

Sachin Grover

<https://sachingrover211.github.io>

<https://scholar.google.com/citations?user=GLdNdm0AAAAJ>

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Tempe, AZ, USA

PROFESSIONAL EXPERIENCE

- **Post-Doctoral Researcher** Advised by: Prof. Heni Ben Amor
Interactive Robotics Lab, ASU *October 2024 – Present*
 - Developed ProPS and ProPS⁺ methods for LLMs to generate parameterized RL policies using linguistic and numerical reasoning. Explored 15 different tasks and compared the results with SotA RL methods.
 - Currently working on Fine-tuning open models (such as Qwen2.5 and Qwen3.0 models) to improve their linguistic and reasoning capabilities for RL policy generation.
 - Wrote and collaborated on multiple grants for federal agencies (NASA, Air Force) and industry partners (P&G, SonyAI and TRI Kaizen 3.0) for LLM based self-improvements applied to robotics.
- **Research Scientist, SRI, PARC** Manager: Ion Matei
Palo Alto, CA, USA *August 2022 – June 2024*
 - Created a prototype of an embodied LLM agent to translate requests in natural language into formal representation of PDDL and generate a symbolic plan.
 - Created an end-to-end pipeline for training a medium-sized GPT. Created LLM-based function calling demos for carbon capture using StreamLit API.
 - Won and collaborated on DARPA EMHAT, to design evaluation methods for digital twins and AI agent teaming based on LLMs. Developing the system for Pandemic, a multi-agent collaborative game.
 - Collaborated on DARPA SAIL-ON, to design and develop Open-world agent capable of handling external and dynamic changes in the environment during execution.
 - Collaborated on DARPA KMASS (Knowledge Management at Speed and Scale) to develop a dynamic knowledge base for 20,000 documents and design update methods to scale to millions of documents.
 - Worked with Panasonic to evaluate smart factory designs for their production plants.
- **Applied Scientist Intern, Amazon** Mentor: Ross McGowan
Alexa NLP team, Pittsburgh, USA *May 2021 – August 2021*
 - Improve end-to-end Spoken Language Understanding model accuracy using domain knowledge of tokens, intents and slots through embeddings learned using graph based methods such as GCNs for Alexa.
 - Showed upto 2% relative improvement compared to baseline model for internal Amazon dataset.
- **Applied Scientist Intern, Amazon** Mentor: Grant Strimel
Alexa NLP team, Pittsburgh, USA *May 2018 – August 2018*
 - Design post processing techniques for language model quantization and compression.
 - Implemented an optimization model to decrease the memory footprint by 25% without effecting accuracy.
 - Compression of machine learned models. (Feb. 2020) US NonProvisional **Patent** Appl. No. 16/355,338.

RELEVANT PROJECTS

- **Empirically constructing and evaluating data construction for LLM-Agents** Prof. Ludwig Schmidt
OpenThoughts Team *July 2025 – Present*
 - Construct a repository of evaluations for possible agent based reasoning downstream tasks.
 - Construct data recipes for evaluating effect of data changes on agent based reasoning using LLMs.
- **Empirically evaluating data construction for fine-tuning LLMs** Prof. Ludwig Schmidt
OpenThoughts Team *August 2024 – June 2025*
 - Reconstructed Mammoth, WebInstruct and OpenHermes to understand data generation techniques.
 - Developed Evalchemy, a repository of state of the art evaluations for several LLM based downstream tasks.
 - Evaluated impact on Supervised Finetuning (Post-Training) for various downstream tasks such as reasoning, by varying data size, effect of annotation etc.
- **Large Language Models as Agents** *December 2024 – Present*
Tempe, AZ
 - Designing an agent with LLM for planning complex tasks, and provide guarantees about plan accuracy using PDDL based planning techniques with language models.
 - Currently evaluating on recent state-of-the-art planning challenges – TravelPlanner and NaturalPlan dataset.

TECHNICAL SKILLS

- **Relevant Programming Languages:** Python, JavaScript (React and Dojo), JAVA(J2EE & J2SE), PHP, HTML, CSS, MySQL, L^AT_EX, Matlab, R, C and C++
- **Frameworks:** Pytorch (Intermediate), HuggingFace(Intermediate), Tensorflow (Intermediate), PDDL(Expert).
- **APIs:** NumPy, SciPy, Pandas, Scikit-learn, FastAPI, StreamLit, XGBoost, Matplotlib, Pillow, OpenCV.

