

Kishor Jothimurugan

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Research Interests

- Applications of Formal Methods in Reinforcement Learning
- Verification of Neural Networks
- Program Analysis

Education

Academic Qualifications.....

- **University of Pennsylvania** **Philadelphia, USA**
○ *PhD candidate in Computer and Information Science, Current GPA 4.0/4.0* *2017–present*
Advised by Prof. Rajeev Alur
- **Chennai Mathematical Institute** **Chennai, India**
○ *B.Sc. (Hons) Mathematics and Computer Science , CGPA 9.77/10* *2014–2017*
Ranked among top 3 students

Publications

Conference Papers.....

- **Compositional Learning and Verification of Neural Network Controllers**, Radoslav Ivanov, Kishor Jothimurugan, Steve Hsu, Shaan Vaidya, Rajeev Alur, Osbert Bastani. *International Conference on Embedded Software (EMSOFT)*, 2021.
- **Abstract Value Iteration for Hierarchical Reinforcement Learning**, Kishor Jothimurugan, Osbert Bastani, Rajeev Alur. *Artificial Intelligence and Statistics (AISTATS)*, 2021.
- **Space-efficient Query Evaluation over Probabilistic Event Streams**, Rajeev Alur, Yu Chen, Kishor Jothimurugan, Sanjeev Khanna. *Logic in Computer Science (LICS)*, 2020.
- **A Composable Specification Language for Reinforcement Learning Tasks**, Kishor Jothimurugan, Rajeev Alur, Osbert Bastani. *Neural Information Processing Systems (NeurIPS)*, 2019.

Workshop Papers.....

- **Abstract Value Iteration for Hierarchical Deep Reinforcement Learning**, Kishor Jothimurugan, Osbert Bastani, Rajeev Alur. *Deep RL Workshop, NeurIPS 2020*.

- **Compositional Learning from Logical Specifications**, Kishor Jothimurugan, Suguman Bansal, Osbert Bastani, Rajeev Alur. *Workshop on Synthesis (SYNT) 2021 co-located with CAV 2021*.

Internships and Summer Schools

- *Research Intern at Nokia Bell Labs, Summer 2020*. An application of deep reinforcement learning to regenerative stopping problems.
- *SDE Intern at Amazon Web Services, Summer 2019*. Using machine learning to improve usability of taint analysis.
- *Marktoberdorf Summer School, Summer 2018*. Summer school on Engineering Secure and Dependable Software Systems.
- *Research Intern at LSV, ENS Cachan, Summer 2017*. Models for distributed reactive synthesis.

Teaching

- *Graduate TA (Spring 2019)*: Principles of Embedded Systems (CIS 540).
- *Graduate TA (Fall 2018)*: Automata, Computability and Complexity (CIS 262).
- *Undergraduate TA (Spring 2017)*: Discrete Mathematics.
- *Online TA*: Design and Analysis of Algorithms (NPTEL MOOC).

Technical skills

- **Programming Languages**: C++ (fluent), Python (fluent), MATLAB (fluent), Java (fluent), Coq.
- **Tools**: \LaTeX , Git, Bash, Flow*, StableBaselines.
- **Frameworks**: Tensorflow, Pytorch, Pandas, Soot.

Academic Achievements

- Selected for summer student exchange program between CMI and ENS Paris (Awarded to top 3 students).
- Qualified for ACM ICPC India Regionals 2016 (Chennai and Coimbatore).
- State Rank 11 in Indian National Science Talent Search Examination 2014.

Languages

- **Fluent**: English, Hindi
- **Native**: Tamil