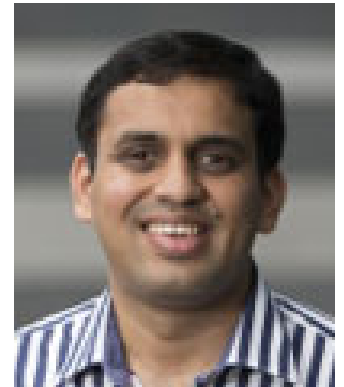


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**Education**

PhD, University of Southern California, United States of America, 2007  
Master of Science, University of Southern California, United States of America, 2005  
Bachelor of Information Systems, International Institute of Information Technology, India, 2002

**Academic Appointments**

Professor of Computer Science, School of Computing and Information Systems, SMU, Jul 2022 - Present  
Associate Professor of Computer Science, School of Computing and Information Systems, SMU, Apr 2021 - Jun 2022  
Associate Professor of Information Systems, School of Computing and Information Systems, SMU, Jan 2017 - Mar 2021  
Assistant Professor of Information Systems, School of Computing and Information Systems, SMU, Jul 2009 - Dec 2016  
Lecturer of Information Systems, School of Computing and Information Systems, SMU, Jun 2009 - Jun 2009

**Academic Administrative Positions**

Director, CARE.AI Lab, School of Computing and Information Systems, SMU, Jul 2021 - Present  
Principal Investigator/Co-PI, AISG Project, School of Computing and Information Systems, SMU, Apr 2021 - Present  
Coordinator, BSc (CS) Artificial Intelligence Track, School of Computing and Information Systems, SMU, Jul 2018 - Present

**RESEARCH**

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**Research Interests**

Planning under Uncertainty: Markov Decision Problems (MDPs), Partially Observable MDPs, Decentralized MDPs and POMDPs, Influence Maximization, Online Matching  
 Scheduling under uncertainty: Resource Constrained Project Scheduling Problems (RCPSP) with durational uncertainty and Selfish RCPSPs  
 Game Theory: Congestion Games, Stochastic Games, Selfish Routing, Behavioral Models  
 Learning: Reinforcement Learning (RL), Deep Learning and Inverse RL

## Publications

### Journal Articles [Refereed]

Zone pAth Construction (ZAC) based approaches for effective real-time ridesharing, by LOWALEKAR, Meghna; VARAKANTHAM, Pradeep; JAILLET, Patrick. (2021). *Journal of Artificial Intelligence Research*, 70 119-167. <https://jair.org/index.php/jair/article/view/11998/26644> (Published)

Online spatio-temporal matching in stochastic and dynamic domains, by LOWALEKAR, Meghna; VARAKANTHAM, Pradeep; JAILLET, Patrick. (2018). *Artificial Intelligence*, 261 71-112. <https://doi.org/10.1016/j.artint.2018.04.005> (Published)

Risk-Sensitive Stochastic Orienteering Problems for Trip Optimization in Urban Environments, by VARAKANTHAM, Pradeep; KUMAR, Akshat; LAU, Hoong Chuin. (2018). *ACM Transactions on Intelligent Systems and Technology*, 9 (3), 1-25. <https://doi.org/10.1145/3080575> (Published)

Sampling Based Approaches for Minimizing Regret in Uncertain Markov Decision Processes (MDPs), by AHMED, Asrar; VARAKANTHAM, Pradeep; LOWALEKAR, Meghna; ADULYASAK, Yossiri; JAILLET, Patrick. (2017). *Journal of Artificial Intelligence Research*, 59 229-264. <https://doi.org/10.1613/jair.5242> (Published)

Dynamic Repositioning to Reduce Lost Demand in Bike Sharing Systems, by GHOSH, Supriyo; VARAKANTHAM, Pradeep; ADULYASAK, Yossiri; JAILLET, Patrick. (2017). *Journal of Artificial Intelligence Research*, 58 387-430. <https://doi.org/10.1613/jair.5308> (Published)

An extended study on addressing defender teamwork while accounting for uncertainty in attacker defender games using iterative Dec-MDPs, by SHIEH, Eric; JIANG, Albert Xin; YADAV, Amulya; VARAKANTHAM, Pradeep Reddy; TAMBE, Milind. (2016). *Multiagent and Grid Systems*, 11 (4), 189-226. <http://doi.org/10.3233/MGS-150236> (Published)

Robust execution strategies for project scheduling with unreliable resources and stochastic durations, by FU, Na; LAU, Hoong Chuin; VARAKANTHAM, Pradeep. (2015). *Journal of Scheduling*, 18 (6), 607-622. <http://doi.org/10.1007/s10951-015-0425-1> (Published)

TESLA: an extended study of an energy-saving agent that leverages schedule flexibility, by KWAK, Jun Young; VARAKANTHAM, Pradeep Reddy; MAHESWARAN, Rajiv; TAMBE, Milind; BECERIK-GERBER, Burcin. (2014). *Autonomous Agents and Multi-Agent Systems*, 28 (4), 605-636. <https://doi.org/10.1007/s10458-013-9234-0> (Published)

Coordinating occupant behavior for building energy and comfort management using multi-agent systems, by Klein, Laura; Kwak, Jun Young; Kavulya, Geoffrey; Jazizadeh, Farrokh; Becerik-Gerber, Burcin; VARAKANTHAM, Pradeep; Tambe, Milind. (2012). *Automation in Construction*, 22 525-536. <http://doi.org/10.1016/j.autcon.2011.11.012> (Published)

