

SUGUMAN BANSAL (she/her/hers)

Assistant Professor

School of Computer Science, Georgia Institute of Technology

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EMPLOYMENT

Assistant Professor in SCHOOL OF COMPUTER SCIENCE
Georgia Institute of Technology, Atlanta, GA Jan. 23 - Present

NSF/CRA Computing Innovation Postdoc. in COMPUTER AND INFORMATION SC.
University of Pennsylvania, Philadelphia, PA July. 20 - Aug. 22
Mentor: Prof. Rajeev Alur

EDUCATION

PhD in COMPUTER SCIENCE, **Rice University**, Houston, TX Sept. 16 - June 20
Thesis: [Automata-Based Quantitative Verification](#)
Advisor: Prof. Moshe Y. Vardi

MS in COMPUTER SCIENCE, **Rice University**, Houston, TX Aug. 14 - Sept. 16
Thesis: [Algorithmic Analysis of Regular Repeated Games](#)
Advisor: Prof. Swarat Chaudhuri

BSc (with Honors) in MATHEMATICS and COMPUTER SCIENCE Aug. 11 - May 14
Chennai Mathematical Institute (CMI), Chennai, India

ALL PUBLICATIONS

[Under Review] [Model Checking LTL over the Finite Horizon](#)
Suguman Bansal, Yong Li, Lucas M. Tabajara, Moshe Y. Vardi, and Andrew Wells

[Under Review] [Multi-Agent Systems with Quantitative Satisficing Goals](#)
Senthil Rajasekaran, Suguman Bansal, and Moshe Vardi

Invited Contributions

[Invited] [A Framework for Transforming Specifications in Reinforcement Learning](#)
Rajeev Alur, Suguman Bansal, Osbert Bastani, and Kishor Jothimurugan
(To appear) Special Journal Issue Henzinger-60

[SAS 22] [Specification-Guided Reinforcement Learning](#)
Suguman Bansal
In Proc. of Static Analysis Symposium (SAS) 2022

Refereed Conference Publications

[CAV 22] [Specification-Guided Learning of Nash Equilibria with High Social Welfare](#)
Kishor Jothimurugan, Suguman Bansal, Osbert Bastani, and Rajeev Alur
In Proc. of International Conference on Computer-Aided Verification (CAV) 2022
Awarded [Artifact Evaluation Badge - Functional](#)

[AAAI 22] [On Synthesis from Satisficing and Temporal Goals](#)

Suguman Bansal, Lydia Kavraki, Moshe Y. Vardi, and Andrew Wells
In Proc. of AAAI Conference on AI (AAAI) 2022

[VSTTE 22] [Compositional Safety LTL Synthesis](#)

Suguman Bansal, Giuseppe De Giacomo, Antonio Di Stasio, Yong Li, Moshe Vardi, and Shufang Zhu
In Proc. of International Conference on Verified Software: Theories, Tools, and Experiments (VSTTE) 2022

[NeurIPS 21] [Compositional Reinforcement Learning from Logical Specifications](#)

Kishor Jothimurugan, Suguman Bansal, Osbert Bastani, and Rajeev Alur
In Proc. of Advances in Neural Information Processing Systems (NeurIPS) 2021

[CAV 21] [Adapting Behaviors via Reactive Synthesis](#)

Gal Araman, Suguman Bansal, Dror Fried, Lucas M. Tabajara, Moshe Y. Vardi, and Gera Wiess
In Proc. of International Conference on Computer-Aided Verification (CAV) 2021
Awarded [Artifact Evaluation Badge - Available, Functional, and Reusable](#)

[TACAS 21] [On Satisficing in Quantitative Games](#)

Suguman Bansal, Krishnendu Chatterjee, and Moshe Y. Vardi
In Proc. of International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS) 2021

[AAAI 20] [Hybrid Compositional Reasoning for Reactive Synthesis from Finite-Horizon Specifications](#)

Suguman Bansal, Yong Li, Lucas M. Tabajara, and Moshe Y. Vardi
In Proc. of AAAI Conference on AI (AAAI) 2020

[POPL 20] [Synthesis of Coordination Programs from Linear Temporal Specifications](#)

Suguman Bansal, Kedar S. Namjoshi, and Yaniv Sa'ar
In Proc. of the ACM on Programming Languages (POPL), 2020
Awarded [ACM Artifact Evaluated Badge - Functional](#)

[CAV 19] [Safety and Co-safety Comparator Automata for Discounted-Sum Inclusion](#)

