

Saswat PADHI

Senior SWE, Google LLC

📍 Google TM-2, San Jose, CA

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Interest: Software infra ; building **high-performance systems** with strong **reliability guarantees**.

Employment






- Google** Senior Software Engineer Sep '22 — Present
San Jose, CA chromeOS Performance • chromeOS
Investigating performance bottlenecks across critical user journeys on chromeOS devices.
- Amazon** Applied Scientist II Aug '20 — Sep '22
Boston, MA Automated Reasoning Group (ARG) • Amazon Web Services (AWS)
Led the *inductive proofs* effort: mathematically proving correctness of loops in C • Built and extended several compiler and verifier primitives • Delivered correctness proofs for multiple AWS projects • Worked with product teams to fix discovered bugs • Mentored 3 PhD interns
- Microsoft** Research SDE (Part-Time Contract) Oct '17 — Aug '18
Remote Research in Software Engineering (RiSE) • Microsoft Research (MSR)
Designed a neural approach to identify *data frames* in Excel • Implemented a neural network (CNN) with near-human accuracy • Prototyped a data-driven *formula recognition* feature

Education




- Ph. D.** Computer Science (Advisor: [Prof. Todd Millstein](#)) Fall '14 — Spring '20
University of California, Los Angeles (UCLA) • CA, USA
- B. Tech.** Computer Science and Engineering (with Honors) Fall '10 — Spring '14
Indian Institute of Technology, Bombay (IIT-B) • India

Publications




Journals & Conference Proceedings

- 1C • **PLDI '20** Data-Driven Inference of Representation Invariants. 
A Miltner, S Padhi, T Millstein, D Walker.
41st ACM SIGPLAN Conf. on Programming Language Design and Implementation Proc., pages 1 – 15.
([ACM SIGPLAN Distinguished Paper Award](#))
- 2C • **CAV '19** Overfitting in Synthesis: Theory and Practice. 
S Padhi, T Millstein, A Nori, R Sharma.
31st Intl. Conf. on Computer-Aided Verification Proc., pages 315 – 334.
- 3C • **CC '19** A Static Slicing Method for Functional Programs and Its Incremental Version. 
P Kumar, A Sanyal, A Karkare, S Padhi.
28th Intl. Conf. on Compiler Construction Proc., pages 53 – 64.
- 4J • **OOPSLA '18** FlashProfile: A Framework for Synthesizing Data Profiles. 
S Padhi, P Jain, D Perelman, O Polozov, S Gulwani, T Millstein.
Proceedings of the ACM on Programming Languages 2 (OOPSLA), 2018, pages 150:1 – 128.
- 5C • **PLDI '16** Data-Driven Precondition Inference with Learned Features. 
S Padhi, R Sharma, T Millstein.
37th ACM SIGPLAN Conf. on Programming Language Design and Implementation Proc., pages 42 – 56.

Workshops & Industrial Case Studies

- 6C • **NeurIPS '23** Predicting User Experience on Laptops from Hardware Specifications. 
(ML4Sys) S Padhi, S Bhasin, U K Ammu, A Bergman, A Knies.
NeurIPS 2023 Workshop on Machine Learning for Systems.
([Invited for Oral Spotlight Presentation](#))
- 7C • **CAV '23** Automated Analyses of IoT Event Monitoring Systems. 
A Apicellii, S Bayless, A Das, A Gacek, D Jaganathan, S Padhi, V Sharma, M Whalen, R Yadav.
35th Intl. Conf. on Computer-Aided Verification Proc., pages 27 – 39.
- 8C • **NeurIPS '20** OASIS: ILP-Guided Synthesis of Loop Invariants. 
(CAP) S Bhatia, S Padhi, N Natarajan, R Sharma, P Jain.
NeurIPS 2020 Workshop on Computer-Assisted Programming.

Patents & Applications

- 9G • **Microsoft** Record Profiling for Dataset Sampling. 
D G Simmons, K D J Grealish, S Gulwani, R Kumar, K M Ellis, S Padhi.
([US 10394874 B2](#))
- 10G • **Microsoft** Syntactic Profiling of Alphanumeric Strings. 
S Gulwani, P Jain, D A Perelman, S Padhi, O Polozov.
([US 10394874 B2](#) • [US 11210327 B2](#))
- 11A • **Microsoft** Systems, Methods, and Computer-Readable Media for Improved Table Identification Using a Neural Network. 
B Zorn, M M J Brockschmidt, P Choudhury, O Polozov, R Singh, S Padhi.
([US 20200019603 A1](#))

Selected Awards

UCLA	Outstanding Research in CS Award	2020
PLDI	ACM SIGPLAN Distinguished Paper Award	2020
UCLA	Dissertation-Year Fellowship	2019 – 2020
SyGuS, FLoC	Invariant Synthesis (Inv) Competition Winner	2017, 2018
Microsoft	PhD Fellowship	2017 – 2019

Invited Talks

NeurIPS '23 (ML4Sys)	Predicting User Experience on Laptops from Hardware Specifications. New Orleans, LA	Dec '23
CAV '19	Overfitting in Synthesis: Theory and Practice. New York City, NY	Jul '19
OOPSLA '18	FlashProfile: A Framework for Synthesizing Data Profiles. Boston, MA	Nov '18
PLDI '16	Data-Driven Precondition Inference with Learned Features. Santa Barbara, CA	Jun '16

Academic Service

Program Committee	PLDI (2021), SYNT (at CAV) (2021), DebugML (at ICLR) (2019), SyGuS-Comp (2019 – 2021)
Invited Reviewer	FoSSaCS (2022), TSE (2021), PLDI (2020), CAV (2019), ISEC (2019)
Artifact Committee	OOPSLA (2018, 2019), POPL (2020), SAS (2019)