Robust Local Search for Solving RCPSP/max with Durational Uncertainty, by FU, Na; LAU, Hoong Chuin; VARAKANTHAM, Pradeep; XIAO, Fei. (2012). *Journal of Artificial Intelligence Research*, 43 43-86. <http://www.jair.org/papers/paper3424.html> (Published)

Introducing communication in Dis-POMDPs with locality of interaction, by Tasaki, Makoto; Yabu, Yuichi; Iwanari, Yuki; Yokoo, Makoto; Marecki, Janusz; VARAKANTHAM, Pradeep Reddy; Tambe, Milind. (2010). *Web Intelligence and Agent Systems*, 8 (3), 303-311. <http://dx.doi.org/10.3233/WIA-2010-0193> (Published)

Privacy loss in distributed constraint reasoning: A quantitative framework for analysis and its applications, by Maheswaran, Rajiv; Pearce, Jonathan; Bowring, Emma; Varakantham, Pradeep Reddy; Tambe, Milind.

(2006). *Autonomous Agents and Multi-Agent Systems*, 13 (1), 27-60.  
<http://dx.doi.org/10.1007/s10458-006-5951-y> (Published)

### Book Chapters

Adjustable Autonomy Challenges in Personal Assistant Agents: A Position Paper, by Maheswaran, Rajiv; Tambe, Milind; Varakantham, Pradeep; Myers, Karen. (2006). In Nickles, Matthias; Rovatsos, Michael; Weiss, Gerhard (Ed.), *Agents and Computational Autonomy: Potential, Risks, and Solutions* (pp. 187-194) Berlin: Springer Verlag. [http://dx.doi.org/10.1007/978-3-540-25928-2\\_15](http://dx.doi.org/10.1007/978-3-540-25928-2_15) (Published)

### Conference Proceedings

Safety through feedback in constrained RL, by CHIRRA, Shashank Reddy; VARAKANTHAM, Pradeep; PARUCHURI, Praveen. (2024.0). *Proceedings of 38th Annual Conference on Neural Information Processing Systems (NeurIPS 2024) : Vancouver, Canada, December 10-15*, Vancouver, Canada: NeurIPS. (Published)

Improving environment novelty quantification for effective unsupervised environment design, by TEOH, Jayden; LI, Wenjun; VARAKANTHAM, Pradeep. (2024.0). *Proceedings of 38th Annual Conference on Neural Information Processing Systems (NeurIPS 2024) : Vancouver, Canada, December 10-15*, Vancouver, Canada: NeurIPS. (Published)

SPRINQL : Sub-optimal demonstrations driven offline imitation learning, by HOANG, Minh Huy; MAI, Tien; VARAKANTHAM, Pradeep. (2024.0). *Proceedings of 38th Annual Conference on Neural Information Processing Systems (NeurIPS 2024) : Vancouver, Canada, December 10-15*, Vancouver, Canada: NeurIPS. (Accepted)

IRL for restless multi-armed bandits with applications in maternal and child health, by JAIN, Gauri; VARAKANTHAM, Pradeep; XU, Haifeng; TANEJA, Aparna; DOSHI, Prashant; TAMBE, Milind. (2024.0). *PRICAI 2024: Trends in artificial intelligence: 21st Pacific Rim International Conference on Artificial Intelligence, Kyoto, November 18-24*, (pp. 165-178) Cham: Springer. [https://doi.org/10.1007/978-981-96-0128-8\\_15](https://doi.org/10.1007/978-981-96-0128-8_15) (Published)

Imitating cost-constrained behaviors in reinforcement learning, by SHAO, Qian; VARAKANTHAM, Pradeep; CHENG, Shih-Fen. (2024.0). *Proceedings of the 34th International Conference on Automated Planning and Scheduling, ICAPS 2024: Banff, June 1-6*, (pp. 514-522) Banaff: Association for the Advancement of Artificial Intelligence. <https://doi.org/10.1609/icaps.v34i1.31512> (Published)

Reward penalties on augmented states for solving richly constrained RL effectively, by HAO, Jiang; MAI, Tien; VARAKANTHAM, Pradeep; HOANG, Minh Huy. (2024.0). *Proceedings of the 38th Annual AAAI Conference on Artificial Intelligence : Vancouver, Canada, February 20-27*, (pp. 19867-19875) Vancouver, Canada: Association for the Advancement of Artificial Intelligence .  
<https://doi.org/10.1609/aaai.v38i18.29962> (Published)

Unsupervised training sequence design: Efficient and generalizable agent training, by LI, Wenjun; VARAKANTHAM, Pradeep. (2024.0). *Proceedings of the AAAI Conference on Artificial Intelligence 2024: Vancouver, February 20-27: Proceedings*, (pp. 13637-13645) Briarcliff Manor, NY: AAAI Press.  
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Handling long and richly constrained tasks through constrained hierarchical reinforcement learning, by LU, Yuxiao; SINHA, Arunesh; VARAKANTHAM, Pradeep. (2024.0). *Proceedings of the 38th Annual AAAI Conference on Artificial Intelligence, Vancouver, Canada, 2024 February 20-27*, Washington: AAAI. (Accepted)

Imitate the good and avoid the bad: An incremental approach to safe reinforcement learning, by HOANG, Minh Huy; TIEN, Mai Anh; VARAKANTHAM, Pradeep. (2024.0). *Proceedings of the 38th Annual AAAI Conference on Artificial Intelligence, Vancouver, Canada, 2024 February 20-27*, Washington: AAAI.  
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Transferable curricula through difficulty conditioned generators, by TIO, Sidney; VARAKANTHAM,