Suguman Bansal and Moshe Y. Vardi
In Proc. of International Conference on Computer-Aided Verification (CAV) 2019

[CAV 18] [Automata vs Linear-Programming Discounted-Sum Inclusion](#)

Suguman Bansal, Swarat Chaudhuri, and Moshe Y. Vardi
In Proc. of International Conference on Computer-Aided Verification (CAV) 2018

[CAV 18] [Synthesis of Asynchronous Reactive Programs from Temporal Specifications](#)

Suguman Bansal, Kedar S. Namjoshi, and Yaniv Sa'ar
In Proc. of International Conference on Computer-Aided Verification (CAV) 2018

[FoSSaCS 18/LMCS 22] [Comparator Automata in Quantitative Verification](#)

Suguman Bansal, Swarat Chaudhuri, and Moshe Y. Vardi
In Proc. of International Conference on Foundations of Software Science and Computation Structures (FoSSaCS) 2018
(Extended Version) In Journal of Logical Methods in Computer Science (LMCS) 2022

TUTORIALS

[AAAI 23] [Specification-Guided Reinforcement Learning](#)

(To be) Co-presented with Rajeev Alur, Osbert Bastani, and Kishor Jothimurugan at AAAI 23

OPEN SOURCE TOOLS

Lisa | Github Link

Reactive synthesis for finite-horizon tasks and efficient DFA generation from logical formulas

DiRL | Github Link

Compositional reinforcement learning from temporal specifications

TEACHING

CS 4510. Automata and Complexity

Spring 23, Georgia Tech

GRANT WRITING EXPERIENCE

CRA/NSF Computing Innovation Fellow Award

Sept. 20 - Aug. 22

PI: Rajeev Alur, **USD 240,910**

AWARDS

MIT EECS Rising Star

2021, 2018

CRA Computing Innovation (CI) Fellow

2020

Awarded by the CRA and NSF for postdoctoral research

Future Faculty Fellow

2019

Awarded by the School of Engineering, Rice University

Rice Engineering Alumni Graduate Grant

2017

Awarded by the Rice Engineering Alumni to one graduate student each year

Gold Medal at the **ACM Student Research Competition** at **POPL 2016**

2016

Andrew Ladd Graduate Fellowship

2015

Awarded by the Rice CS Department and Ken Kennedy Institute for excellence in CS

CMI Undergraduate Scholarship

2011 - 2014

Awarded by CMI to undergraduate students for excellence in academics

KVPY Science Fellowship (Govt. of India)

2008

Awarded by the Ministry of Science and Technology, Govt. of India, for excellence in Basic Sciences

Travel grants

AAAI Scholarship (2020), SIGPLAN PAC Travel Grant POPL (2020), CAV Student Travel Fellowship (2019), Rice Dean's Travel Award (2019), WiL SIGLOG/VCLA Travel Award (2019, declined), MIT EECS Rising Stars Travel Grant (2018), NSF-CAV/VMW Travel Grant (2015, 2018), ETAPS Student Scholarship (2018), Google Student Research Summit Travel Grant (2017), LMW-LICS Scholarship (2017, declined), CRA-W Grad Cohort Graduate Grant (2017), ACM SRC (POPL) Travel Grant (2016), MSR Faculty Summit Travel Grant (2016), Off The Beaten Track Travel Grant (2016), MSR Summer School Travel Grant (2012)

HONORS

Keynote Speaker at Symposium of Static Analysis (SAS) 2022

Dec. 22

Invited to **Dagstuhl Seminar** on Scalable Analysis of Probabilistic Models and Programs

June 23

Invited to **Simons Institute** for program on Real-Time Decision Making

Spring 18

Invited to **Google Student Research Summit 2017**

Sept. 17

Invited to **Dagstuhl Seminar** on Game Theory, AI, Logic and Algorithms

March 17

RESEARCH VISITS

NOKIA Bell Labs , Murray Hill, New Jersey, USA Research Intern Mentor: Dr. Kedar S. Namjoshi	June 18 - July 18
Simons Institute, University of California - Berkeley , California, USA Visiting Graduate Student Spring 2018 program on Real-Time Decision Making	March 18 - May 18
NOKIA Bell Labs , Murray Hill, New Jersey, USA Research Intern Mentors: Dr. Kedar S. Namjoshi and Dr. Michael Emmi	June 17 - Aug. 17

RESEARCH TALKS

Reinforcement Learning from Logical Specifications

[KEYNOTE] Static Analysis Symposium (SAS) 2022	Dec. 22
Department of Computer Science - IIT Delhi	Oct. 22
[INVITED] Workshop on Open Problems in Learning and Verification of Neural Networks	Aug. 22

