Tathagata Chakraborti

[current] Ph.D. Student, CS, Arizona State University, USA
B.E., ETCE, Jadavpur University, India

Research Interests

- Human-aware and human-centric planning for automated agents - generating explainable plans and plan explanations for a social robot [1, 2, 10, 13, 14, 17, 18]
- Cooperating robots in and outside avenues of traditional human-robot teams - challenges in human-robot cohabitation [5, 6, 7, 8, 19, 20, 21]
- Alternative modes of communication – augmented reality (AR) / electroencephalography (EEG) – for effective human-robot interaction in semi-autonomous workspaces [15]
- Crowdsourced planning and proactive decision support - planning techniques to guide and critique behavior of humans engaged in planning/scheduling tasks [3, 9, 11, 12, 16, 22]

Publications

Conferences

[1] **Explanation Generation as Model Reconciliation in Multi-Model Planning**. *T. Chakraborti*, S. Sreedharan, S. Kambhampati and Y. Zhang. IJCAI 2017.

[2] **Plan Explicability and Predictability for Robot Task Planning**. Y. Zhang, S. Sreedharan, A. Kulkarni, *T. Chakraborti*, H. H. Zhuo and S. Kambhampati. ICRA 2017.

[3] **UbuntuWorld 1.0 LTS - A Platform for Automated Problem Solving & Troubleshooting in the Ubuntu OS**. *T. Chakraborti*, K. Talamadupula, K. P. Fadnis, M. Campbell, S. Kambhampati. IAAI 2017.

[4] **Compliant Conditions for Polynomial Time Approximation of Operator Counts**. *T. Chakraborti*, S. Sreedharan, S. Sengupta, T. K. Satish, and S. Kambhampati. SoCS 2016.

[5] **Planning with Resource Conflicts in Human-Robot Cohabitation**. *T. Chakraborti*; Y. Zhang; D. Smith and S. Kambhampati. AAMAS 2016.

[6] **Planning for Serendipity**. *T. Chakraborti*; G. Briggs; K. Talamadupula; Y. Zhang; M. Scheutz; D. Smith; and S. Kambhampati. IROS 2015.

[7] **A Human Factors Analysis of Proactive Support in Human-Robot Teaming**. Y. Zhang; V. Narayanan; *T. Chakraborti*; and S. Kambhampati. IROS 2015.

[8] **Coordination in Human-Robot Teams Using Mental Modeling and Plan Recognition**. K. Talamadupula, G. Briggs, *T. Chakraborti*, M. Scheutz, S. Kambhampati. IROS 2014.

[9] **AI-MIX: How a Planner Can Help Guide Humans Towards a Better Crowdsourced Plan**. L. Manikonda, *T. Chakraborti*, S. De, K. Talamadupula, S. Kambhampati. IAAI 2014.

Journals & Book Chapters

[10] **AI Challenges for Cognitive Human-Robot Teaming.** *T. Chakraborti*, S. Kambhampati, M. Scheutz, and Y. Zhang. Submitted to IEEE Intelligent Systems. *[Under Review]*

[11] **Herding the Crowd: Using Automated Planning for Better Crowdsourced Planning**. L. Manikonda, *T. Chakraborti*, S. De, K. Talamadupula, S. Kambhampati. In the Journal of Human Computation.

Workshops, Demos & Miscellaneous

[12] **Mr. Jones – Towards a Proactive Smart Room Orchestrator.** *T. Chakraborti*, K. Talamadupula, M. Dholakia, B. Srivastava, J. Kephart, and R. Bellamy. AAAI 2017 Fall Symposium on Human-Agent Groups: Studies, Algorithms and Challenges.

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[13] **Balancing Explicability and Explanation in Human-Aware Planning.** S. Sreedharan*, *T. Chakraborti**, and S. Kambhampati. AAAI 2017 Fall Symposium on Artificial Intelligence for Human-Robot Interaction.

[14] **Explanations as Model Reconciliation – A Mutli-Agent Perspective.** S. Sreedharan*, *T. Chakraborti**, S. Kambhampati. AAAI 2017 Fall Symposium on Human-Agent Groups: Studies, Algorithms & Challenges.

[15] **Alternative Modes of Interaction in Proximal Human-in-the-Loop Operation of Robots.**. *T. Chakraborti*, S. Sreedharan, A. Kulkarni, and S. Kambhampati. ICAPS 2017 Workshop on User Interfaces and Scheduling and Planning (UISP); and ICAPS 2017 System Demonstrations and Exhibits.