Pradeep. (2023.0). *Proceedings of the 32nd International Joint Conference on Artificial Intelligence, IJCAI 2023: Macao, August 19-25*, (pp. 4883-4891) Washington, DC: AAAI Press. <https://doi.org/10.24963/ijcai.2023/543> (Published)

Generalization through diversity: Improving unsupervised environment design, by LI, Wenjun; VARAKANTHAM, Pradeep; LI, Dexun. (2023.0). *Proceedings of the 32nd International Joint Conference on Artificial Intelligence, IJCAI 2023: Macao, August 19-25*, (pp. 5411-5419) Washington, DC: AAAI Press. <https://doi.org/10.24963/ijcai.2023/601> (Published)

Avoiding starvation of arms in restless multi-armed bandit, by LI, Dexun; VARAKANTHAM, Pradeep . (2023.0). *Proceedings of the 22nd International Conference on Autonomous Agents and Multiagent Systems, London, May 29-June 02*, (pp. 1303-1311) Taipei: International Foundation for Autonomous Agents and Multiagent Systems . (Published)

Knowledge compilation for constrained combinatorial action spaces in reinforcement learning, by LING, Jiajing; SCHULER, Moritz Lukas; KUMAR, Akshat; VARAKANTHAM, Pradeep. (2023.0). *Proceedings of the 22nd International Conference on Autonomous Agents and Multiagent Systems, London, Great Britain, 2023 May 29-June 2*, (pp. 860 - 86-868) London: International Foundation for Autonomous Agents and Multiagent Systems. (Published)

Strategic planning for flexible agent availability in large taxi fleets, by KUMAR, Rajiv; VARAKANTHAM, Pradeep; CHENG, Shih-Fen. (2023.0). *Proceedings of the 22nd International Conference on Autonomous Agents and Multiagent Systems, London, 2023 May 29 - June 2*, (pp. 552-560) New York: ACM. <https://doi.org/10.5555/3545946.3598683> (Published)

Constrained reinforcement learning in hard exploration problems, by PATHMANATHAN, Pankayaraj; VARAKANTHAM, Pradeep. (2023.0). *Proceedings of the AAAI Conference on Artificial Intelligence*, (pp. 15055-15063) Washington DC: Association for the Advancement of Artificial Intelligence. <https://doi.org/10.1609/aaai.v37i12.26757> (Published)

Future aware pricing and matching for sustainable on-demand ride pooling, by ZHANG, Xianjie; VARAKANTHAM, Pradeep; JIANG, Hao. (2023.0). *Proceedings of the 37th AAAI Conference on Artificial Intelligence, Washington, USA, 2023 February 7-14*, (pp. 14628-14636) Washington: AAAI. <https://doi.org/10.1609/aaai.v37i12.26710> (Published)

Efficient resource allocation with fairness constraints in restless multi-armed bandits, by LI, Dexun; VARAKANTHAM, Pradeep. (2022.0). *Proceedings of the 38th Conference on Uncertainty in Artificial Intelligence, (UAI 2022), Eindhoven, Netherlands, 2022 August 1-5*, (pp. 1158-1167) USA: AUAI Press. (Published)

Joint pricing and matching for city-scale ride pooling, by SHAH, Sanket; LOWALEKAR, Meghna; VARAKANTHAM, Pradeep. (2022.0). *Proceedings of the 32nd International Conference on Automated Planning and Scheduling, Singapore, Singapore, Virtually, 2022 June 13-24*, (pp. 499-507) California: AAAI. <https://doi.org/10.1609/icaps.v32i1.19836> (Published)

Hierarchical value decomposition for effective on-demand ride pooling, by HAO, Jiang; VARAKANTHAM, Pradeep. (2022.0). *Proceedings of the 21st International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2022), Virtual Conference, May 9-13*, (pp. 1-8) Virtual: IFAAMAS. (Forthcoming)

Field study in deploying restless multi-armed bandits: assisting non-profits in improving maternal and child health, by MATE, Aditya; MADAN, Lovish; TANEJA, Aparna; MADHIWALLA, Neha; VERMA, Shresth; SINGH, Gargi; HEGDE, Aparna; VARAKANTHAM, Pradeep; TAMBE, Milind. (2022.0). *Proceedings of the 36th AAAI Conference on Artificial Intelligence 2022, Virtual, February 22 - March 1*, (pp. 12017-12025) Washington, DC: AAAI Press. <https://doi.org/10.1609/aaai.v36i11.21460> (Published)

Learn to intervene: An adaptive learning policy for restless bandits in application to preventive healthcare, by BISWAS, Arpita; AGGARWAL, Gaurav; VARAKANTHAM, Pradeep; TAMBE, Milind . (2021.0). *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI-21), Virtual Conference, 2021 August 19-26*, (pp. 4039-4046) Virtual Conference: IJCAI. (Published)

CLAIM: Curriculum learning policy for influence maximization in unknown social networks , by LI, Dexun; LOWALEKAR, Meghna; VARAKANTHAM, Pradeep. (2021.0). *Proceedings of the 37th Conference on Uncertainty in Artificial Intelligence (UAI 2021), Virtual Conference, July 27-30*, (pp. 1-11) Virtual Conference: AAMAS . (Published)

Adaptive operating hours for improved performance of taxi fleets, by KUMAR, Rajiv Ranjan; VARAKANTHAM, Pradeep; CHENG, Shih-Fen

. (2021.0). *Proceedings of the 20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2021), Virtual Conference, May 3-7*, (pp. 728-736) Richland, SC: IFAAMAS. <https://doi.org/10.5555/3463952.3464040> (Published)

