

- ▶ Research Staff Member, IBM Research AI, Cambridge (MA) USA
- ▶ Ph.D. Computer Science, Arizona State University, USA

RESEARCH INTERESTS





- > Conversational agents and AI planning – model acquisition and training for dialog. Planning for collaborative problem solving through dialogue.
- > Human-aware planning – generating explainable plans and plan explanations. Robots in and outside avenues of traditional human-robot teams – challenges in human-robot cohabitation.
- > Alternative modes of communication – augmented reality (AR) / electroencephalography (EEG) – for effective human-robot interaction in semi-autonomous workspaces.
- > Crowdsourced planning and proactive decision support – planning techniques to guide and critique behavior of humans engaged in planning and scheduling tasks.

SUMMARY OF PROFESSIONAL ACTIVITIES






EDUCATION

- Ph.D. in Computer Science, Arizona State University. (2013-2018) - *Overall Graduate GPA: 3.97/4.*
- Bachelor of Engineering in Electronics and Telecommunication from Jadavpur University, India. (2009-2013) - *CGPA: 8.97/10 (84.45%, First Class Honours)*

PROFESSIONAL EXPERIENCE

- June 2018 – present: Research Staff Member, **IBM Research, AI Interaction Lab** (MA, USA). 
- August 2013 – December 2018: Researcher in **Yochan Lab, Arizona State University (ASU)** under the supervision of Professor Subbarao Kambhampati. 
- May - August 2017: Research Intern at **IBM T.J. Watson Research Center**, NY. Worked with Rachel K.E. Bellamy and Kartik Talamadupula on *Mr. Jones – Towards a Proactive Smart Room Orchestrator*. 
- May - August 2016: Research Intern at **IBM T.J. Watson Research Center**, NY. Worked with Murray Campbell and Kartik Talamadupula on *UbuntuWorld 1.0 LTS – A Platform for Automated Problem Solving & Troubleshooting in the Ubuntu OS*. 

SERVICE

- Publicity Chair for ICAPS 2019, Berkeley, USA. 
- Co-Chairing KEPS and XAIP Workshops at ICAPS'19 and VAM-HRI Workshop at HRI'19.
- Member of the Program Committee for IJCAI-ECAI 2018, AAI 2019, ICAPS 2019 and IJCAI 2019.
- Co-Chair of the first ever International Workshop on Virtual, Augmented and Mixed Reality for Human-Robot Interaction (VAM-HRI) at HRI 2018, Chicago, USA. 
- IJCAI-ICAPS 2017-19 Workshop Series on Explainable AI / Planning (XAI/P) – PC and Organizing Team. 
- Co-Chair of the International Workshop on Multi-agent Interaction without Prior Coordination (MIPC) at AAMAS 2017 
- Member of the IJCAI 2016 Review Process Committee 
- Reviewer / Program Committee for AAI'14/15/17, ICAPS'17/18, IROS'16/18 and ICRA'18; AAI'16/17 Fall Symposiums; JAR; JAAMAS; IEEE Transactions SMC - Part B; IEEE TBioCAS; etc.
- Student volunteer for GPSA, ASU and at ICAPS'14/18, AAMAS'16, and IJCAI'18.

AWARDS AND RECOGNITION

- Runner-up for the ICAPS Distinguished Dissertation Award 2019.
- People’s Choice Best System Demonstration Award ICAPS’18 Runner-up. [↗](#)
- Scholarship from Partnership of AI (PAI) – Authored the Landscaping Primer for the Pillar on Collaborations between People and AI for PAI’s first event, The New Partner Workshop in Berlin, 2017. [↗](#)
- IBM Ph.D. Fellowship 2016-18 twice in a row! In the news ... [↗](#)
- Microsoft Imagine Cup 2017 US Finalist, leader of team #Robotics [↗](#) In the news ... [↗](#) [↗](#) [↗](#) [↗](#) [↗](#)
- Five times recipient of the University Graduate Fellowship Award for outstanding research in Fall 2013, Spring 2014, Spring 2015, Spring 2017 and Spring 2018.
- People’s Choice Best System Demonstration Award ICAPS’14. [↗](#)
- Travel Grants from IROS’18, ICAPS’14/15/18, IROS’15, SoCS’16, AAMAS’16, IJCAI’17/18.
- Central Board of Secondary Education Merit Scholarship 2009-13.
- Certificate of Merit in Science (Physics) in 2009.

