Nisarg Patel

Curriculum Vitae

PERSONAL DETAILS

Web www.cs.nyu.edu/~nrp364
E-Mail nisarg@nyu.edu
Address NYU, 60 Fifth Avenue, New York, NY 10011

EDUCATION

PhD in Computer Science August 2018 - Present
New York University, New York, USA *CGPA - 3.914/4*
Advisor: Prof. Thomas Wies

MSc in Computer Science August 2016 - July 2018
Chennai Mathematical Institute, Chennai, India *CGPA - 9.62/10*

BSc in Mathematics and Computer Science August 2013 - July 2016
Chennai Mathematical Institute, Chennai, India *CGPA - 8.64/10*

PUBLICATIONS

- **Synthesis of Compact Strategies for Coordination Programs**
  Kedar Namjoshi and Nisarg Patel
  Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2022

- **Verifying Concurrent Multicopy Search Structures**
  Nisarg Patel, Siddharth Krishna, Dennis Shasha and Thomas Wies
  Object-Oriented Programming Systems Languages and Applications (OOPSLA), 2021

- **Automated Verification of Concurrent Search Structures**
  Siddharth Krishna, Nisarg Patel, Dennis Shasha and Thomas Wies
  Morgan & Claypool Publishers, 2021

- **Verifying Concurrent Search Structure Templates**
  Siddharth Krishna, Nisarg Patel, Dennis Shasha and Thomas Wies
  Programming Languages Design and Implementation (PLDI), 2020

PROJECTS

- **Verifying Concurrent Search Structures**
  Nisarg Patel, Siddharth Krishna, Dennis Shasha and Thomas Wies
  To formally verify search structures (i.e. key-value stores) implementations in a modular fashion. Verified implementations include variants of B-trees, Hashtables, LSM trees, skiplists and linked lists. Proofs mechanized using separation logic Iris built on Coq.

- **Automating Resources Reasoning for Concurrent Programs**
  Ekanshdeep Gupta, Nisarg Patel and Thomas Wies

To build an automated program verification tool that supports algebraic resources reasoning. The tool significantly reduces the human effort required to verify concurrent programs. It is implemented in OCaml and is under construction.

- **Program Synthesis for Multi-robot Setting**
  Kedar Namjoshi and Nisarg Patel
  To make efficient the synthesis of orchestration program by requiring that it must not issue unnecessary actions. The synthesis procedure implemented in a prototype tool using automaton libraries Spot and Owl, and program synthesis tool Strix.

INTERNSHIPS

Nokia Bell Labs June 2021- Aug 2021
Mentors: Dr. Kedar Namjoshi
- Program Synthesis using SAT/QBF-solvers

Nokia Bell Labs June 2020- Aug 2020
Mentors: Dr. Kedar Namjoshi
- Synthesis of Compact Strategies for Coordination Programs

Universite Paris Diderot, Paris, France May 2017- July 2017
Mentors: Prof. Ahmed Bouajjani, Prof. Constantin Enea and Prof. Madhavan Mukund
- Verification of Web Services.

TEACHING EXPERIENCE

- *TA*: Programming Languages, New York University, September-December 2022
- *TA*: Programming Languages, New York University, September-December 2021
- *TA*: Data Mining and Machine Learning, Chennai Mathematical Institute, August-November 2017.

RELEVANT COURSEWORK

Distributed Systems	Abstract Interpretation
Infinite State Verification	Model Checking and Systems Verification
Mechanism Design	Concurrency Theory
Machine Learning	Reinforcement Learning

AWARDS AND SCHOLARSHIPS

- **Chennai Mathematical Institute Scholarship** for academic excellence.
- **INSPIRE Scholarship by Government of India** for distinction in Sciences.
- **Conferences/Summer Schools**
  VMCAI Winter School Scholarship (2020)
  Marktoberdorf Summer School Travel Grant (2019)
  CAV Student Volunteer (2019)