Learning index policies for restless bandits with application to maternal healthcare, by BISWAS, Arpita; AGGARWAL, Gaurav; VARAKANTHAM, Pradeep; TAMBE, Milind. (2021.0). *AAMAS '21: 20th International Conference on Autonomous Agents and Multiagent Systems*, (pp. 1467-1468) London: (Published)

Online traffic signal control through sample-based constrained optimization, by DHAMIJA, Srishti; GON, Alolika; VARAKANTHAM, Pradeep; YEOH, William. (2020.0). *Proceedings of the 30th International Conference on Automated Planning and Scheduling, ICAPS 2020: Nancy, France, October 26-30*, (pp. 366-374) Menlo Park, CA: AAAI Press. (Published)

Competitive ratios for online multi-capacity ridesharing, by LOWALEKAR, Meghna; VERAKANTHAM, Pradeep; JAILLET, Patrick. (2020.0). *Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems, AAMAS.*, (pp. 771-779) UK: IFAAMAS. (Published)

Neural approximate dynamic programming for on-demand ride-pooling, by SHAH, Sanket; LOWALEKAR, Megha; VARAKANTHAM, Pradeep. (2020.0). *Proceedings of the AAAI Conference on Artificial Intelligence: 34th AAAI Conference on Artificial Intelligence, February 7-12*, (pp. 507-515) Menlo Park, CA: AAAI press. <https://doi.org/10.1609/aaai.v34i01.5388> (Published)

Solving online threat screening games using constrained action space reinforcement learning, by SHAH, Sanket; SINHA, Arunesh; VARAKANTHAM, Pradeep; PERRAULT, Andrew; TAMBE, Millind. (2020.0). *Proceedings of 34rd AAAI Conference on Artificial Intelligence (AAAI), New York, 2020 February 7-12*, (pp. 1-10) Palo Alto, CA: AAAI Press. <https://doi.org/10.1609/aaai.v34i02.5599> (Published)

Correlated learning for aggregation systems, by VERMA, Tanvi, VARAKANTHAM, Pradeep. (2019.0). *Uncertainty in Artificial Intelligence UAI 2019: Tel Aviv, Israel, July 22-25: Proceedings*, (pp. 1-11) Tel Aviv: UAI. (Published)

Entropy based independent learning in anonymous multi-agent settings, by VERMA, Tanvi; VARAKANTHAM, Pradeep; LAU, Hoong Chuin. (2019.0). *Proceedings of the Twenty-Ninth International Conference on Automated Planning and Scheduling (ICAPS 2019): Berkeley, CA, July 11-15*, (pp. 655-663) Menlo Park, CA: AAAI Press. (Published)

ZAC: A Zone pAth Construction approach for effective real-time ridesharing, by LOWALEKAR, Meghna; VARAKANTHAM, Pradeep; JAILLET, Patrick. (2019.0). *Proceedings of the Twenty-Ninth International Conference on Automated Planning and Scheduling: Berkeley, CA, July 11-15*, (pp. 528-538) Menlo Park, CA: AAAI Press. (Published)

RE-ORG: An online repositioning guidance agent, by KONDA, Muralidhar; VARAKANTHAM, Pradeep; SAXENA, Aayush; LOWALEKAR, Meghna. (2019.0). *Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems AAMAS 2019, Montreal, May 13-17*, (pp. 2369-2371) Richland, SC: IFAAMAS. (Published)

A homophily-free community detection framework for trajectories with delayed responses, by HAN, Chung-Kyun; CHENG, Shih-Fen; VARAKANTHAM, Pradeep. (2019.0). *Proceedings of the 18th International Conference on Autonomous Agents and Multiagent Systems (AAMAS-19), Montreal, Canada, May 13-17*, (pp. 2003-2005) Montreal, Canada: ACM. <https://doi.org/10.5555/3306127.3331991> (Published)

A driver guidance system for taxis in Singapore, by JHA, Shashi Shekhar; CHENG, Shih-Fen; LOWALEKAR, Meghna; WONG, Nicholas; RAJENDRAM, Rishikeshan; VARAKANTHAM, Pradeep; TROUNG, Nghia Troung; BIN ABD RAHMAN, Firmansyah. (2018.0). *AAMAS '18: Proceedings of the 17th International Conference on Autonomous Agents and Multiagent Systems, Stockholm, July 10-15*, (pp. 1820-1822) Richland, SC: IFAAMAS. (Published)

Decentralized planning for non-dedicated agent teams with submodular rewards in uncertain environments, by AGRAWAL, Pritee; VARAKANTHAM, Pradeep; YEOH, William. (2018.0). *Uncertainty in Artificial Intelligence, UAI - 18, Monterey, California, US, 2018 July 7-9*, Monterey, California, US: (Published)

Bounded rank optimization for effective and efficient emergency response, by MANOHAR, Pallavi; VARAKANTHAM, Pradeep; LAU, Hoong Chuin. (2018.0). *Proceedings International Conference on*

*Automated Planning and Scheduling ICAPS 2018: Delft, Netherlands, June 24-29*, (pp. 375-382) Palo Alto, CA: AAAI Press. (Published)

Reserved optimization: Handling incident priorities in emergency response systems, by KONDA, Muralidhar Konda; GHOSH, Supriyo; VARAKANTHAM, Pradeep. (2018.0). *Proceedings of International Conference on Automated Planning and Scheduling, ICAPS-18, Netherlands, Europe, UK, 2018 June 24-29*, Netherlands, Europe, UK: (Published)

