ARIJIT SHAW

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D-19, Saratpally, Midnapore ◇ Paschim Medinipur, W.B. ◇ India - 721101

EDUCATION

Chennai Mathematical Institute *2020 - Present*
Ph.D. Candidate, Computer Science
Advisor : Dr. Kuldeep S. Meel
Funding Institute : IAI, TCG CREST, Kolkata

Chennai Mathematical Institute *2017 - 2019*
M.Sc., Computer Science Current GPA: 8.60/10

Jadavpur University, Kolkata *2013 - 2017*
B.E., Computer Science and Engineering Overall GPA: 7.10/10

PUBLICATION

Explaining SAT Solving Using Causal Reasoning
J. Yang, A. Shaw, T. Baluta, M. Soos, K.S. Meel in SAT Conference '23, July, 2023.

Designing new Phase Selection Heuristics
A. Shaw, K.S.Meel in SAT Conference '20, July, 2020.

A Deadline-partition Oriented Heterogeneous Multi-core Scheduler for Periodic Tasks
S. Moulik, R. Devaraj, A. Sarkar, A. Shaw in IEEE PDCAT '17, Dec, 2017.

RESEARCH INTERESTS

Model Counting for SMT Theories
SAT and SMT Solvers
Model Checking and Software Verification
Automata Theory and Logic

RESEARCH EXPERIENCE

National University of Singapore September '22 - Present
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 within 2LS with Prof. Mandayam Srivas.

Chennai Mathematical Institute August 2018 - November 2018
Project

· Development of a Trace Abstraction based Software Model Checker. [Github]
with Prof. Mandayam Srivas.

Tata Research Development and Design Centre, Pune June 2018 - July 2018
Research Internship

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

Jadavpur University September 2016 - March 2017
Undergraduate Project

· Use of game theory to find influential node in big data of Social Network
with Dr. Subhadip Basu, Dept. of Computer Science and Engineering.

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 ACHIEVEMENTS

Designed SAT solver wins at SAT Competition 2020, EDA Challenge 2021 [News]
Selected for admission in PhD program in National University of Singaore. (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^{th} in JEST Theoretical Computer Science, 2017.
Selected for Interviews, TIFR Graduate Admissions, 2017.
GATE CS 2017 score 721 (All India Rank - 576).
Selected for Internship, R.C.Bose Centre for Cryptology, ISI, Kolkata (Summer 2018) .

ACADEMIC EXPERIENCES

Research Visits

· (Invited to) Dagstuhl Seminar on Automated Synthesis *April '24*
· Satisfiability Reunion, Simons Institute for Theory of Computing, UC Berkeley *April - May, '23*
· University of California, Santa Barbara *May, '23*

Conference Reviewing

· SAT '23
· CAV '23

Teaching Assistantship

· Data Mining and Machine Learning . *Instructor : Prof. Madhavan Mukund*
· Model Checking and Software Verification *Instructor : Prof. Mandayam Srivas*

Posters Presented

· 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*

Talks

· Towards Building A Scalable Bitvector Model Counter

1. Model Counting Workshop, SAT Conference '23 *July 2023*
2. University of California, Santa Barbara *May 2023*
3. Chennai Mathematical Institute *January 2023*
4. ACMU, Indian Statistical Institute, Kolkata *January 2023*
5. The Seventh Indian SAT-SMT Winter School *IIT Madras, Dec 2022*

RELEVANT COURSES

Graduate Courses
Computational Complexity Theory
Advanced Algorithms
Logic, Automata, Games
Model Checking and Software Verification
Concurrency Theory
Symbolic Analysis with SMT Solvers
Games on Graphs
Interactive Theorem Proving

Undergraduate Courses
Operating Systems
Computer Networks
Compiler Design
Computer Organization & Architecture
Cryptography
Machine Learning

TECHNICAL STRENGTHS

Computer Languages	C/C++, Python, Haskell, Java
Tools and Solvers	NuSMV, CUDD, CBMC, Z3, MathSAT
Theorem Provers	Coq, PVS
Others	LaTeX, Shell Script.

PERSONAL DETAILS

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

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*

Sanjoy Kumar Saha
Professor, Dept. of Comp. Sc. & Engg., Jadavpur University, Kolkata *sks_ju@yahoo.co.in*