

ARIJIT SHAW

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EDUCATION

Chennai Mathematical Institute, India

2020 - Present

Ph.D. Candidate, Computer Science

Advisor : Kuldeep S. Meel

Committee Members: Armin Biere, B. Srivathsan

Funding Institute : IAI, TCG CREST, Kolkata

Chennai Mathematical Institute, India

2017 - 2019

M.Sc., Computer Science

Thesis: Efficient Software Model Checking for program with Arrays

Thesis Advisor: Mandayam Srivas.

Jadavpur University, Kolkata, India

2013 - 2017

B.E., Computer Science and Engineering

RESEARCH INTERESTS

My research focuses on designing and developing scalable automated-reasoning techniques to enable the construction of resilient, dependable, and secure systems. I am currently investigating the quantitative dimensions of Satisfiability Modulo Theories (SMT), with particular emphasis on extending SMT solvers to support quantitative queries and on devising efficient methods for sampling from their solution spaces.

PUBLICATIONS

Efficient Volume Computation for SMT Formulas

Arijit Shaw, Uddalok Sarkar, Kuldeep S. Meel

Proceedings of International Conference on Knowledge Representation and Reasoning (KR), 2025.

Approximate SMT Counting Beyond Discrete Domains

Arijit Shaw, Kuldeep S. Meel

Proceedings of Design Automation Conference (DAC) 2025

Model Counting in the Wild

Arijit Shaw, Kuldeep S. Meel

Proceedings of International Conference on Knowledge Representation and Reasoning (KR) 2024

CSB: A counting and sampling tool for bit-vectors

Arijit Shaw, Kuldeep S. Meel

Proceedings of International Workshop on Satisfiability Modulo Theories, (SMT) 2024

An Approximate Skolem Function Counter

Arijit Shaw, Brendan Juba, Kuldeep S. Meel

Proceedings of AAAI Conference on Artificial Intelligence (AAAI) 2024

Explaining SAT Solving Using Causal Reasoning

Jiong Yang, Arijit Shaw, Teodora Baluta, Mate Soos, Kuldeep S. Meel

Proceedings of the Theory and Applications of Satisfiability Testing (SAT) 2023

Designing new Phase Selection Heuristics

Arijit Shaw, Kuldeep S. Meel

Proceedings of the Theory and Applications of Satisfiability Testing (SAT) 2020

A Deadline-partition Oriented Heterogeneous Multi-core Scheduler for Periodic Tasks

Sanjay Moulik, Rajesh Devaraj, Arnab Sarkar, Arijit Shaw

Proceedings of international conference on parallel and distributed computing, applications and technologies (PDCAT) 2017

RESEARCH EXPERIENCE

Georgia Institute of Technology <i>Visiting Research Scholar</i>	Incoming August '25
University of Toronto <i>Visiting Graduate Student</i>	January '24 - July '25
National University of Singapore <i>Visiting Scholar</i>	September '22 - December '23
National University of Singapore <i>Research Internship</i>	July '19 - August '20
Tata Research Development and Design Centre, Pune, India <i>Research Internship, Verification and Validation Team.</i>	June 2018 - July 2018
IIT Guwahati <i>Summer Internship</i>	May - July 2015

ACADEMIC EXPERIENCES

Tool Recognition

- 2nd place in [EDA Challenge '21](#)
- 3rd place (Main Track) in SAT Competition, 2020.

Organized

- Model-counting Competition '25 *August '25*
- Model-counting Competition '24 *July '24*

Research Visits

- (Invited to) Shonan Meeting on Model Counting *Japan, February '26*
- (Invited to) SRI Summer School on Formal Techniques *USA, May '24*
- Dagstuhl Seminar on Automated Synthesis *Germany, April '24*
- Simons Institute for Theory of Computing, UC Berkeley *USA, April - May, '23*
- University of California, Santa Barbara *USA, May, '23*

Conference Reviewing

- *Program Committee:* AAI-26
- *Artifact Evaluation Committee:* ATVA-25, iFM-25
- *Reviewer:* SAT-25, CAV-23, SAT-23
- *Doctoral Forum Reviewer:* SAT/CP-25, CP-23

Teaching Assistantship

- Introduction to AI *at UofT*
- Data Mining and Machine Learning *at CMI* .
- Model Checking and Software Verification *at CMI*

Instructor: Kuldeep S. Meel
Instructor: Prof. Madhavan Mukund
Instructor: Prof. Mandayam Srivas

Invited Talks

- Quantitative Reasoning in SMT: Counting, Sampling, and Volume Estimation
1. Formal Methods Update Meeting 2025 *Gandhinagar, India, July 2025*
- Approximate SMT Counting Beyond Discrete Domains
1. Design Automation Conference *San Francisco, USA, June 2025*
- CSB: A counting and sampling tool for bit-vectors
1. Indian SAT-SMT School *Pune, India, August 2024*
2. SMT workshop at CAV *Montreal, Canada, July 2024*
- An Approximate Skolem Function Counter
1. Model Counting Workshop at SAT Conference *Pune, India, August 2024*
2. Dagstuhl Seminar on Automated Synthesis *Dagstuhl, Germany, April 2024*
3. Modelling Meeting, University of Toronto *Toronto, Canada, February 2024*
4. The Eighth Indian SAT-SMT Winter School *Hyderabad, India, Dec 2023*
5. AAAI Conference *Vancouver, Canada, February 2024*
- Towards Building A Scalable Bitvector Model Counter
1. Model Counting Workshop, SAT Conference '23 *Alghero, Italy, July 2023*
2. University of California, Santa Barbara *Santa Barbara, USA, May 2023*
3. Chennai Mathematical Institute *Chennai, India, January 2023*
4. ACMU, Indian Statistical Institute, Kolkata *Kolkata, India, January 2023*
5. The Seventh Indian SAT-SMT Winter School *Chennai, India, Dec 2022*

Posters Presented

- Remarkable AI *Vector Institute, Toronto, Jan 2025*
- 7th Indian SAT-SMT School *IIT Madras, Dec 2022*
- Computer Science Research Week, NUS *National University of Singapore, Jan 2020*
- 4th Indian SAT-SMT School *IIT Bombay, Dec 2019*

REFERENCE

Kuldeep S. Meel

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Mandayam Srivas

Adjunct Professor, Chennai Mathematical Institute

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B Srivathsan

Associate Professor, Chennai Mathematical Institute

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