Upping the game of taxi driving in the age of Uber, by JHA, Shashi Shekhar; CHENG, Shih-Fen; LOWALEKAR, Meghna; WONG, Wai Hin; RAJENDRAM, Rishikeshan; TRAN, Trong Khiem; VARAKANTHAM, Pradeep; TRUONG TRONG, Nghia ; ABD RAHMAN, Firmansyah;. (2018.0). *Proceedings of the Thirtieth AAAI Conference on Innovative Applications of Artificial Intelligence, New Orleans, 2018, February 2-7*, (pp. 7779-7785) Menlo Park, CA: AAAI Press. (Published)

Dispatch guided allocation optimization for effective emergency response, by GHOSH, Supriyo; VARAKANTHAM, Pradeep. (2018.0). *Proceedings of the 32nd AAAI Conference on Artificial Intelligence 2018, February 2-7, New Orleans*, (pp. 775-783) Menlo Park, CA: AAAI Press. (Published)

Mechanism design for strategic project scheduling, by VARAKANTHAM, Pradeep; FU, Na. (2017.0). *Proceedings of the 26th International Joint Conference on Artificial Intelligence, Melbourne, Australia, 2017 August 19-25*, Melbourne, Australia: (Published)

Proactive and reactive coordination of non-dedicated agent teams operating in uncertain environments, by AGRAWAL, Pritee; VARAKANTHAM, Pradeep. (2017.0). *Proceedings of the 26th International Joint Conference on Artificial Intelligence IJCAI-17, Melbourne, Australia, August 19-25*, (pp. 28-34) Vienna: IJCAI. <https://doi.org/10.24963/ijcai.2017/5> (Published)

Augmenting decisions of taxi drivers through reinforcement learning for improving revenues, by VERMA, Tanvi; VARAKANTHAM, Pradeep; KRAUS, Sarit; LAU, Hoong Chuin. (2017.0). *Proceedings of the 27th International Conference on Automated Planning and Scheduling ICAPS 2017: Pittsburgh, June 18-23*, (pp. 409-417) Palo Alto, CA: AAAI Press. (Published)

Online repositioning in bike sharing systems, by LOWALEKAR, Meghna; VARAKANTHAM, Pradeep; GHOSH, Supriyo; JENA, Sanjay Dominik; JAILLET, Patrick. (2017.0). *Proceedings of the 27th International Conference on Automated Planning and Scheduling 27th ICAPS 2017, Pittsburgh, PA, June 18-23*, (pp. 200-208) Palo Alto, CA: AAAI. (Published)

Incentivizing the use of bike trailers for dynamic repositioning in bike sharing systems, by GHOSH, Supriyo; VARAKANTHAM, Pradeep. (2017.0). *Proceedings of the 27th International Conference on Automated Planning and Scheduling ICAPS 2017, Pittsburgh, PA, June 18-23*, (pp. 373-381) Palo Alto, CA: AAAI Press. (Published)

Exploiting anonymity and homogeneity in factored Dec-MDPs through pre-computed binomial distributions, by KUMAR, Rajiv Ranjan; VARAKANTHAM, Pradeep. (2017.0). *16th International Conference on Autonomous Agents and Multiagent Systems, AAMAS*, (pp. 732-740) Sao Paulo, Brazil: International Foundation for Autonomous Agents and Multiagent Systems. <http://www.ifaamas.org/Proceedings/aamas2017/pdfs/p732.pdf> (Published)

Decentralized planning in stochastic environments with submodular rewards, by KUMAR, Rajiv Ranjan; VARAKANTHAM, Pradeep; KUMAR, Akshat. (2017.0). *Proceedings of the 31st AAAI Conference on Artificial Intelligence 2017: San Francisco, February 4-10*, (pp. 3021-3028) Menlo Park, CA: AAAI Press. (Published)

An intelligent system for personalized conference event recommendation and scheduling, by GUNAWAN, Aldy; LAU, Hoong Chuin; VARAKANTHAM, Pradeep; WANG, Wenjie. (2016.0). *ECAI 2016: 22nd European Conference on Artificial Intelligence, 29 August-2 September 2016, The Hague*, (pp. 1797-1802) Amsterdam: IOS Press. <https://doi.org/10.3233/978-1-61499-672-9-1797> (Published)

Detecting communities using coordination games: A short paper, by ARAVA, Radhika; VARAKANTHAM, Pradeep. (2016.0). *Proceedings on the 22nd European Conference on Artificial Intelligence: ECAI 2016, The Hague, Netherlands, 2016 August 29 - September 2*, (pp. 1752-1753) Amsterdam: IOS Press. <http://doi.org/10.3233/978-1-61499-672-9-1752> (Published)

Scalable greedy algorithms for task/resource constrained multi-agent stochastic planning, by AGRAWAL, Pritee; VARAKANTHAM, Pradeep; YEOH, William. (2016.0). *Proceedings of the 25th International Joint Conference on Artificial Intelligence IJCAI 2016: New York, July 9-15*, (pp. 10-16) Palo Alto, CA: AAAI Press. (Published)

Robust repositioning to counter unpredictable demand in bike sharing systems, by GHOSH, Supriyo; TRICK, Michael; VARAKANTHAM, Pradeep. (2016.0). *Proceedings of the 25th International Joint Conference on Artificial Intelligence IJCAI 2016: New York, July 9-15*, (pp. 3096-3102) Palo Alto, CA: AAAI Press. (Published)

Sequential decision making for improving efficiency in urban environments, by VARAKANTHAM, Pradeep. (2016.0). *Proceeding of the 25th International Joint Conference on Artificial Intelligence: IJCAI 2016, New York; United States; 2016 July 9-15*, New York: AAAI Press. (Published)