PUBLICATIONS (541 citations according to Google Scholar as of 05/12/2019)

RIGOROUSLY REVIEWED CONFERENCE/JOURNAL PUBLICATIONS

- [1] T. Chakraborti, S. Sreedharan, and S. Kambhampati, “Balancing Explanations and Explicability in Human-Aware Planning,” in *IJCAI*, 2019. Appeared previously in AAAI 2017 Fall Symposium on Artificial Intelligence for Human-Robot Interaction (AI-HRI) and in AAMAS 2018 as an Extended Abstract.
- [2] T. Chakraborti, A. Kulkarni, S. Sreedharan, D. E. Smith, and S. Kambhampati, “Explicability? Legibility? Predictability? Transparency? Privacy? Security? The Emerging Landscape of Interpretable Agent Behavior,” *ICAPS (To Appear)*, 2019.
- [3] T. Chakraborti, S. Sreedharan, S. Grover, and S. Kambhampati, “Plan Explanations as Model Reconciliation – An Empirical Study,” *HRI*, 2019.
- [4] T. Chakraborti and S. Kambhampati, “(When) Can AI Bots Lie?,” *AIES/AAAI*, 2019. [Media coverage on ZDNet, AIES Highlights @ ACM News, and ASU Now.](#)
- [5] T. Chakraborti, K. P. Fadnis, K. Talamadupula, M. Dholakia, B. Srivastava, J. O. Kephart, and R. K. E. Bellamy, “Planning and Visualization for a Smart Meeting Room Assistant – A Case Study in the Cognitive Environments Laboratory at IBM T.J. Watson Research Center, Yorktown,” *AI Communication*, 2019.
- [6] A. Kulkarni, Y. Zha, T. Chakraborti, S. G. Vadlamudi, Y. Zhang, and S. Kambhampati, “Explicability as Minimizing Distance from Expected Behavior,” *AAMAS EA*, 2019. Appeared previously in ICAPS XAIP 2018.
- [7] T. Chakraborti, S. Sreedharan, A. Kulkarni, and S. Kambhampati, “Projection-Aware Task Planning and Execution for Human-in-the-Loop Operation of Robots in a Mixed-Reality Workspace,” in *IROS*, 2018. Appeared previously in ICAPS 2018 UISP and VAM-HRI 2018 Workshops.
- [8] S. Sreedharan, T. Chakraborti, and S. Kambhampati, “Handling Model Uncertainty and Multiplicity in Explanations as Model Reconciliation,” in *ICAPS*, 2018. Appeared previously in AAAI 2017 Fall Symposium on Human-Agent Groups: Studies, Algorithms and Challenges.
- [9] T. Chakraborti, S. Sreedharan, Y. Zhang, and S. Kambhampati, “Plan Explanations as Model Reconciliation: Moving Beyond Explanation as Soliloquy,” in *IJCAI*, 2017.
- [10] Y. Zhang, S. Sreedharan, A. Kulkarni, T. Chakraborti, H. H. Zhuo, and S. Kambhampati, “Plan Explicability and Predictability for Robot Task Planning,” in *ICRA*, 2017. Appeared previously in RSS 2016 Workshop on Planning for Human-Robot Interaction.
- [11] T. Chakraborti, K. Talamadupula, K. P. Fadnis, M. Campbell, and S. Kambhampati, “UbuntuWorld 1.0 LTS-A Platform for Automated Problem Solving & Troubleshooting in the Ubuntu OS,” in *IAAI, AAAI*, 2017.
- [12] L. Manikonda, T. Chakraborti, K. Talamadupula, and S. Kambhampati, “Herding the Crowd: Using Automated Planning for Better Crowdsourced Planning,” *Journal of Human Computation*, 2017.

