

ADWAIT GODBOLE

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Research Interests: Formal Methods, Automated Reasoning, Hardware/Software Security, Synthesis

EDUCATION

University of California, Berkeley, Berkeley, USA Ph.D in Computer Science (<i>advised by Prof. Sanjit A. Seshia</i>)	2020 - current GPA: 3.96/4
Indian Institute of Technology Bombay, Mumbai, India Bachelor of Technology in Computer Science and Engineering with Honors	2016 - 2020 GPA: 9.67/10

EXPERIENCE

Intel Labs, Hillsboro, Oregon Security Researcher Internship (<i>with Carlos Rozas</i>)	May - Aug 2024
Intel Labs, Hillsboro, Oregon Formal Verification Internship (<i>with Jin Yang</i>)	May - Aug 2022
Algorithms Profit Trust, Delhi, India Quantitative Trading Researcher (Full Time)	May - Aug 2020
Uppsala University, Uppsala, Sweden Research Internship (<i>with Parosh A. Abdulla</i>)	May - Aug 2019
INRIA, Rennes, France Research Internship (<i>with Blaise Genest</i>)	May - Aug 2018

PEER-REVIEWED PUBLICATIONS

- Manish Shetty[‡], Naman Jain[‡], **Adwait Godbole**[‡], Sanjit A. Seshia[†], Koushik Sen[†]. Syzygy: Dual Code-Test C to (safe) Rust Translation using LLMs and Dynamic Analysis. (to appear) The 2nd International Workshop on Large Language Models for Code (LLM4Code) at ICSE, 2025.
- **Adwait Godbole**, Yatin A. Manerkar, Sanjit A. Seshia. SemPat: Using Hyperproperty-based Semantic Analysis to Generate Attack Patterns. The 31st ACM Conference on Computer and Communications Security (ACM CCS), 2024.
- **Adwait Godbole**, Kevin Cheang, Yatin A. Manerkar, Sanjit A. Seshia. Lifting Micro-Update Models from RTL for Formal Security Analysis. The 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2024.
- Chase Norman, **Adwait Godbole** and Yatin A. Manerkar. PipeSynth: Automated Synthesis of Microarchitectural Axioms for Memory Consistency. The 28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2023.
- Jeremy Casas, Zhenkun Yang, Wen Wang, **Adwait Godbole**, Jin Yang. Towards A Formally Verified Fully Homomorphic Encryption Compute Engine. The 60th ACM/IEEE Design Automation Conference (DAC), 2023.
- **Adwait Godbole**, Leiqi Ye, Yatin A. Manerkar, Sanjit A. Seshia. Modelling and Verifying Security Oriented Resource Partitioning Schemes. 23rd Conference on Formal Methods in Computer-Aided Design (FMCAD), 2023.
- Parosh Aziz Abdulla¹, Mohamed Faouzi Atig, **Adwait Godbole**, Shankaranarayanan Krishna, Mihir Vahanwala. Overcoming Memory Weakness with Unified Fairness - Systematic Verification of Liveness in Weak Memory Models. The 35th International Conference on Computer Aided Verification (CAV), 2023.

¹ Authors in alphabetical order [‡] Equal Contribution [†] Equal Advising

- Parosh Aziz Abdulla¹, Mohamed Faouzi Atig, Florian Furbach, **Adwait Godbole**, Yacoub G. Hendi, Shankara Narayanan Krishna, Stephan Spengler. Parameterized Verification under TSO with Data Types. The 29th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2023.
- **Adwait Godbole**, Yatin A. Manerkar and Sanjit A. Seshia. Automated Conversion of Axiomatic to Operational Models: Theory and Practice. The 22nd Conference on Formal Methods in Computer-Aided Design (FMCAD), 2022. **Invited to special issue as one of the best papers of FMCAD 2022.**
- Elizabeth Polgreen, Kevin Cheang, Pranav Gaddamadugu, **Adwait Godbole**, Kevin Laeuffer, Shaokai Lin, Yatin A. Manerkar, Federico Mora and Sanjit A. Seshia. UCLID5: Multi-Modal Formal Modeling, Verification, and Synthesis. The 34th International Conference on Computer Aided Verification (CAV), August 2022.
- **Adwait Godbole**, Krishna S., Roland Meyer and Soham Sundar Chakraborty. Parameterized Verification under Release Acquire is PSPACE-complete. Proceedings of the 2022 ACM Symposium on Principles of Distributed Computing (PODC), 2022.
- Abdulla, Parosh Aziz¹, Mohamed Faouzi Atig, Raj Aryan Agarwal, **Adwait Godbole** and S. Krishna. Probabilistic Total Store Ordering. 31st European Symposium on Programming (ESOP), 2022.
- Abdulla, Parosh Aziz¹, Mohamed Faouzi Atig, **Adwait Godbole**, S. Krishna and Viktor Vafeiadis. The Decidability of Verification under PS 2.0. 30th European Symposium on Programming (ESOP), 2021.
- Figueira, Diego, **Adwait Godbole**, Shankara Narayanan Krishna, Wim Martens, Matthias Niewerth and Tina Trautner. Containment of Simple Conjunctive Regular Path Queries. International Conference on Principles of Knowledge Representation and Reasoning (KR), 2020.
- Nathalie Bertrand, Miheer Dewaskar, Blaise Genest, Hugo Gimbert, **Adwait Godbole**. Controlling a Population. LMCS Volume 15, Issue 3, 2019.