Robust partial order schedules for RCPSP/max with durational uncertainty, by FU, Na; VARAKANTHAM, Pradeep; LAU, Hoong Chuin. (2016.0). *Proceedings of the 26th International Conference on Automated Planning and Scheduling: London, June 12-17, 2016*, (pp. 124-130) Menlo Park, CA: AAAI. (Published)

Strategic planning for setting up base stations in emergency medical systems, by GHOSH, Supriyo; VARAKANTHAM, Pradeep. (2016.0). *Proceedings of the 26th International Conference on Automated Planning and Scheduling (ICAPS 2016): London, June 12-17*, (pp. 385-393) Palo Alto, CA: AAAI Press. (Published)

Robust influence maximization, by LOWALEKAR, Meghna; VARAKANTHAM, Pradeep; KUMAR, Akshat. (2016.0). *AAMAS '16: Proceedings of the 15th International Conference on Autonomous Agents and Multiagent Systems, Singapore, May 9-13*, (pp. 1395-1396) Richland, NC: IFAAMAS. (Published)

Solving risk-sensitive POMDPs with and without cost observations, by HOU, Ping; YEOH, William; VARAKANTHAM, Pradeep Reddy. (2016.0). *Proceedings of the AAAI Conference on Artificial Intelligence 2016: Phoenix Arizona, February 12-17, 2016*, Menlo Park, CA: AAAI Press. (Published)

NLU Framework for voice enabling non-native applications on smart devices, by LANKA, Soujanya; PANTHANIA, Deepika; KUSHALAPPA, Pooja; VARAKANTHAM, Pradeep Reddy. (2016.0). *Proceedings of the 30th AAAI Conference on Artificial Intelligence 2016: Phoenix, Arizona, February 12-17*, (pp. 4359-4360) Menlo Park, CA: AAAI Press. (Published)

Online spatio-temporal matching in stochastic and dynamic domains, by LOWALEKAR, Meghna; VARAKANTHAM, Pradeep; JAILLET, Patrick. (2016.0). *Proceedings of the 30th AAAI Conference on Artificial Intelligence 2016: Phoenix, Arizona, February 12-17*, (pp. 3271-3277) Palo Alto, CA: AAAI Press. (Published)

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GHOSH; VARAKANTHAM, Pradeep Reddy; ADULYASAK, Yossiri; JAILLET, Patrick. (2015.0). *Proceedings of the Twenty-Fifth International Conference on Automated Planning and Scheduling: Jerusalem, Israel, June 7-11, 2015*, (pp. 79-87) Menlo Park, CA: AAAI Press.

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Caching Schemes for DCOP Search Algorithms, by Yeoh, William; Varakantham, Pradeep Reddy; Koenig, Sven. (2009.0). *Proceeding: AAMAS '09 Proceedings of The 8th International Conference on Autonomous Agents and Multiagent Systems - Volume 1*, (pp. 609-616) Richland, SC: International Foundation for Autonomous Agents and Multiagent Systems. <http://portal.acm.org/citation.cfm?id=1558098> (Published)

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Towards efficient computation of quality bounded solutions in POMDPs, by Varakantham, Pradeep Reddy; Maheswaran, Rajiv; GUPTA, Tapan; Tambe, Milind. (2007.0). *Proceedings of the Twentieth International Joint Conference on Artificial Intelligence, IJCAI*, (pp. 2683-2643) <http://portal.acm.org/citation.cfm?id=1625700> (Published)

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Winning back the CUP for Distributed POMDPs: Planning over continuous belief spaces, by Varakantham, Pradeep Reddy; Nair, Ranjit; Tambe, Milind; Yokoo, Makoto. (2006.0). *AAMAS'06 : proceedings of the Fifth International Joint Conference on Autonomous Agents and Multiagent Systems Hakodate, Japan, May 8-12, 2006*, New York: ACM. <http://portal.acm.org/citation.cfm?id=1160683> (Published)

Implementation Techniques for Solving POMDPs in Personal Assistant Domains, by Varakantham, Pradeep Reddy; Maheswaran, Rajiv; Tambe, Milind. (2006.0). *Programming Multiagent Systems: Third International Workshop, ProMAS 2005, Utrecht, Netherlands, July 26, 2005: Revised and Invited Papers*,

(pp. 76-89) Berlin: Springer Verlag. [http://dx.doi.org/10.1007/11678823\\_5](http://dx.doi.org/10.1007/11678823_5) (Published)

Exploiting Belief Bounds: Practical POMDPs for Personal Assistant Agents, by Varakantham, Pradeep Reddy; Maheswaran, Rajiv; Tambe, Milind. (2005.0). *AAMAS 2005 : the Fourth International Joint Conference on Autonomous Agents and Multiagent Systems : Utrecht University, the Netherlands, July 25-29, 2005*, (pp. 978-985) New York: ACM. <http://dx.doi.org/10.1145/1082473.1082621> (Published)

Valuations of Possible States (VPS): A unifying quantitative framework for evaluating privacy in collaboration, by MAHESWARAN, Rajiv T.; PEARCE, Jonathan; VARAKANTHAM, Pradeep; Bowring, Emma; Tambe, Milind. (2005.0). *Proceedings of the 4th International Conference on Autonomous Agents and Multi Agent Systems, AAMAS 2005, July 25-29*, (pp. 1030-1037) Palo Alto, CA: AAAI Press. <https://doi.org/10.1145/1082473.1082629> (Published)