- [13] T. Chakraborti, S. Sreedharan, S. Sengupta, T. S. Kumar, and S. Kambhampati, “Compliant Conditions for Polynomial Time Approximation of Operator Counts,” in *Symposium on Combinatorial Search (SoCS)*, 2016.
- [14] T. Chakraborti, Y. Zhang, D. E. Smith, and S. Kambhampati, “Planning with Resource Conflicts in Human-Robot Cohabitation,” in *AAMAS*, 2016. Appeared previously in ICAPS 2015 PlanRob Workshop.
- [15] Y. Zhang, V. Narayanan, T. Chakraborti, and S. Kambhampati, “A human factors analysis of proactive support in human-robot teaming,” in *IROS*, 2015.
- [16] T. Chakraborti, G. Briggs, K. Talamadupula, Y. Zhang, M. Scheutz, D. Smith, and S. Kambhampati, “Planning for Serendipity,” in *IROS*, 2015. Appeared previously in ICAPS 2015 PlanRob Workshop.
- [17] K. Talamadupula, G. Briggs, T. Chakraborti, M. Scheutz, and S. Kambhampati, “Coordination in Human-Robot Teams using Mental Modeling and Plan Recognition,” in *IROS*, 2014.
- [18] L. Manikonda, T. Chakraborti, S. De, K. Talamadupula, and S. Kambhampati, “AI-MIX: Using Automated Planning to Steer Human Workers Towards Better Crowdsourced Plans,” in *IAAI, AAAI*, 2014. Appeared previously in ICAPS 2014 SPARK Workshop and in HCOMP WiP 2014. *Winner of People’s Choice Best System Demonstration Award at ICAPS 2014.*

WORKSHOP/SYMPOSIA/DEMO/MISC PUBLICATIONS

- [1] Z. Zahedi, A. Olmo, T. Chakraborti, S. Sreedharan, and S. Kambhampati, “Towards Understanding User Preferences for Explanation Types in Explanation as Model Reconciliation,” *HRI Late Breaking Report*, 2019.
- [2] T. Williams, D. Szafir, and T. Chakraborti, “The Reality-Virtuality Interaction Cube: A Framework for Conceptualizing Mixed-Reality Interaction Design Elements for HRI,” *HRI Late Breaking Report*, 2019.
- [3] T. Chakraborti, C. Muise, S. Agarwal, and L. Lastras, “MAi : An Intelligent Model Acquisition Interface for Interactive Specification of Dialog Agents,” *AAAI System Demonstration Track*, 2019.
- [4] T. Williams, D. Szafir, T. Chakraborti, and H. B. Amor, “Report on the First International Workshop on Virtual, Augmented and Mixed-Reality for Human-Robot Interactions,” *AI Magazine*, 2018.
- [5] T. Chakraborti, K. P. Fadnis, K. Talamadupula, M. Dholakia, B. Srivastava, J. O. Kephart, and R. K. Bellamy, “Visualizations for an Explainable Planning Agent,” *arXiv preprint arXiv:1709.04517*, 2018. Appeared in ICAPS/IJCAI 2018 Demo Tracks and ICAPS 2018 UISP Workshop. *Runner-up for People’s Choice Best System Demonstration Award at ICAPS 2018.*
- [6] T. Chakraborti, S. Sreedharan, and S. Kambhampati, “Human-Aware Planning Revisited: A Tale of Three Models,” in *ICAPS Workshop on Explainable AI Planning and IJCAI Workshop on Explainable AI*, 2018.
- [7] S. Grover, T. Chakraborti, and S. Kambhampati, “What Can Automated Planning do for Intelligent Tutoring Systems?,” in *ICAPS SPARK*, 2018.
- [8] S. Sengupta, T. Chakraborti, and S. Kambhampati, “MA-RADAR – A Mixed-Reality Interface for Collaborative Decision Making,” in *ICAPS UISP + System Demonstration Track*, 2018.
- [9] A. Dudley, T. Chakraborti, and S. Kambhampati, “v2v Communication for Augmenting Reality Enabled Smart HUDs to Increase Situational Awareness of Drivers,” in *Workshop on Virtual, Augmented and Mixed Reality for Human-Robot Interactions (VAM-HRI)*, 2018.
- [10] R. G. Freedman, T. Chakraborti, K. Talamadupula, D. Magazzeni and J. D. Frank, “User Interfaces and Scheduling and Planning: Workshop Summary and Proposed Challenges,” in *AAAI 2018 Spring Symposium on Designing the User Experience of Artificial Intelligence*, 2018.
- [11] S. Sengupta, T. Chakraborti, A. Dudley, and S. Kambhampati, “An Investigation of Bounded Misclassification for Operational Security of Deep Neural Networks,” in *AAAI 2018 Workshop on Engineering Dependable and Secure Machine Learning Systems*, 2018.
- [12] T. Williams, D. Szafir, T. Chakraborti, and H. B. Amor, “Virtual, Augmented and Mixed Reality for Human-Robot Interactions (VAM-HRI),” *Companion to HRI Proceedings*, 2018.
- [13] T. Chakraborti, K. Talamadupula, M. Dholakia, B. Srivastava, J. O. Kephart, and R. K. Bellamy, “Mr.Jones – Towards a Smart Room Orchestrator,” *arXiv preprint arXiv:1709.04517*, 2017. Appeared in AAAI 2017 Fall Symposium on Human-Agent Groups: Studies, Algorithms and Challenges.
- [14] T. Chakraborti, S. Kambhampati, M. Scheutz, and Y. Zhang, “AI Challenges in Human-Robot Cognitive Teaming,” *arXiv preprint arXiv:1707.04775*, 2017.