TALKS

- Hyperproperty-based Microarchitectural Security Verification @ HYPER Workshop, CAV, July 2024 (Montreal)
- Lifting Abstractions from RTL for Security Analysis @ Programming Languages Group, NUS, June 2024 (Remote)
- Generating Patterns from Hyperproperties for Scalable Microarchitectural Security Verification @ **SLICE** Retreat, May 2024 (Half Moon Bay)
- Interposing Specifications for Verification at the HW/SW Interface @ Systems Group, ETH Zurich, October 2023 (Remote)
- Formal Verification and Synthesis at the HW/SW Interface @ **SLICE** Retreat, May 2023 (Napa)
- Parameterized Verification under Release Acquire @ **YR-OWLS**, June 2021 (Remote)

TEACHING/LECTURING²

CS 70 - Discrete Mathematics and Probability	Jan 2024 - May 2024 UC Berkeley
EECS 219C - Formal Methods: Specification, Verification, and Synthesis (lectured on Syntax Guided Synthesis, Hyperproperties)	Spring 2024 UC Berkeley
CS 251B - Introduction to Digital Design and Integrated Circuits (lectured on Design Verification)	Spring 2023 UC Berkeley
CS 172 - Computability and Complexity	Jan 2022 - May 2022 UC Berkeley
CS 310 - Automata Theory	Jan 2020 - April 2020 IIT Bombay
CS 218 - Design and Analysis of Algorithms	Jan 2019 - April 2019 IIT Bombay
PH 107 - Quantum Physics and Applications	July 2017 - Nov 2017 IIT Bombay

MENTORING³

Alex Sanchez (currently a Masters student at UC Berkeley)
 Leiqi Ye (now a Ph.D. student at the University of Edinburgh)
 Viansa Schmulbach (now a Ph.D. student at MIT), jointly with **Kevin Cheang**
 Chase Norman (now a Ph.D. student at CMU), jointly with **Yatin A. Manerkar**

²Was a Graduate Student Instructor/TA except for the lecturing items.

³In reverse chronological order

SERVICE

Professional

Paper Sub-reviewer for TACAS 2024, LICS 2024, RV 2023, EMSOFT 2023, CAV 2021

Artifact Reviewer for CAV 2024, PLDI 2024

Community

[Equal Access to Application Assistance](#) - Application Reviewer (2022/23/24)

[Berkeley Math Circle](#) (for school students) - Volunteer Instructor (2024/25)

[EECS, UC Berkeley Visit Days](#) - Volunteer (mixed including CPS+DA Area Leader, 2022/23/24)

[Department Academic Mentor, CSE, IIT Bombay](#) - Mentor (multiple batches of students, 2018/19/20)

SCHOLASTIC ACHIEVEMENTS

- Awarded the IEEE PES IPISA Scholarship (2016)
- Indian National Math Olympiad Awardee (2015)
- Recipient of the KVPY Scholarship (2015, 2016)
- Recipient of the NTSE (National Talent Search Examination) Scholarship (2012)

REFERENCES

Sanjit A. Seshia (Ph.D. Advisor)

Professor, EECS, UC Berkeley

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Yatin A. Manerkar

Assistant Professor, University of Michigan

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Alvin Cheung

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Chris Fletcher

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