Conflicts in teamwork: Hybrids to the rescue, by Tambe, Milind; Bowring, Emma; Jung, H.; Kaminka, G.; Maheswaran, Rajiv; Marecki, Janusz; Modi, P. J.; Nair, Ranjit; Pearce, Jonathan; VARAKANTHAM, Pradeep Reddy. (2005.0). *AAMAS 2005 : the Fourth International Joint Conference on Autonomous Agents and Multiagent Systems : Utrecht University, the Netherlands, July 25-29, 2005*, New York: ACM. <http://dx.doi.org/10.1145/1082473.1082474> (Published)

Networked Distributed POMDPs: A Synthesis of Distributed Constraint Optimization and POMDPs, by Nair, Ranjit; Varakantham, Pradeep Reddy; Tambe, Milind; Yokoo, Makoto. (2005.0). *Proceedings of the Twentieth National Conference on Artificial Intelligence and the Seventeenth Innovative Applications of Artificial Intelligence Conference : July 9-13, 2005, Pittsburgh, Pennsylvania*, (pp. 133-139) Menko Park: AAAI Press. <http://portal.acm.org/citation.cfm?id=1619356> (Published)

Taking DCOP to the Real World: Efficient Complete Solutions for Distributed Event Scheduling, by Maheswaran, Rajiv; Tambe, Milind; Bowring, Emma; Pearce, Jonathan; VARAKANTHAM, Pradeep Reddy. (2004.0). *Proceedings of the third International Joint Conference on Autonomous Agents and Multiagent Systems : AAMAS 2004 : New York City, New York, USA, 19-23 July 2004*, New York, N.Y.: IEEE. <http://dx.doi.org/10.1109/AAMAS.2004.257> (Published)

### Conference Papers

Interacting Knapsack Problem in Designing Resource Bundles, by NGUYEN, Truong Huy D.; VARAKANTHAM, Pradeep; LAU, Hoong Chuin; CHENG, Shih-Fen. (2013.0). *Metaheuristics International Conference 10th MIC 2013, August 5-8, Singapore*. (Published)

Regret based Robust Solutions for Uncertain Markov Decision Processes, by Ahmed, Asrar; Varakantham, Pradeep Reddy; Adulyasak, Yossiri; Jaillet, Patrick. (2013.0). *Advances in Neural Information Processing Systems (NIPS)*, Lake Tahoe, San Francisco. (Presented)

Analyzing the Impact of Human Bias on Human-Agent Teams in Resource Allocation, by Paruchuri, Praveen; Varakantham, Pradeep Reddy; Sycara, Katia; Scerri, Paul. (2010.0). *International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS)*, Toronto, Canada. <http://www.cs.cmu.edu/~pscerri/papers/ParuchuriAAMAS10.pdf> (Published)

Risk-Sensitive Planning in Partially Observable, by Marecki, Janusz; Varakantham, Pradeep Reddy. (2010.0). *International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS)*, Toronto, Canada. (Published)

Hybrids in Multiagent Teamwork, by Paruchuri, Praveen; Bowring, Emma; Nair, Ranjit; Pearce, Jonathan; Schurr, Nathan; Tambe, Milind; VARAKANTHAM, Pradeep Reddy; Maheswaran, Rajiv. (2006.0). *Communications of the Computer Society of India*, <http://teamcore.usc.edu/papers/2006/tambe.pdf> (Published)

### Magazine Articles

Closing the data-decisions loop: Deploying artificial intelligence for dynamic resource management, by VARAKANTHAM, Pradeep. (2020, June). *Asian Management Insights*, 7(1), 28-33. (Published)

Electric Elves: What Went Wrong and Why, by TAMBE, Milind; BOWRING, Emma; PEARCE, Jonathan; VARAKANTHAM, Pradeep; SCERRI, Paul; PYNADATH, David V.. (2008, June). *AI Magazine*, 29(2), 23-31. <https://doi.org/10.1609/aimag.v29i2.2123> (Published)

## Working Papers

*Zone pAth Construction (ZAC) based approaches for effective real-time ridesharing*, by LOWALEKAR, Meghna; VARAKANTHAM, Pradeep; JAILLET, Patrick. (2020). (Published)

*Solving Selfish Routing Problems with Involuntary Movements and Bounded Rationality*, by VARAKANTHAM, Pradeep Reddy; Ahmed, Asrar; Cheng, Shih-Fen. (2014). Submitted to Artificial Intelligence Journal: (Published)

*Uncertain congestion games with assorted human agent populations*, by VARAKANTHAM, Pradeep; AHMED, Asrar; CHENG, Shih-Fen. (2013). (Published)

*Decision Support for Assorted Populations in Uncertain and Congested Environments*, by Varakantham, Pradeep Reddy; Ahmed, Asrar; CHENG, Shih-Fen. (2013). Will be submitting to Journal of Artificial Intelligence Research (JAIR). (Published)

## Other Outputs and Contributions

### Reports

*Towards efficient planning for real world partially observable domains* by Varakantham, Pradeep Reddy. (2007). <http://portal.acm.org/citation.cfm?id=1329821> (Published)

## Papers Submitted for Review

### Journal Articles [Refereed]

On Generation of Talking Points for Client Advisors at Banks to Promote Sustainable Investing, by VARAKANTHAM, Pradeep; MEGARGEL, Alan. (2024). *IEEE Access*, (Submitted)

## Research Grants

### Singapore Management University

Trust to Train and Train to Trust: Agent Training Programs for Safety-Critical Environments, AI Singapore Research Programme, AI Singapore , PI (Project Level): Pradeep Reddy VARAKANTHAM , Co-PI (Project Level): Akshat KUMAR, Arunesh SINHA, David LO, 2021, S\$6,086,963.76

