Rashmeet Kaur Nayyar

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Research Interests

Generalization and Transfer in AI − Reinforcement Learning, Planning, Machine Learning, Robotics.

Education

Ph.D. in Computer Science, Arizona State University, USA   *Expected 2025*

Thesis: Learning Contextual Abstractions for Generalization in RL

Advisor: Siddharth Srivastava ⧉ | *Thesis Committee*: Nakul Gopalan, Matthew Taylor, Yu Zhang   *GPA 3.98/4.0*

B.E. in Information Technology, Pune Institute of Computer Technology, India   *Spring 2017*

Research & Professional Experience

Autonomous Agents & Intelligent Robots lab, SCAI, ASU   *Jan 2020 - Present*

Graduate Research Assistant | Mentor: Siddharth Srivastava ⧉

- CHiRP [C1]: Developed a framework for learning and using options for hierarchical planning in continual RL.
- CAT+RL [C3]: Developed an approach for autonomous learning of context-dependent state abstractions for RL.
- JEDAI-ed [C2]: Collaboratively developed an AI system to educate non-experts in robot planning.
- GPA [C4]: Worked on efficient generalized planning across problems with increasing sizes.
- DAAISy [C5]: Developed a method for learning true functionality of adaptive black-box AI agents for safe AI.

LinkedIn Corporation, CA   *May 2022 - Aug 2022*

AI ML Engineer Intern | Mentor: Sufeng Niu and Suchismit Mahapatra

- Offline RL for task-oriented LLMs: Investigated and empirically benchmarked offline RL algorithms for dialogue agents.

School of Earth & Space Exploration, ASU   *Aug 2018 - Dec 2019*

Graduate Student Assistant | Mentor: Sanchayeeta Borthakur ⧉ **and Siddharth Srivastava** ⧉

- AI for Astrophysics: Developed an AI system that analyzes Hubble Space Telescope's UV spectra and reliably infers intergalactic properties of space using first-order open-universe probabilistic logic.

Bank of New York Mellon Technology, India   *June 2017 - June 2018*

Application Developer

- Developed a financial depository management application from the ground up using Java and AngularJS.

Publications

Conferences

C1. Rashmeet Kaur Nayyar, Siddharth Srivastava. **"Autonomous Option Invention for Continual Hierarchical Reinforcement Learning and Planning"**. (To appear in AAAI, 2025)

C2. Daksh Dobhal*, Jayesh Nagpal*, Pulkit Verma, Rushang Karia, Rashmeet Kaur Nayyar, Naman Shah, and Siddharth Srivastava. **"Using Explainable AI and Hierarchical Planning for Outreach with Robot"**. (To appear in EAAI, 2025)

C3. Mehdi Dadvar, Rashmeet Kaur Nayyar, Siddharth Srivastava. **"Conditional Abstraction Trees for Sample-efficient Reinforcement Learning"**. In 39th Conference on Uncertainty in Artificial Intelligence (UAI), 2023. ⧉ **[Selected for Oral]**

C4. Rushang Karia, Rashmeet Kaur Nayyar, Siddharth Srivastava. **"Learning Generalized Policy Automata for Relational Stochastic Shortest Path Problems"**. In 36th Conference on Neural Information Processing Systems (NeurIPS), 2022. ⧉

C5. Rashmeet Kaur Nayyar*, Pulkit Verma*, Siddharth Srivastava. **"Differential Assessment of Black-Box AI Agents"**. In 36th AAAI Conference on Artificial Intelligence (AAAI), 2022. ⧉ *Joint first authors

C6. Rashmeet Kaur Nayyar et. al. **"Content-based auto-tagging of audios using deep learning"**. In IEEE International Conference on Big Data, IoT, and Data Science (BID), 2017. ⧉

Doctoral Consortium and Workshops

W1. Rashmeet Kaur Nayyar, Shivanshu Verma, Siddharth Srivastava. **"Learning Generalizable Symbolic Options for Transfer in Reinforcement Learning"**. In 7th Workshop on Generalization in Planning (GenPlan), NeurIPS, 2023. ⧉

W2. Rashmeet Kaur Nayyar. **"Learning Generalizable and Composable Abstractions for Transfer in Reinforcement Learning"**. In AAAI, 2024 and IJCAI, 2024. ⇗

Technical Skills

Proficient in Python, PyTorch, NumPy, Robot Operating System (ROS), C++, C. Familiar with Tensorflow, Huggingface.

Service

Co-chair 8th Workshop on Generalization in Planning (GenPlan) at AAAI 2025 ⇗
Conference Reviewer/Program Committee NeurIPS (2023, 2024), AAAI (2022, 2024, 2025), IJCAI (2024), ICLR (2024), ICML (2024), ICAPS (2024) AAMAS (2023), CoRL (2023), LEAP (2024), GenPlan (2023, 2024, 2025), PRL (2023), XAIP (2022).

Press

[1] American Astronomical Society awards ASU students Chambliss medals ⇗ Karin Valentine, ASU NOW, May 2020.

[2] Rashmeet Kaur Nayyar receives Chambliss medal from American Astronomical Society ⇗ Erik Wirtanen, ASU Inner Circle, June 2020.

Awards & Grants

University Graduate Fellowship, ASU, Spring 2025.
Grace Hopper Scholarship, GHC, 2019.
Chambliss Astronomy Achievement Award, American Astronomical Society, 2019. [Awarded to 6 students worldwide] ⇗
SCAI Conference Funding and GPSA Travel Awards, 2019, 2022, 2023.

Teaching Experience

Graduate Teaching Assistant (CSE 471), Graduate Student Assistant (CSE 463) *Tempe, USA*
Arizona State University *Fall 2021, Fall 2018*
- Led hands-on tutorials and co-designed AI programming assignments in ROS. Supported 92 students with weekly office hours, crafted grading rubrics & assessed assignments & exams for 250 students across AI & HCI courses.

Instructor - Artificial Intelligence *Tempe, USA*
Course ⇗ | Clubes De Ciencia Arizona Summer Program *June 2020*
- Taught 25 high school students core AI concepts including Search, Planning, & RL through hands-on learning sessions.

Mentorship

2024	**Tanmay Singh**, M.S. in Astrophysics, ASU
2023	**Shivanshu Verma**, M.S. in Computer Science, ASU
2023	**Ashley Yang, Khushi Patel**, B.S. in Computer Science, ASU
2022	**Daniel Bramblett**, Ph.D. in Computer Science, ASU

References

Prof. Siddharth Srivastava   Associate Professor, Arizona State University
siddharths@asu.edu
Prof. Nakul Gopalan   Assistant Professor, Arizona State University
Nakul.Gopalan@asu.edu
Prof. Matthew Taylor   Associate Professor, University of Alberta
matthew.e.taylor@ualberta.ca
Prof. George Konidaris   Associate Professor, Brown University
gdk@cs.brown.edu
Prof. Sanchayeeta Borthakur   Associate Professor, Arizona State University
sanchayeeta.borthakur@asu.edu