2016* |

### Workshop Papers

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|---|---|
| NeurIPS 2021 | **Neural Inference of API Functions from Input–Output Examples** |
| | **Rohan Bavishi**, Caroline Lemieux, Neel Kant, Roy Fox, Koushik Sen, and Ion Stoica |
| | *Workshop on ML for Systems at NeurIPS 2018* |
| Mobile! 2016 | **Regression Aware Debugging for Mobile Applications** |
| | **Rohan Bavishi**, Awanish Pandey, and Subhajit Roy |
| | *International Workshop on Mobile Development (Mobile!) 2016* |

### Other

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| arXiv 2018 | **Context2Name: A Deep Learning-Based Approach to Infer Natural Variable Names from Usage Contexts** |
| | **Rohan Bavishi**, Michael Pradel, and Koushik Sen |

## Patents

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|---|---|
| 2022 | **Language-agnostic computer program repair engine generator** |
| | **Rohan Bavishi**, José Cambronero, Anna Fariha, Sumit Gulwani, Vu Minh Le, Ivan Radicek, Daniel Galen Simmons, Ashish Tiwari |
| 2020 | **Data-Driven Synthesis of Fix Patterns** |
| | **Rohan Bavishi**, Hiroaki Yoshida, and Mukul R. Prasad |

## Teaching Experience

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|---|---|
| 2017, 2022 | **University of California, Berkeley** |
| | *CS 70 – Discrete Mathematics and Probability Theory, Graduate Student Instructor (Spring 2022)* |
| | *CS 164 – Compilers (Undergraduate), Head Graduate Student Instructor (Fall 2017)* |
| 2016-2017 | **Indian Institute of Technology, Kanpur** |
| | *ESC 101 – Fundamentals of Computing (Undergraduate), Head Teaching Assistant (Spring 2017)* |
| | *ESC 101 – Fundamentals of Computing (Undergraduate), Head Teaching Assistant (Fall 2016)* |

## Service

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|---|---|
| 2024-25 | **Program Committee,** OOPSLA 2025 |
| 2025 | **Program Committee,** SPLASH Student Research Competition 2025 |
| 2021 | **Subreviewer,** PLDI 2022, ICSE 2022 |
| 2020 | **Subreviewer,** POPL 2021, ISSTA 2020 |
| 2019 | **Subreviewer,** ICST 2020, |

| 2020 | **Artifact Evaluation Committee,** PLDI 2020 |
| 2020 | **Artifact Evaluation Committee,** OOPSLA 2020 |
| 2018 | **Subreviewer,** ASE 2018, CAV 2018 |
| 2017 | **Subreviewer,** ASPLOS 2018, PLDI 2018 |