

Jagannathan Sarangapani is a Rutledge-Emerson Distinguished Professor at the Missouri University of Science and Technology, Rolla, MO, USA, where he served as the Site Director for the graduated NSF Industry/University Cooperative Research Center on Intelligent Maintenance Systems. He also has a courtesy appointment with the Department of Computer Science. He has co-authored 190 peer-reviewed journal articles, over 292 refereed IEEE conference articles, several book chapters, and co-authored four books and two edited books. He holds 21 patents, one defense publication, with several pending. He has supervised the completion of over 32 doctoral students and 31 M.S. thesis students. His research funding is in excess of \$19.9 million dollars (his shared credit of \$11.6 million) from NSF, NASA, AFOSR, ARO, ONR, AFRL, Boeing, Honeywell, Sandia and from other companies. His current research interests include learning, adaptation and neural network control, networked control systems/cyber physical systems, prognostics/bigdata, and autonomous systems/robotics with healthcare applications. He served/serving on various editorial boards and served as a co-editor for the IET Book series on Control.

Journal Papers (recent)

1. Krishnan Raghavan, Vignesh Narayanan, and S. Jagannathan, "Cooperative deep Q-learning framework for environments providing image feedback", IEEE Transactions on Neural Networks and Learning Systems, accepted for publication, December 2022.
2. R. Moghadam, V. Narayanan, and S. Jagannathan, "Event-triggered optimal adaptive control of partially unknown linear continuous-time systems with state delay", IEEE Transactions on Systems, Man and Cybernetics: Systems, accepted for publication, November 2022.
3. Krishnau Nath, Manas Kumar Bera, and S. Jagannathan, "Concurrent-learning based neuro-adaptive robust tracking control of a wheel mobile robot: An event-triggered approach", IEEE Transactions on Artificial Intelligence, accepted for publication, August 2022.
4. Surbi Gupta, Gaurav Singal, Deepak Garg, Jagannathan Sarangapani, "QC_SANE: Robust control in DRL using quantile critic with spiking actor and normalized ensemble", IEEE Transactions on Neural Networks and Learning Systems, accepted for publication, November 2021.
5. R. Moghadam, and S. Jagannathan, "Online optimal adaptive control of uncertain nonlinear continuous-time systems with input and state delay", IEEE Transactions on Neural Networks and Learning Systems, accepted for publication, July 2021.
6. Krishnan Raghavan, S. Jagannathan, and V. Samaranayake, "A game-theoretic approach for addressing domain-shift in big-data", IEEE Transactions on Bigdata, accepted for publication, April 2021.
7. Tejalal Choudhary, Vipul Kumar Mishra, Anurag Goswami, Jagannathan Sarangapani, "Inference aware convolutional neural network pruning", Future Generation Computer Systems, vol. 135, pp. 44-56, Oct 2022.
8. R. Moghadam, P. Natarajan, and S. Jagannathan, "Online optimal adaptive control of partially

uncertain nonlinear discrete-time systems using multilayer neural networks”, IEEE Transactions on Neural Networks and Learning Systems, vol. 33, no. 9, pp. 4840-4850, Sept. 2022.

9. V. Narayanan, H. Moderes, S. Jagannathan and F. L. Lewis, “Event-driven off-policy reinforcement learning for control of interconnected systems”, IEEE Transactions on Cybernetics, vol. 52, no. 3, pp. 1936-1946, March 2022.

10. Jinna Li, Z. Xiao, T. Chai, F.L. Lewis, and S. Jagannathan, " Adaptive interleaved reinforcement learning: robust stability of affine nonlinear systems with unknown uncertainty", IEEE Transactions on Neural Networks and Learning Systems, vol.33, no.1, pp.270-280, January 2022.

Conference Papers (representative)

1. Rohollah Moghadam*, B. Farzanegan*, S. Jagannathan, and P. Natarajan, “Optimal adaptive regulation of partial uncertain discrete-time systems”, Proc. of the IEEE Conference on Decision and Control, to appear, December 2022.

2. K. J. P. Veeramraju*, Alvaro Cardoza*, Jagannathan Sarangapani and Jonathan Kimball, “Robust modifications to model reference adaptive control for reference voltage tracking in a dual active bridge dc-dc converter”, Proc of the IEEE Energy Conversion Congress & Expo, Oct 9-13, 2022.

3. Irfan Ganie* and S. Jagannathan, “Adaptive control of robotic manipulators using deep neural networks”, Proc of the 6th IFAC International Conference on Intelligent Control and Automation Sciences, IFAC ICONS 2022, July13-July 15th, 2022.

Books (edited) Published

- S. Jagannathan, A. Sahoo and V. Narayanan “Optimal Event Triggered Control Using Adaptive Dynamic Programming”, CRC Press, expected 2024.

Book Chapter(s)

- Rohollah Moghadam, V. Narayanan, S. Jagannathan, and Krishnan Raghavan, “Optimal adaptive control of uncertain linear systems with time-delay”, Springer, in Handbook of Reinforcement Learning and Control, Editors: K.G. Vovoudakis, Y. Wan, F. Lewis and D. Canseer, 2021.

Patents

- Al Salour, D. Trimble, J. Sarangapani, and E. Taqieddin, "Ultra-lightweight Mutual Authentication Protocol with Substitution Operation”, US Patent No. 10198605, February 5, 2019. (jointly with Boeing, St Louis)

Recent Grants (active)

- A Heter. Secure Testbed for Learning and Adaptation Research, DURIP, PI, ONR, 2023-2024
- Human-Robot Swarm Integration, Co-PI, ARL, 2022-2024
- Deep Learning based UAV Formation, PI, ARL, 2022-2024
- Deep Neural Network Control, PI, ONR, 2021-2025.
- Deep Learning based Robot Formation Control, PI, ARO, 2021-2023
- Planning Grant: Engineering Research Center for Integrative Manufacturing and Remanufacturing Technologies (iMart) to Spur Rural Develop., Co-PI, NSF, 2019-2023.
- A Doctoral Program in Big Data, Machine Learning, and Analytics for Security and Safety”, Co-PI, Dept. of Education, 2018-2023.

Selected Awards

- 2021 Fellow Asia-Pacific Artificial Intelligence Association
- 2021 University of Missouri Presidential Award for Sustained Excellence-STEM
- 2020 Best Associate Editor Award, IEEE Systems, Man, and Cybernetics-Systems
- 2018 IEEE Control System Society’s Transition to Practice Award
- 2018 Fellow, National Academy of Inventors
- 2016 Fellow of the IEEE
- 2015 Fellow of the IET (UK)
- 2014 Fellow of the Inst. Of Measurement & Control (UK)
- 2005 Teaching Commendation Award
- Commended for Teaching Excellence in 2006-2007, 2012-2013, 2013-2014
- Outstanding Teaching Awards 2014-2015, 2015-2016, 2017-2018
- Faculty Excellence Awards 2005-2006, 2006-2007
- 2007 Boeing Pride Achievement Award
- 2001 University of Texas Presidential Award for Excellence (early career)
- 2001 Caterpillar Research Excellence Award
- 2000 NSF Career Award

Students Graduated (recent)

- Rohollah Moghadam, “Optimal adaptive control of timed-delay dynamical systems with known and uncertain dynamics”, October 2020. (Assistant Professor, California State University-Sacramento)