The “Other Me” : Human-Centered AI Assistance In Situ, AI Singapore Research Programme, AI Singapore , Co-PI (Project Level): Pradeep Reddy VARAKANTHAM, Akshat KUMAR, 2021, S\$9,551,520

Autonomous Onboarding and Periodic KYC review (PKR), AI Singapore 100 Experiments, AI Singapore , PI (Project Level): Alan MEGARGEL , Co-PI (Project Level): Pradeep Reddy VARAKANTHAM, 2020, S\$625,607.6

Autonomous Prospecting and Product Recommendations, AI Singapore 100 Experiments, AI Singapore , PI (Project Level): Alan MEGARGEL , Co-PI (Project Level): Pradeep Reddy VARAKANTHAM, 2020, S\$625,607.6

MHA-Merlion Initiative – SCDF 02, MHA Merlion Initiative, Ministry of Home Affairs , PI (Project Level): Pradeep Reddy VARAKANTHAM , Co-PI (Project Level): LAU Hoong Chuin, 2019

MHA-Merlion Initiative – SPF 02, MHA Merlion Initiative, Ministry of Home Affairs , PI (Project Level): Pradeep Reddy VARAKANTHAM, 2018

MHA-MERLION INITIATIVE – SPF 02 (Extension), MHA Merlion Initiative, Ministry of Home Affairs , PI (Project Level): Pradeep Reddy VARAKANTHAM, 2017

MHA-MERLION INITIATIVE – SCDF, MHA Merlion Initiative, Ministry of Home Affairs , PI (Project Level): Pradeep Reddy VARAKANTHAM , Co-PI (Project Level): LAU Hoong Chuin, 2016

Moving Beyond Data Insights: Optimizing Dynamics in Safety and Security Networks, Academic Research Fund (AcRF) Tier 2, Ministry of Education (MOE), PI (Project Level): Pradeep Reddy VARAKANTHAM, Co-PI (Project Level): Akshat KUMAR, 2016, S\$674,046

MHA-MERLION INITIATIVE – SPF 02, MHA Merlion Initiative, Ministry of Home Affairs, PI (Project Level): Pradeep Reddy VARAKANTHAM, 2016

Sequential Decision Making for Matching of Supply and Demand in Mobility Systems, Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART), PI (Project Level): Pradeep Reddy VARAKANTHAM, 2016, S\$49,710.7

Urban Computing and Engineering Centre of Excellence, Corporate Laboratory@University, National Research Foundation (NRF) & Fujitsu (Multiple Funding Sources), PI (Programme Level): LAU Hoong Chuan, PI (Project Level): CHENG Shih-Fen, Pradeep Reddy VARAKANTHAM, Akshat KUMAR, 2014, S\$18,500,000

Robust Decision Support in Stochastic Selfish Routing (With Applications to Social Transportation), Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART), PI (Project Level): Pradeep Reddy VARAKANTHAM, 2013, S\$199,085.17

Decision Support for Taxi Fleet Optimization, Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART), PI (Project Level): Pradeep Reddy VARAKANTHAM, 2012, S\$71,500

Decentralised Decision Support to Improve Performance of a Taxi Fleet, Future Urban Mobility (FM) IRG, Singapore-MIT Alliance for Research and Technology (SMART), PI (Project Level): Pradeep Reddy VARAKANTHAM, 2011, S\$66,000

Planning Against “Intelligent” Adversaries, DSO National Laboratories, PI (Project Level): Pradeep Reddy VARAKANTHAM, 2010, S\$202,200

### Other Institutions

Autonomous Onboarding and Periodic KYC Review (PKR), AI Singapore 100 Experiments Programme, AI Singapore PI (Project Level): Alan MEGARGEL, Co-PI (Project Level): Pradeep Reddy VARAKANTHAM, 2020, SGD325,000

Autonomous Prospecting and Product Recommendations, AI Singapore 100 Experiments Programme, AI Singapore PI (Project Level): Alan MEGARGEL, Co-PI (Project Level): Pradeep Reddy VARAKANTHAM, 2020, SGD325,000

## **TEACHING**

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### **Courses Taught**

#### Singapore Management University

Undergraduate Programmes :

Guided Research in Computer Science II

Introduction to Artificial Intelligence

IS Project Experience (Applications)

IS Project Experience (Research)

Reasoning, Planning and Learning under Uncertainty

Postgraduate Professional Programmes :

Capstone Project  
Capstone Project - Data Science and Engineering  
Introduction to Artificial Intelligence  
Project

Postgraduate Research Programmes :

Dissertation  
Empirical Research Project 1  
Empirical Research Project 2  
Empirical Research Project 3  
Empirical Research Project 4  
Introductory Research Project  
Learning and Planning in Intelligent Systems

## THESES AND DISSERTATIONS

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### Theses and Dissertations Supervised

#### Singapore Management University

Supervisor, "Proactive and Reactive Resource/Task Allocation for Agent Teams in Uncertain Environments", Dissertation by AGRAWAL PRITEE, PhD in Information Systems, Singapore Management University, 2018

Supervisor, "Proactive Resource (Re)distribution for Improving Efficiency in Urban Environments", Dissertation by SUPRIYO GHOSH, PhD in Information Systems, Singapore Management University, 2018

### Theses and Dissertations Assessed

#### Singapore Management University

Committee Member, "Recommending Personalized Schedules in Urban Environments", Dissertation by CHEN CEN, PhD in Information Systems, Singapore Management University, 2017

Committee Member, "Robust Execution Strategy for Scheduling Under Uncertainty", Dissertation by FU NA, PhD in Information Systems, Singapore Management University, 2012