ADWAIT GODBOLE

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Research Interests: Automated Reasoning and Synthesis, HW/SW Security, Neuro-Symbolic Techniques

EDUCATION

University of California, Berkeley, *Berkeley, USA* 2020 - 2026
Ph.D in Computer Science (*advised by Prof. Sanjit A. Seshia*) **GPA: 3.96/4**
Dissertation: *Synthesis-Enabled Reasoning: Scalable Automated Formal Verification for Hardware-Software Security*

Indian Institute of Technology Bombay, *Mumbai, India* 2016 - 2020
Bachelor of Technology in Computer Science and Engineering with Honors **GPA: 9.67/10**

EXPERIENCE

Aretta AI, Inc., *San Francisco Bay Area* Apr 2026 - present
Co-Founder and Chief Technology Officer

Amazon Inc., *Austin, Texas* May - Aug 2025
Automated Reasoning Research Intern (*with Shilpi Goel, Jim Grundy*)

Intel Labs, *Hillsboro, Oregon* May - Aug 2024
Security Research Intern (*with Carlos Rozas*)

Intel Labs, *Hillsboro, Oregon* May - Aug 2022
Formal Verification Intern (*with Jin Yang*)

Algorithms Profit Trust, *Delhi, India* May - Aug 2020
Quantitative Trading Researcher (Full Time)

Uppsala University, *Uppsala, Sweden* May - Aug 2019
Research Intern (*with Parosh A. Abdulla*)

INRIA, *Rennes, France* May - Aug 2018
Research Intern (*with Blaise Genest*)

PEER-REVIEWED PUBLICATIONS

- Ameesh Shah, William Chen, **Adwait Godbole**, Federico Mora, Sanjit A. Seshia, Sergey Levine. Learning Affordances at Inference-Time for Vision-Language-Action Models. 2026 IEEE International Conference on Robotics and Automation (ICRA), 2026.
- Pei-Wei Chen, Shaokai Lin, **Adwait Godbole**, Ramneet Singh, Elizabeth Polgreen, Edward A. Lee, Sanjit A. Seshia. PolyVer: A Compositional Approach for Polyglot System Modeling and Verification. 25th Conference on Formal Methods in Computer-Aided Design (FMCAD), 2025.
- **Adwait Godbole**, Brian Huffman, Fangfei Liu, Carlos Rozas, Sanjit A. Seshia. PyCaliper: Python-Embedded Infrastructure for RTL Verification and Specification Synthesis. The 37th International Conference on Computer-Aided Verification (CAV) 2025.
- 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. The 2nd International Workshop on Large Language Models for Code (LLM4Code) at ICSE, 2025.

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

- **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**, 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.
- Parosh Aziz Abdulla[1], Mohamed Faouzi Atig, **Adwait Godbole**, Shankaranarayanan Krishna, Mihir Vahanwala. Fairness and Liveness under Weak Consistency. In *Taming the Infinities of Concurrency: Essays Dedicated to Javier Esparza*, Springer LNCS, 2024. *(invited chapter)*
- 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 Abdulla[1], 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.
- Parosh Aziz Abdulla[1], 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 Laeufer, 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 Aziz[1], Mohamed Faouzi Atig, Raj Aryan Agarwal, **Adwait Godbole** and S. Krishna. Probabilistic Total Store Ordering. 31st European Symposium on Programming (ESOP), 2022.
- Abdulla, Parosh Aziz[1], 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.

PREPRINTS

- 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 (2025).
- Kevin Cheang, **Adwait Godbole**, Yatin A. Manerkar, Sanjit A. Seshia. Compositional Proofs of Information Flow Properties for Hardware-Software Platforms (2023).

SCHOLASTIC ACHIEVEMENTS

- Awarded the C.V. & Daulat Ramamoorthy Distinguished Research Award, EECS, UC Berkeley (2024-25; one awardee per year)
- Awarded the Berkeley RDI Fellowship (2024-25)
- 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)

TALKS

- PyCaliper: Python-embedded DSL for RTL Verification and Specification Synthesis @ Intel Academic Security Conference, September 2025 (Hillsboro, Oregon)
- PyCaliper: Python-Embedded Infrastructure for RTL Verification and Specification Synthesis @ CAV 2025, July 2025 (Zagreb, Croatia)
- SemPat: From Hyperproperties to Attack Patterns for Scalable Microarchitectural Security Analysis @ HYPER Workshop, CAV, July 2025 (Zagreb, Croatia)
- PyCaliper: Python-embedded DSL for RTL Verification and Specification Synthesis @ SLICE Retreat, January 2025 (Santa Cruz, California)
- SemPat: From Hyperproperties to Attack Patterns for Scalable Microarchitectural Security Analysis @ Intel Scalable Assurance Workshop, September 2024 (Hillsboro, Oregon)
- Hyperproperty-based Microarchitectural Security Verification @ HYPER at CAV, July 2024 (Montreal)
- Lifting Abstractions from RTL for Security Analysis @ PL Group, NUS, June 2024 (Remote)
- Generating Attack Patterns 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)
- Parameterized Verification under Release Acquire @ YR-OWLS, June 2021 (Remote)

TEACHING/LECTURING[2]

CS 70 - **Discrete Mathematics and Probability** *Jan 2024 - May 2024* | *UC Berkeley*
EECS 219C - **Formal Methods: Specification, Verification, and Synthesis** *Spring 2024* | *UC Berkeley*
(lectured on Syntax Guided Synthesis, Hyperproperties)
CS 251B - **Introduction to Digital Design and Integrated Circuits** *Spring 2023* | *UC Berkeley*
(lectured on Design Verification)
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*

MENTORING[3]

James Lim (currently an MEng student at UC Berkeley)
Manahil Syeda (currently an MEng student at UC Berkeley)
Yingan Wang (currently an MEng student at UC Berkeley)
Alex Sanchez (now a Research Specialist at UC Berkeley and Software Engineer at Savi Health)
Leiqi Ye (now a Ph.D. student at the University of Edinburgh)

[2] Was a Graduate Student Instructor/TA except for the lecturing items.
[3] In reverse chronological order

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

SERVICE

Professional

Program Committee: ACM CCS 2026, ACM SoCC 2026.

Reviewer: Acta Informatica 2025, VerifAI Workshop @ ICLR 2025.

Artifact Evaluation Committee: CAV 2025, CAV 2024, PLDI 2024.

Sub-reviewer: TACAS 2024, LICS 2024, RV 2023, EMSOFT 2023, CAV 2021.

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)

GRANTS AND FUNDING

DARPA TRACTOR (2025) — ForCLift: automated C to Rust translation ($5M; lead PI Somesh Jha, UW-Madison). Helped develop the funded technical proposal.

Berkeley RDI Fellowship (2024-25) — Securing systems with program synthesis and transpilation.

REFERENCES

Available upon request.