[16] **RADAR - A Proactive Decision Support System for Human-in-the-Loop Planning**. S. Sengupta, T. Chakraborti, S. Sreedharan, S. G. Vadlamudi, and S. Kambhampati. ICAPS 2017 Workshop on User Interfaces and Scheduling and Planning (UISP); and ICAPS 2017 System Demonstrations and Exhibits.

[17] **Explicable Robot Planning as Minimizing Distance from Expected Behavior**. A. Kulkarni, *T. Chakraborti*, Y. Zhang, S. Vadlamudi, and S. Kambhampati.

[18] **Plan Explainability and Predictability for Robot Task Planning**. Y. Zhang; S. Sreedharan; A. Kulkarni; *T. Chakraborti*; H. H. Zhuo; and S. Kambhampati. In RSS Workshop on Planning for Human-Robot Interaction: Shared Autonomy and Collaborative Robotics.

[19] **An ROS-based Shared Communication Middleware for Plug & Play Modular Intelligent Design of Smart Systems.** *T. Chakraborti*, S. Srivastava, A. Pinto, and S. Kambhampati.

[20] **A Formal Framework for Studying Interaction in Human-Robot Societies**. *T. Chakraborti*; K. Talamadupula; Y. Zhang; S. Kambhampati. In AAAI 2016 Workshop on Symbiotic Cognitive Systems (SCS).

[21] **A Game-Theoretic Approach to Ad-hoc Coalition Formation in Human-Robot Societies.** *T. Chakraborti*; Venkata Vamsikrishna Meduri; Vivek Dondeti; and S. Kambhampati. In AAAI 2016 Workshop on Multiagent Interaction without Prior Coordination (MIPC).

[22] **AI-MIX: How a Planner Can Help Guide Humans Towards a Better Crowdsourced Plan**. L. Manikonda, *T. Chakraborti*, S. De, K. Talamadupula, S. Kambhampati. In ICAPS 2014 Scheduling and Planning Applications Workshop (SPARK). Also appears in HCOMP WiP 2014.

Summary of Academic Activities

- [current] PhD program, CS, ASU. (since Fall 2013) - *Overall Graduate GPA:* **4.0**/4.
- Bachelor of Engineering in Electronics and Telecommunication from Jadavpur University, India. (2009-13) - *CGPA:* **8.97**/10 (*84.45%*, First Class Honours)

Professional Experience

- Fall 2013 - present: graduate research assistant at Yochan Lab, ASU under Dr. Subbarao Kambhampati.
- Summer 2017: 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.*
- Summer 2016: 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.*
- Summer 2015: intern at **United Technologies Research Center**, Berkeley. Worked with Dr. Siddharth Srivastava on *Plug & Play Distributed Intelligent Agents.*

Service/Involvement

- Publicity Chair for ICAPS 2019, Berkeley
- [in process] Co-Chair of the HRI 2018 Workshop on Virtual, Augmented and Mixed Reality for Human-Robot Interaction (VAM4HRI)
- IJCAI 2017 Workshop on Explainable AI (XAI) PC
- Co-Chair of the AAMAS 2017 Workshop on Multi-Agent Interaction Without Prior Coordination (MIPC)
- Member of the IJCAI 2016 Review Process Committee

- Reviewer for AAAI'14, AAAI'15, AAAI'17, ICAPS'17, IROS'16 and ICRA'18; AI-HRI AAAI'16 Fall Symposium; JAR; JAAMAS; IEEE Transactions SMC - Part B; IEEE TBioCAS; etc.
- Student volunteer for GPSA, ASU.
- Student volunteer at ICAPS'14 and AAMAS'16.

Awards and Recognition

- Partnership of AI. Author of Primer for Pillar on Collaborations between People and AI. Working Committee meeting at Berlin, 2017.
- Microsoft Imagine Cup 2017 US Finalist, leader of team ÆRobotics In the news ...
- IBM PhD Fellowship 2016-18 twice in a row! In the news ...
- University Graduate Fellowship Awards Fall 2013 - Spring 2014 - Spring 2015 - Spring 2017
- People's Choice Best System Demonstration Award ICAPS'14
- Travel Grants from ICAPS'14-15, IROS'15, SoCS'16, AAMAS'16, IJCAI'17
- Central Board of Secondary Education Merit Scholarship 2009-13
- Certificate of Merit in Science (Physics) in 2009

current as of 10/19/2017

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