

ARIJIT SHAW

arijitsh.github.io ◇ arijit.shaw@tcgcrest.org

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

Covering-based Approximate Model Counting for Statistical Model

Arijit Shaw, Sebastian Junges, Kuldeep S. Meel

Under Submission at CAV 2026

Efficient Volume Computation for SMT Formulas

Arijit Shaw, Uddalok Sarkar, Kuldeep S. Meel

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

(Awarded the Best Student Paper Award)

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

Visiting Research Scholar

August '25 - Present

University of Toronto

Visiting Graduate Student

January '24 - July '25

National University of Singapore

Visiting Scholar

September '22 - December '23

National University of Singapore

Research Internship

July '19 - August '20

Tata Research Development and Design Centre, Pune, India

Research Internship, Verification and Validation Team.

June 2018 - July 2018

IIT Guwahati

Summer Internship

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

- Shonan Meeting on Model Counting *Japan, February '26*
- 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:* TACAS-26, SAT-25, CAV-23, SAT-23
- *Doctoral Forum Reviewer:* SAT/CP-25, CP-23

Teaching Assistantship

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

Instructor: Kuldeep S. Meel

Instructor: Kuldeep S. Meel

Instructor: Prof. Madhavan Mukund

Instructor: Prof. Mandayam Srivas

Invited Talks

- Efficient Volume Computation for SMT Formulas

1. Shonan Meeting on Model Counting

Shonan, Japan, February 2026

2. KR Conference

Melbourne, Australia, November 2025

- Quantitative Reasoning in SMT: Counting, Sampling, and Volume Estimation

1. PLSE Seminar, Georgia Tech

Atlanta, USA, September 2025

2. Formal Methods Update Meeting 2025

Gandhinagar, India, July 2025

- Approximate SMT Counting Beyond Discrete Domains

1. SMT Workshop at CAV

Glasgow, UK, August 2025

2. 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
- 7th Indian SAT-SMT School
- Computer Science Research Week, NUS
- 4th Indian SAT-SMT School

Vector Institute, Toronto, Jan 2025

IIT Madras, Dec 2022

National University of Singapore, Jan 2020

IIT Bombay, Dec 2019

REFERENCE

Kuldeep S. Meel

Associate Professor, University of Toronto

meel@cs.toronto.edu

Mandayam Srivas

Adjunct Professor, Chennai Mathematical Institute

mksrivas@cmi.ac.in

B Srivathsan

Associate Professor, Chennai Mathematical Institute

sri@cmi.ac.in