ARIJIT SHAW

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EDUCATION

Institute for Advancing Intelligence, TCG CREST   *2020 - Present*
Ph.D. Candidate, Computer Science

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

Designing new Phase Selection Heuristics
with Kuldeep S. Meel in SAT Conference '20, July, 2020.

A Deadline-partition Oriented Heterogeneous Multi-core Scheduler for Periodic Tasks
with Sanjay Moulik, Rajesh Devaraj, Arnab Sarkar in IEEE PDCAT '17, Dec, 2017.

RESEARCH INTERESTS

SAT and SMT Solvers
Cryptography
Machine Learning
Model Checking and Software Verification

RESEARCH EXPERIENCE

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   [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)
Selected for JRF by UGC NET (Percentile 99.991) December 2018.
Ranked 11th 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

Posters Presented

- Computer Science Research Week, NUS   *National University of Singapore, Jan 2020*

- 4th Indian SAT-SMT School   *IIT Bombay, Dec 2019*

Conferences Attended

- SAT Conference 2020   *July 2020*

- Conference on Computer-Aided Verification (CAV)   *July 2020*

- 4th Indian SAT-SMT School   *IIT Bombay, Dec 2019*

- 3rd Indian SAT-SMT School   *IIIT Hyderabad, Dec 2018*

- Complexity, Algorithms, Automata and Logic Meet (CAALM)   *CMI, Jan, 2019*

Talks

- In National University of Singapore

  - "Local Search in SAT Solving"

  - "Decision Heuristics in SAT Solving"

- At Chennai Mathematical Institute

  - "Alternation Removal in Alternating Automata"

  - "ApnaAutomizer : A tool for trace abstraction based model checking"

Teaching Assistantship

- Data Mining and Machine Learning .   *Instructor : Prof. Madhavan Mukund*

- Model Checking and Software Verification   *Instructor : Prof. Mandayam Srivas*

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
Sung Kah Kay Assistant Professor, National University of Singapore   *meel@comp.nus.edu.sg*

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*