Pradeep Reddy VARAKANTHAM

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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 - Mar 2025

Coordinator, BSc (CS) Artificial Intelligence Track, School of Computing and Information Systems, SMU, Jul 2018 - Present

RESEARCH

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]

Creating talking points for client advisers at banks to promote sustainable investing, by VARAKANTHAM, Pradeep; MEGARGEL, Alan. (2025). *Journal of AI, Robotics and Workplace Automation, 3* (4), 350-361. https://doi.org/10.69554/CMZB1679 (Published)

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 (Published)

Conference Proceedings

No experts, no problem: Avoidance learning from bad demonstrations, by HOANG, Minh Huy; MAI, Anh Tien; VARAKANTHAM, Pradeep. (2025.0). *Proceedings of the Thirty-Ninth Annual Conference on Neural Information Processing Systems, San Diego, CA, December 2-7* , (pp. 1-43) United States: Advances in Neural Information Processing Systems. (Advance Online)

On learning informative trajectory embeddings for imitation, classification and regression, by GE, Zichang; CHEN, Changyu; SINHA, Arunesh; VARAKANTHAM, Pradeep. (2025.0). *AAMAS '25: Proceedings of the 24th International Conference on Autonomous Agents and Multiagent Systems, Detroit, Michigan, USA, May 19-23,* (pp. 858-866) New York : ACM. https://doi.org/10.5555/3709347.3743604 (Published)

EduQate: Generating adaptive curricula through RMABs in education settings, by TIO, Sidney; LI, Dexun; VARAKANTHAM, Pradeep. (2025.0). *AAMAS '25: Proceedings of the 24th International Conference on Autonomous Agents and Multiagent Systems, Detroit, Michigan, USA, May 19-23,* (pp. 2042-2050) New York : ACM. https://doi.org/10.5555/3709347.3743842 (Published)

Unlocking the planning capabilities of LLMs through maximum diversity fine-tuning, by LI, Wenjun; CHEN, Changyu; VARAKANTHAM, Pradeep. (2025.0). *Proceedings of the 2025 Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics: Human Language Technologies (Volume 1: Long Papers), Albuquerque, New Mexico, April 29 - May 4,* (pp. 3318-3340) New Mexico: ACL. https://doi.org/10.18653/v1/2025.findings-naacl.183 (Published)

On minimizing adversarial counterfactual error in adversarial reinforcement learning, by BELAIRE, Roman; SINHA, Arunesh; VARAKANTHAM, Pradeep. (2025.0). *Proceedings of the Thirteenth International Conference on Learning Representations, ICLR 2025, Singapore, April 24-28,* (pp. 1-25) Singapore: ICLR. https://openreview.net/forum?id=eUEMjwh5wK (Published)

Semantic loss-guided data-efficient supervised fine-tuning for safe responses in LLMs, by LU, Yuxiao; SINHA, Arunesh; VARAKANTHAM, Pradeep. (2025.0). *Proceedings of the Thirteenth International Conference on Learning Representations, ICLR 2025, Singapore, April 24-28,* (pp. 52123-52135) Singapore: ICLR. https://openreview.net/forum?id=kO0DgO07hW (Published)

Bootstrapping language models with DPO implicit rewards, by CHEN, Changyu; LIU, Zichen; DU, Chao; PANG, Tianyu; LIU, Qian; SINHA, Arunesh; VARAKANTHAM, Pradeep; LIN, Min. (2025.0). *Proceedings of the Thirteenth International Conference on Learning Representations, ICLR 2025, Singapore, April 24-28,* (pp. 1-13) Singapore: ICLR. https://openreview.net/forum?id=POXfn3OH9G (Published)

On generalization across environments in multi-objective reinforcement learning, by TEOH, Jayden; VARAKANTHAM, Pradeep; VAMPLEW, Peter. (2025.0). *ICLR 2025: 13th International Conference on Learning Representations, Singapore, April 24-28: Proceedings,* (pp. 83582-83609) Singapore: International Conference on Learning Representations, ICLR. (Published)

Offline safe reinforcement learning using trajectory classification, by GONG, Ze; KUMAR, Akshat; VARAKANTHAM, Pradeep. (2025.0). *Proceedings of the 39th Annual AAAI Conference on Artificial Intelligence, Philadelphia, Pennsylvania, 2025 February 25 - March 4,* (pp. 16880-16887) Philadelphia, Pennsylvania: https://doi.org/10.1609/aaai.v39i16.33855 (Published)

Marginal benefit driven RL teacher for unsupervised environment design, by LI, Dexun; LI, Wenjun; VARAKANTHAM, Pradeep. (2025.0). *Proceedings of the Thirty-Ninth AAAI Conference on Artificial*

Intelligence (AAAI-25), Philadelphia, Pennyslvania, February 25 - March 4, (pp. 18253-18261) Philadelphia: AAAI. https://doi.org/10.1609/aaai.v39i17.34008 (Published)

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,* (pp. 1-28) Vancouver, Canada: NeurIPS. https://neurips.cc/virtual/2024/poster/94954 (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 (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; VARAKANTHAN, 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)

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. https://doi.org/10.48550/arXiv.2312.10385 (Published)

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)

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. https://doi.org/10.1609/aaai.v38i12.29268 (Published)

Generative modelling of stochastic actions with arbitrary constraints in reinforcement learning, by CHEN, Changyu; KARUNASENA, Ramesha; NGUYEN, Thanh Hong; SINHA, Arunesh; VARAKANTHAM, Pradeep . (2023.0). *Proceedings of the 37th Annual Conference on Neural Information Processing Systems, New Orleans, USA, 2023 December 10-16,* New Orleans: http://doi.org/10.48550/arXiv.2311.15341 (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)

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)

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)

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)

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)

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)

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)

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)

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

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)

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)

RE-ORG: An online repositioning guidance agent, by KONDA, Muralidhar; VARAKANTHAM, Pradee; 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 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)

Reserved optimistion: 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,* (pp. 330-338) Palo Alto: AAAI Press. https://doi.org/10.1609/icaps.v28i1.13915 (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)

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*

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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)

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)

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)

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 Paolo, Brazil: International Foundation for Autonomous Agents and Multiagent Systems. http://www.ifaamas.org/Proceedings/aamas2017/pdfs/p732.pdf (Published)

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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 Chuin , 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

Courses Taught

Singapore Management University

Undergraduate Programmes :

    Design and Analysis of Algorithms

    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 15

Empirical Research Project 1

Empirical Research Project 2

Empirical Research Project 3

Empirical Research Project 4

Empirical Research Project I

Empirical Research Project II

Introductory Research Project

Learning and Planning in Intelligent Systems

THESES AND DISSERTATIONS

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 Uncertainity", Dissertation by FU NA, PhD in Information Systems, Singapore Management University, 2012