

# ANAGHA KULKARNI

PhD student, Computer Science  
Arizona State University

<http://www.public.asu.edu/~akulka16/>  
[anaghak@asu.edu](mailto:anaghak@asu.edu) +1 (213) 590-5287



*Seeking a research intern position for Summer 2019*














## RESEARCH INTERESTS

- ▶ Human-aware AI Planning, Explainable AI Planning, Intention Projection
- ▶ Privacy Preservation for AI Systems, Decision-Making & Behavior Prediction

## EDUCATION

- PhD in Computer Science**, GPA: 4.0/4.0 Fall 2015 – Expected Fall 2020  
Arizona State University, Tempe, AZ
- M.S. in Computer Science** Fall 2013 – Spring 2015  
University of Southern California, Los Angeles, CA
- B.E. in Computer Science and Engineering** Fall 2009 – Spring 2013  
Visvesvaraya Technological University, India

## PUBLICATIONS

1. **A Unified Framework for Planning in Adversarial and Cooperative Environments**    
A. Kulkarni, S. Srivastava, & S. Kambhampati, to appear in *Proceedings of AAAI 2019*, also appeared in the *International Conference on Automated Planning and Scheduling (ICAPS) 2018 Workshop on Planning and Robotics*.
2. **Resource Bounded Secure Goal Obfuscation**   
A. Kulkarni, M. Klenk, S. Rane, & H. Souroush, appeared in the *AAAI 2018 Fall Symposium on Integrating Planning, Diagnosis and Causal Reasoning*.
3. **Projection-Aware Task Planning and Execution for Human-in-the-Loop Operation of Robots in a Mixed-Reality Workspace**    
T. Chakraborti, S. Sreedharan, A. Kulkarni, & S. Kambhampati, in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2018*, also appeared in *HRI 2018 Workshop on Virtual, Augmented and Mixed Reality for Human-Robot Interaction*, and in *ICAPS 2018 Workshop on User Interfaces & Scheduling & Planning*.
4. **Explicability as Minimizing Distance from Expected Behavior**    
A. Kulkarni, Y. Zha, T. Chakraborti, S. Vadlamudi, Y. Zhang, & S. Kambhampati, in the *International Conference on Automated Planning and Scheduling (ICAPS) 2018 Workshop on Explainable AI Planning*.
5. **Augmented Workspace for Human-in-the-Loop Plan Execution**    
T. Chakraborti, S. Sreedharan, A. Kulkarni, & S. Kambhampati, in *ICAPS 2017 Workshop on User Interfaces & Scheduling & Planning*; also in *ICAPS 2017 System Demonstrations and Exhibits*.  
*[Media Coverage: U.S. Microsoft Imagine Cup 2017 Finalist, PBS 8 Cronkite News, ASU Fulton School News, ACM Tech News]*
6. **Plan Explicability and Predictability for Robot Task Planning**    
Y. Zhang, S. Sreedharan, A. Kulkarni, T. Chakraborti, H. H. Zhuo, & S. Kambhampati, in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA) 2017*, and also appeared in *Robotics: Science and Systems (RSS) 2016 Workshop on Planning for Human-Robot Interaction: Shared Autonomy and Collaborative Robotics*.
7. **Explicable Plans for Human-Robot Teams**    
A. Kulkarni, in *AIJ Student Spotlight, Robotics: Science and Systems (RSS) 2016 Workshop on Planning for Human-Robot Interaction: Shared Autonomy and Collaborative Robotics*.

## EXPERIENCE

- Research Intern**, Palo Alto Research Center (PARC) Summer 2018  
*at System Sciences Lab, under the supervision of Dr. Matthew Klenk*
- Explored the security aspects of goal obfuscation planning and implemented an algorithm to achieve secure goal obfuscation in adversarial scenarios.
- Graduate Research Assistant**, Arizona State University Fall 2015 – Present  
*at Yochan Lab, under the supervision of Prof. Subbarao Kambhampati*
- Developed a unified framework for achieving contrasting behaviors for an agent, such that maximizing the inherent uncertainty in the environment results in obfuscating behavior, while minimizing it leads to legible behavior.
  - Developed a planner for generating explicable plans given model based discrepancies between agent-human decision models.
- Graduate Research Assistant**, University of Southern California Spring 2014 – Spring 2015  
*at Interaction Lab, under the supervision of Prof. Maja Mataric*
- Implemented dialogue management system to learn the optimal policy for a dialogue flow model, represented as MDP (Markov Decision Process).
  - Developed and deployed a tour planner as a ROS package with navigational & time constraints.
- Graduate Research Assistant**, University of Southern California Fall 2014  
*at IDM Lab, under the supervision of Prof. Sven Koenig & Dr. T. K. Satish Kumar*
- Designed & implemented an algorithm to find an optimal assignment of robots to tasks, so as to minimize the *makespan* time. The robots and tasks were represented as nodes in an undirected weighted graph with tasks nodes as active components.

## SKILLS

Python, Java, C++  
Scikit-learn, Numpy, Matplotlib, Pandas, Matlab, R, MySQL

## SERVICE / INVOLVEMENT

Serving as **Program Committee** for **AAAI 2019** and as **Reviewer** for **ICRA 2019**  
Served as **Sub-Reviewer** for **ICAPS 2018, ICAPS 2017, ICRA 2017**

**K-12 Education Outreach**: Use of robotics to promote STEM at Grace Academy, Tempe. 2017  
**GPSA Student Volunteer**: Judge for Teaching Excellence Award, ASU. 2017  
**AAAI Robotics Exhibition**: Demonstrated interactive planning using blocks on Fetch robot. 2016  
**TA for Intro to Artificial Intelligence**: CSE 471/598 by Dr. S. Kambhampati Fall 2016, Fall 2015  
**K-12 Education Outreach**: Volunteer judge, Global Conference on Educational Robotics (GCER) 2014

## AWARDS

Travel awards from **ICAPS 2018, ASU GPSA (2018, 2017), ASU Grace Hopper, AIJ (RSS 2016)**  
**University Graduate Fellowship, ASU** Spring 2018  
**CIDSE Doctoral Fellowship Award, ASU** Fall 2015 – Spring 2016  
**Meritorious Student Scholarship**, secured 1st rank to Dept of CS, GIT, India 2010-2013  
**Meritorious Student Scholarship**, for academic year 2009-2010, GIT, India 2010