Specification-Guided Policy Synthesis

Jan. 22 - April 22

[INVITED] Carnegie Mellon University, CISPA Saarland, ETH Zurich, Georgia Institute of Technology, IST Austria, Max Plank Institute - SWS, National University of Singapore, New York University, Pennsylvania State University, Purdue University, Tufts University, TU Graz, University of Illinois - Chicago, University of Southern California, University of Toronto, University of Waterloo (ECE), Washington University at St. Louis, Yale University

Reactive Synthesis from Quantitative Constraints: An Automata Approach

[INVITED] IARCS Verification Seminar Series	Oct. 21
[INVITED] Workshop on Continuity, Computability, Constructivity: From Logic to Algorithms	Sep. 21

Compositional Reinforcement Learning from Logical Specifications

[INVITED] Sapienza University of Rome	June 21
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Reactive Synthesis for Coordination

[INVITED] Simons Institute (UC Berkeley): Workshop on Synthesis of Models and Systems	March 21
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On Satisficing in Quantitative Games

Hebrew University	June 21
[INVITED] Formal Methods Seminar, Ben Gurion University	March 21

Designing Intelligent Machines Via Reactive Synthesis

[INVITED] Machine Learning Seminar Series, Rice University	March 20
[INVITED] ICES, University of Texas at Austin	Feb. 20
Nokia Bell Labs, Murray Hill	Feb. 20
Department of Computer Science - IIT Delhi	April 19

School of Computing, National University of Singapore

April 19

Automata-Based Quantitative Reasoning

[INVITED] Department of Computer Science, University of Pennsylvania

Jan. 20

Verification Seminar Series, University of Oxford

Nov. 19

[INVITED] RiSE Seminar, IST Austria

April 18

Comparators for Quantitative Verification

University of California, Berkeley

April 18

Student Spotlight, Winter School in CS and Eng.on Formal Methods, IIAS, Jerusalem

Dec. 17

[INVITED] Saarland University

March 17

[INVITED] Dagstuhl Seminar on Game Theory in AI, Logic and Algorithms,

March 17

Asynchronous synthesis: The Ugly, the Bad and the ?

Application Platforms and Software Systems Group, Nokia Bell Labs, Murray Hill

July 17

Reasoning About Incentive Compatibility

[INVITED] Google Student Research Summit, YouTube Headquarters, San Bruno

Sept. 17

Conference and Workshop Presentations (from publications)

AAAI 2022, NeurIPS 2021, Highlights of Logic, Games, and Automata 2021, SYNT 2021, TACAS 2021, Highlights of Logic, Games, and Automata 2020, AAAI 2020, POPL 2020, CAV 2019, SYNT 2019, CAV 2018 (a), CAV 2018 (b), FoSSaCS 2018, Off the Beaten Track 2016, ACM Student Research Competition at POPL 2016

SERVICE

RESEARCH COMMUNITY

Organizing Committee

Co-Chair. AAAI Spring Symposium Series 2023: On the Effectiveness of Temporal Logics on Finite Traces

Co-Organizer. Verification Mentoring Workshop @ CAV 2021

Program Committee

2024. TACAS 2024

2023. AAAI 2023, CAV 2023, CONCUR 2023, ESOP 2023, Highlights of Automata, Logic, and Games 2023, Nasa FM 2023

2022. GandALF 2022, SYNT 2022

2021. IJCAI 2021, LAMAS&SR 2021, SPLASH SRC 2021, SYNT 2021

Thesis Committee

Guy Hefetz (ITC Herzila). Master's Degree. April 2020

Thesis title: Discounted-sum automata with multiple discount factors

Journal Reviewer

2022. Foundations and Trends in TCS, Henzinger-60

2021. ACM ToCL, FMDS, JACM, LMCS

2020. Acta Informatica

Conference Reviewer

2023. FoSSaCS 2023 **2021.** FMCAD 2021, FOCS 2021 **2020.** CONCUR 2020, ICALP 2020, IJCAI 2020
2019. ISAAC 2019 **2018.** FSTTCS 2018, LPAR 2018 **2017.** CP 2017, TACAS 2017 **2016.** IJCAI 2016

Artifact Evaluation Committee 2021. CAV 2021, SAS 2021

DEPARTMENT LEVEL

- Colloquium Coordinator, Dept. of Computer Science, Rice University (2015-2016)
- Academic Coordinator, Rice Computer Science Graduate Student Association (2015-2016)