- **Arizona State University, Tempe**
• *Ph.D. in Computer Science & Engineering*
- **Arizona State University, Tempe**
• *Master of Science in Computer Science & Engineering*

Advisor: Prof. Subbarao Kambhampati
Completed July 2022

Advisor: Prof. Kurt VanLehn
Completed December 2015

SELECTED PUBLICATIONS & PATENTS

- Zhang, Y., **Grover, S.**, Mistiri, M., Kalirathinam, K., Kerhalkar, P., Mishra, S., Kumar, N., Gaurav, S., Aran, O., Ben Amor, H. (2025). Prompted Policy Search: Reinforcement Learning through Linguistic and Numerical Reasoning in LLMs. Submitted to *NeurIPS* Main Track.
- Guha, E., Marten, R., Keh, S., Raoof, N., Smyrnis, G., Bansal, H., ..., **Grover, S.**⁽¹⁷⁾, ..., Schmidt, L.⁽⁵⁰⁾ (2025). OpenThoughts: Data Recipes for Reasoning Models. arXiv preprint arXiv:2506.04178.
- **Grover, S.**, Mohan, S. (2024), A Demonstration of Natural Language Understanding in Embodied Planning Agents using LLMs. *ICAPS Demonstrations*.
- Piotrowski, W., Chao, J., **Grover, S.**, Stern, R., Mohan, S., Douglas, J. (2024). Open World Adaptation in High Fidelity Simulated Environment. *ICAPS Demonstrations*.
- Piotrowski, W., **Grover, S.**, Perez, A. (2024). Nyx: Domain Independent PDDL+ planner for Classic Control Problems. *ICAPS, KEPS workshop*.
- Piotrowski, W., Stern, R., **Grover, S.**, Mohan, S. (2024). Self-monitoring Adaptive AI Agents Operating in Open Worlds. *AAAI Spring Symposium on User-Aligned Assessment of Adaptive AI Systems*.
- Mohan, S., Piotrowski, W., Stern, R., **Grover, S.**, Kim, S., Le, J., Sher, Y., de Kleer, J. (2023). A Framework for Agents Operating in Open, Mixed Discrete-Continuous Worlds. *AIJ*, Special track on open worlds in AI Journal.
- Piotrowski, W., Sher, Y., **Grover, S.**, Stern, R., Mohan, S. (2023). Heuristic Search For Physics-Based Problems: Angry Birds in PDDL+. *ICAPS, Application Track*. Also presented at *SOCS 2023*.
- **Grover, S.** (2022). Human-Aware AI Methods for Active Teaming. Arizona State University, *Ph.D. Thesis*.
- Agarwal, M., Chakraborti, T., **Grover, S.**, Chaudhary, A. (2021). COVID-19 India Dataset: Parsing Detailed COVID-19 Data in Daily Health Bulletins from States in India. *Neurips MLPH Workshop*.
- Strimel, G., **Grover, S.** (2021). Compression of machine learned models. U.S. Patent No 10,970,470. Washington, DC: U.S. Patent and Trademark Office.
- **Grover, S.**, Smith, D., Kambhampati, S. (2020). Model Elicitation through Direct Questioning. *ICAPS XAIP*.
- **Grover, S.**, Sengupta, S., Chakraborti, T., Prasad, A.M., Kambhampati, S., (2020). RADAR: Automated Task Planning for Proactive Decision Support. *HCI* (Special Issue on Unifying Human Computer Interaction and Artificial Intelligence). Also presented at *ICAPS, Journal Track*.
- Strimel, G., **Grover, S.** (2020). Compression of machine learned models. U.S. Patent No 10,558,738. Washington, DC: U.S. Patent and Trademark Office.
- **Grover, S.**, Sengupta, S., Chakraborti, T., Prasad, A.M., Kambhampati, S., (2019). iPass: A Case Study of the Effectiveness of Automated Planning for Decision Support. *NDM*, 2019
- Chakraborti, T., Sreedharan, S., **Grover, S.** and Kambhampati, S., (2019). Plan Explanations as Model Reconciliation—An Empirical Study. arXiv preprint arXiv:1802.01013. *HRI*, 2019.
- **Grover, S.**, Chakraborti, T. and Kambhampati, S., (2018). What can Automated Planning do for Intelligent Tutoring Systems?. *ICAPS SPARK*
- **Grover, S.**, Wetzel, J. and VanLehn, K., (2018, June). How Should Knowledge Composed of Schemas be Represented in Order to Optimize Student Model Accuracy?. In *AIED* (pp. 127-139). Springer, Cham.
- VanLehn, K., Chung, G., **Grover, S.**, Madni, A. & Wetzel, J. (2016). Learning science by constructing models: Can Dragoon increase learning without increasing the time required? *International Journal of Artificial Intelligence in Education*, pp. 1-36
- **Grover, S.** (2015). Online Embedded Assessment for Dragoon, Intelligent Tutoring System. Arizona State University, Master's thesis.
- **Grover, S.**, Arora, K., Mitra, S.K., Text Extraction from Document Images Using Edge Information, In *2009 Annual IEEE India Conference* (pp. 1-4). IEEE