

# Saswat PADHI

Applied Scientist, Amazon Inc.

📍 BOS17 - Amazon, Boston, MA

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Computer scientist with background in programming languages, software verification, statistical learning, and program synthesis. Interested in all aspects of design and implementation of **high-performance systems that provide strong correctness guarantees**.

## Employment

- Amazon** Applied Scientist II  
(Boston, MA) Proof Platforms • Automated Reasoning Group (ARG) Aug '20 — Present
- Microsoft** Research SDE (Part-Time)  
(Remote) Research in Software Engineering (RiSE) • Microsoft Research Nov '17 — Jun '18

## 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*

## Selected Awards

- 2020 “Outstanding Research in CS” award from UCLA (sponsored by Symantec)
- 2020 “ACM SIGPLAN Distinguished Paper” award at the 41<sup>st</sup> PLDI conference
- 2019 — 2020 Dissertation-year fellowship from UCLA
- 2017, 2018 Winner of the invariant inference (Inv) track of [Syntax-Guided Synthesis Competition](#)  
(Received a FLoC Olympic Games medal at the [2018 Federated Logic Conference](#) in UK)
- 2017 — 2019 [PhD fellowship](#) from Microsoft Research

## Publications

### *Journals & Conferences Proceedings*

- 1C • **PLDI '20** Data-Driven Inference of Representation Invariants.  
Anders Miltner, Saswat Padhi, Todd Millstein, and David Walker.  
[📄](#) *Proceedings of the 41<sup>st</sup> ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI 2020*, pages 1 – 15, ACM (2020).
- 2C • **CAV '19** Overfitting in Synthesis: Theory and Practice.  
Saswat Padhi, Todd Millstein, Aditya Nori, and Rahul Sharma.  
[📄](#) *Proceedings of the 31<sup>st</sup> International Conference on Computer-Aided Verification, CAV 2019*, pages 315 – 334, Springer (2019).
- 3C • **CC '19** A Static Slicing Method for Functional Programs and Its Incremental Version.  
Prasanna Kumar K., Amitabha Sanyal, Amey Karkare, and Saswat Padhi.  
[📄](#) *Proceedings of the 28<sup>th</sup> International Conference on Compiler Construction, CC 2019*, pages 53 – 64, ACM (2019).
- 4J • **OOPSLA '18** FlashProfile: A Framework for Synthesizing Data Profiles.  
Saswat Padhi, Prateek Jain, Daniel Perelman, Oleksandr (Alex) Polozov, Sumit Gulwani, and Todd 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.  
Saswat Padhi, Rahul Sharma, and Todd Millstein.  
[📄](#) *Proceedings of the 37<sup>th</sup> ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI 2016*, pages 42 – 56, ACM (2016).

## Patents Grants & Applications

- 6G • US 10394874 B2 **Record Profiling for Dataset Sampling.**  
D G Simmons, K D J Grealish, S Gulwani, R Kumar, K M Ellis, S Padhi.
- 7G • US 10394874 B2 **Syntactic Profiling of Alphanumeric Strings.**  
S Gulwani, P Jain, D A Perelman, S Padhi, O Polozov.
- 8A • US 20200019603 A1 **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.

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## Work Experience

- Princeton Univ.** Verifying Data Structure Implementations Apr '19 – Jun '19  
(Visiting Student RA) with *Prof. David Walker*, PL Group • Princeton, NJ
- Microsoft** Mitigating Overfitting in Program Synthesis Sep '18 – Mar '19  
(Intern) with *Rahul Sharma*, Systems Group • Bengaluru, India
- Microsoft** Recovering Data Frames and Formulas in Spreadsheets Jun '17 – Jun '18  
(Intern) with *Ben Zorn*, RiSE Group • Redmond, WA
- Microsoft** Synthesizing Pattern-Based Profiles for String Datasets Jun '16 – Dec '16  
(Intern) with *Sumit Gulwani*, PROSE Group • Redmond, WA
- UCLA** Automated Synthesis of Specifications and Invariants Sep '14 – Jun '20  
(Graduate RA) with *Prof. Todd Millstein*, PL and SE Lab • Los Angeles, CA
- IITB** Lazy Static Slicing of Functional Programs Sep '13 – Apr '14  
(Undergraduate RA) with *Prof. Amitabha Sanyal*, Compilers Group • Mumbai, India
- Google** Automated Testing of Components in Omega Cluster Scheduler May '13 – Jul '13  
(Intern) with *Smeeta Jalan*, Technical Infrastructure Team • Mountain View, CA
- TU-Br** Estimating Topical Similarity of Scientific Documents May '12 – Jul '12  
(Intern) with *Prof. Wolf-Tilo Balke*, Institut für Informationssysteme • Germany

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## Academic Service

- PC** Program Committee Member  
PLDI (2021), SYNT (at CAV) (2021), DebugML (at ICLR) (2019)
- Reviewer** External Reviewer for Research Papers  
CAV (2019), ISEC (2019), PLDI (2020), TSE (2021)
- AEC** Artifact Evaluation Committee Member  
OOPSLA (2018, 2019), POPL (2020), SAS (2019)
- OC** Organizing Committee Member  
SyGuS-Comp (since 2019)

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## Teaching

- UCLA** Graduate Teaching Assistant Spring '16 • Fall '14  
*Programming Languages*
- IITB** Abstractions and Paradigms in Programming Spring '14  
*Undergraduate Teaching Assistant*
- IITB** Computer Programming and Utilization Fall '13 • Fall '11  
*Undergraduate Teaching Assistant*