

# ARIJIT SHAW

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## EDUCATION

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**Chennai Mathematical Institute, India**

2020 - Present

Ph.D. Candidate, Computer Science

*Advisor : Dr. Kuldeep S. Meel*

*Funding Institute : IAI, TCG CREST, Kolkata*

**Chennai Mathematical Institute, India**

2017 - 2019

M.Sc., Computer Science

**Jadavpur University, Kolkata, India**

2013 - 2017

B.E., Computer Science and Engineering

## PUBLICATION

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**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 INTERESTS

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Model Counting for SMT Theories

SAT and SMT Solvers

Software Verification

## RESEARCH EXPERIENCE

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### University of Toronto

January '24 - Present

*Visiting Graduate Student*

- Advisor : Dr. Kuldeep S. Meel, Department of Computer Science.

### National University of Singapore

September '22 - December '23

*Visiting Scholar*

- Advisor : Dr. Kuldeep S. Meel, School of Computing.

### National University of Singapore

July '19 - August '20

*Research Internship*

- Using machine intelligence to build SAT solver for cryptography and other domains.
- Designing better general purpose SAT solvers. Designed solver won medals in SAT Competition 2020. with Dr. Kuldeep S. Meel, School of Computing. [\[Github\]](#) [\[News\]](#)

### Chennai Mathematical Institute

January - June 2019

*M.Sc. Thesis*

- Efficient Software Model Checking for program with Arrays with Prof. Mandayam Srivas.

### Tata Research Development and Design Centre, Pune, India

June 2018 - July 2018

*Research Internship*

- Development of a CEGAR based algorithm for verification of concurrent systems. with Anand Yeolekar, Verification and Validation Team.

### IIT Guwahati

May - July 2015

*Summer Internship*

- Development of DP-Fair Scheduling System for Heterogeneous multiprocessor systems with Dr. Arnab Sarkar, Dept. of Computer Science and Engineering.

## ACADEMIC EXPERIENCES

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### 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

- Artifact Evaluation Committee, ATVA '25
- SAT '25
- CP Doctoral Forum, '24
- SAT '23
- CAV '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

- 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*

## ACADEMIC ACHIEVEMENTS

Designed SAT solver wins at SAT Competition 2020, EDA Challenge 2021 [\[News\]](#)

Selected for admission in PhD program in National University of Singapore. (August '20 session)

Selected for admission in PhD program at Indian Statistical Institute. (August '19 session, '21 session)

Selected for JRF by UGC NET (Percentile 99.991) December 2018.

Ranked 11<sup>th</sup> in JEST Theoretical Computer Science, 2017.

Selected for Interviews, TIFR Graduate Admissions, 2017.

Selected for Internship, R.C.Bose Centre for Cryptology, ISI, Kolkata (Summer 2018) .

## PERSONAL DETAILS

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**Languages Proficient** Bengali, English, Hindi.  
**Date of Birth** July 14, 1995

## REFERENCE

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**Kuldeep S. Meel**

*Associate Professor, University of Toronto*

[meel@cs.toronto.edu](mailto:meel@cs.toronto.edu)

**Mandayam Srivas**

*Adjunct Professor, Chennai Mathematical Institute*

[mksrivas@cmi.ac.in](mailto:mksrivas@cmi.ac.in)

**B Srivathsan**

*Associate Professor, Chennai Mathematical Institute*

[sri@cmi.ac.in](mailto:sri@cmi.ac.in)