SRIRAM GOPALAKRISHNAN

Email:sgopal28@asu.edu

EDUCATION

Ph.D. Computer Science with a focus on Sequential Decision Making and Human-Aware AI
- Arizona State University (in-progress)   December 2022
G.P.A. : 4.0

M.Sc. Computer Science with Thesis - Lehigh University, Bethlehem, PA   May 2017
G.P.A. : 4.0

B.Sc. Electrical Engineering, B.A. in Computer Science - Lafayette College, Easton, PA   2010
G.P.A. : 3.72

SKILLS

- Automated Planning, Reinforcement Learning, Explainable AI
- Programming Languages: Python, C++, C, Java
  ML libraries: Pytorch, TensorFlow, PyMC3, and SciKit-Learn libraries.
- Completed CITI certification for responsible research. Conducted human subject experiments for Human Aware AI(HAI) research.
- Knowledgeable about and Implemented code with design patterns for complex software projects. Worked with containers (Docker).
- Extensive experience with Microcontroller/Embedded applications, both hardware and software. Programmed large scale embedded systems with sensor networks, distributed intelligence, and fail-safes for robust behavior
- Full stack developer
- Soft Skills: Conflict resolution, and negotiation. Project management and presentations.

PUBLICATIONS AND PROFESSIONAL SERVICE

- Gopalakrishnan, S., & Borrajo, D. (2022, June). Assignment and Prioritization Of Tasks With Uncertain Durations For Satisfying Makespans In Decentralized Execution. To appear In Proceedings of the 32nd International Conference on Automated Planning and Scheduling (ICAPS 2022)

- Gopalakrishnan, S., & Kambhampati, S. (2022, May). Minimizing Robot Navigation-Graph For Position-Based Predictability By Humans. To appear In Proceedings of the 22nd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS 2022)

- Gopalakrishnan, S., Verma,S., & Kambhampati, S. (2021,August). Synthesizing Policies That Account For Human Execution Errors Caused By StateAliasing In Markov Decision Processes. In the workshop on Explainable AI in Planning, ICAPS 2021.

- Gopalakrishnan, S., Soni, U., Thai, T., Lymperopoulos, P., Scheutz, M., & Kambhampati, S. (2021,August). Integrating Planning, Execution and Monitoring in the presence of Open World Novelties: Case Study of an Open World Monopoly Solver. In the workshop on Integrating

Planning and Execution, ICAPS 2021. (*The associated AI agent was the top performer in the DARPA SAIL-ON program for the monopoly domain*)

- Gopalakrishnan, S., Cohen, L., Koenig, S., & Kumar, T. S. (2020, May). Embedding Directed Graphs in Potential Fields Using FastMap-D. In Thirteenth Annual Symposium on Combinatorial Search (SOCS).

- Borrajo, D., Gopalakrishnan, S., & Potluru, V. (2020,October). Goal Recognition via Model-based and Model-free Techniques. In the workshop on Planning for Financial Services (FinPlan), ICAPS 2020.

- Gopalakrishnan, S., Soni, U., & Kambhampati, S. (2019,July). Feature Directed Active Learning. In the Workshop on Explainable AI in Planning, ICAPS 2019.

- Gopalakrishnan, S., & Kambhampati, S. (2019,July). TGE-viz: Transition Graph Embedding for Visualization of Plan Traces and Domains. arXiv preprint arXiv:1811.09900.
  Complete system demonstrated at ICAPS 2019.

- Zha, Y., Li, Y., Gopalakrishnan, S., Li, B., & Kambhampati, S. (2018, July). Recognizing Plans by Learning Embeddings from Observed Action Distributions. In Proceedings of the 17th International Conference on Autonomous Agents and MultiAgent Systems (pp. 2153-2155). International Foundation for Autonomous Agents and Multiagent Systems.