- [15] S. Sengupta, T. Chakraborti, and S. Kambhampati, “Securing Deep Neural Nets against Adversarial Attacks with Moving Target Defense,” *arXiv preprint arXiv:1705.07213*, 2017. Appeared in AAAI 2018 Workshop on Engineering Dependable and Secure Machine Learning Systems.
- [16] T. Chakraborti, S. Srivastava, A. Pinto, and S. Kambhampati, “An ROS-based Shared Communication Middleware for Plug & Play Modular Intelligent Design of Smart Systems,” *arXiv preprint arXiv:1706.01133*, 2017.
- [17] T. Chakraborti, S. Sreedharan, A. Kulkarni, and S. Kambhampati, “Alternative Modes of Interaction in Proximal Human-in-the-Loop Operation of Robots,” *arXiv preprint arXiv:1703.08930*, 2017. Appeared previously in ICAPS 2017 UISP Workshop and System Demonstration Track. *Appeared in Microsoft Imagine Cup 2017 US Finals. Media Coverage on ACM TechNews, Cronkite PBS 8, FullCircle and ASU Now.*
- [18] S. Sengupta, T. Chakraborti, S. Sreedharan, and S. Kambhampati, “RADAR – A Proactive Decision Support System for Human-in-the-Loop Planning,” in *AAAI Fall Symposium on Human-Agent Groups*, 2017. Appeared previously in ICAPS 2017 UISP Workshop and System Demonstration Track.
- [19] S. G. Vadlamudi, T. Chakraborti, Y. Zhang, and S. Kambhampati, “Proactive Decision Support using Automated Planning,” *arXiv preprint arXiv:1606.07841*, 2016.
- [20] T. Chakraborti and S. Kambhampati, “Planning for Symbiotic Action,” in *AAMAS Doctoral Consortium*, 2016.
- [21] T. Chakraborti, V. V. Meduri, V. Dondeti, and S. Kambhampati, “A Game Theoretic Approach to Ad-Hoc Coalitions in Human-Robot Societies,” in *AAAI MIPC*, 2016.
- [22] T. Chakraborti, K. Talamadupula, Y. Zhang, and S. Kambhampati, “A Formal Framework for Studying Interaction in Human-Robot Societies,” in *AAAI Workshop on Symbiotic Cognitive Systems (SCS)*, 2016.
- [23] T. Chakraborti and S. Kambhampati, “Planning with Humans in the Loop,” in *ICAPS DC*, 2015.
- [24] T. Chakraborti and S. Kambhampati, “Efficient Coordination in Human-Robot Teams Using Mental Modeling and Plan Recognition,” in *ICAPS DC*, 2014.

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