- Gopalakrishnan, S., Muñoz-Avila, H., & Kuter, U. (2018). Learning task hierarchies using statistical semantics and goal reasoning (Journal version). AI Communications (2018)

- Nguyen, C., Reifsnyder, N., Gopalakrishnan, S., & Munoz-Avila, H. (2017, August). Automated learning of hierarchical task networks for controlling minecraft agents. In Computational Intelligence and Games (CIG), 2017 IEEE Conference on (pp. 226-231). IEEE.

- Gopalakrishnan, S., "Learning Hierarchical Task Networks Using Semantic Word Embeddings" (2017). Theses and Dissertations. 2608. Lehigh University,PA, USA.
  https://preserve.lehigh.edu/etd/2608

- Gopalakrishnan, S., Munoz-Avila, H., & Kuter, U. (2016). Word2htn: Learning task hierarchies using statistical semantics and goal reasoning. In the 4th Workshop on Goal Reasoning. IJCAI,2021.

- Reviewer for the International Conference on Robotics and Automation (ICRA). May 2022. (Philadelphia, USA)

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RELEVANT GRADUATE LEVEL COURSES

- Graduate Courses : Statistical Machine Learning, Fundamentals of Statistical Learning, Human-Aware A.I., Data Mining, Intelligent Agents, Text Mining, Search Engines, Advanced Algorithms, Advanced Programming Techniques, Advanced Operating Systems, Bio-Inspired Computing Algorithms.
- Online Courses : Machine Learning (on Coursera by Andrew Ng). Probabilistic Graphical Models (on Coursera by Daphne Koller)

WORK EXPERIENCE

- **Summer Associate - AI/ML Research Team** (JP Morgan & Chase)   2021
    + Worked on task scheduling for office teams using monte carlo tree search
    + Incorporated human factors into scheduling algorithm for more realistic schedules
- **Summer Associate - AI/ML Research Team** (JP Morgan & Chase)   2020
    + Worked on goal recognition for detecting client (financial) goals to offer better services
    + Presented work at ICAPS workshop on Finance and Planning (FinPlan) 2020

- **Research Assistant - Yochan Lab** (Arizona State University)   2017- Current
    + Working on human aware AI in the context of sequential decision making

- **Research Assistant - Insyte Lab** (Lehigh University)   2015- 2017
    + Worked on learning Hierarchical Task Networks (HTN) from action traces using clustering and action embeddings.

- **Design and Development Engineer** (Lutron Electronics)   2013- 2015
    + Helped coordinate the embedded engineering team for a large scale automated lighting and HVAC control system for home, and commercial building automation
    + Improved upon software architecture. Co-designed and Implemented a new communication protocol for the control system
    + Mentored new employees
- **Project Embedded Electrical Engineer** (Lutron Electronics)   2010-2013
    + Developed new features for a lighting control system, running on a 32-bit microcontroller.
    + Used design patterns to write robust code. Designed comprehensive test case scenarios for verification.
    + Worked with the manufacturing team to troubleshoots the production and hardware issues
    + Managed offshore development team for embedded software.
    + Supervised interns/co-ops

PATENTS

- Digital messages in a load control system
http://www.patentsencyclopedia.com/app/20150295411
https://patents.google.com/patent/US20150295411A1/en
- Load Control system responsive to location of an occupant and mobile devices:
https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2016029165

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https://patents.google.com/patent/WO2016029165A2/ko

REFERENCES

- Dr. Subbarao Kambhampati (Computer Science professor and Ph.D. research advisor)
  rao@asu.edu
- Dr. Satish Kumar Thittamaranahalli (Research Collaborator, Assistant Professor at University of Southern California)
  tkskwork@gmail.com / thittama@usc.edu
- Liron Cohen (Research Collaborator, Phd Candidate at University of Southern California)
  lironcoh@usc.edu
- Dr. Héctor Muñoz-Avila (Master's Thesis Advisor, Professor at Lehigh University)
  hem4@lehigh.edu
- Dr. Ugur Kuter (Senior Researcher at SIFT and research collaborator)
  ukuter@sift.net