

Sai Krishna Gottipati

REINFORCEMENT LEARNING · HUMAN-IN-THE-LOOP LEARNING · COGMENT · COOPERATIVE AI · LLMs

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Experience

AI Redefined Inc

Montreal, Canada

SENIOR REINFORCEMENT LEARNING RESEARCHER

Feb 2021 - Present

- Large Language Models and Reinforcement Learning Research
- Applied RL research and development in aerospace, defense and renewable energy sectors
- Research and development of Cogment [\[white paper\]](#) [\[cogment\]](#) [\[cogment-verse\]](#)

99andBeyond

Montreal, Canada

LEAD MACHINE LEARNING RESEARCHER

Sep 2019 - Jan 2021

- Led a team of 11 researchers from 8 institutions to develop the world's first chemical reaction based molecule generation system using reinforcement learning that solved the longstanding challenge of synthesizability in drug design (patent pending)
- Introduced and developed three novel RL algorithms that handled the longstanding challenges of large discrete action spaces, multiple action types, and optimizing for the maximum reward objective

Education

Mila, University of Montreal

Montreal, Canada

MASTERS (RESEARCH) IN ARTIFICIAL INTELLIGENCE

Sep 2017 - Aug 2019

- CGPA: 3.9/4.0; Thesis on Deep Active Localization, supervised by Prof. Liam Paull
- Research Projects: Maplite; Actor Critic inspired GANs for modelling temporal data distributions; Analyzing disentanglement in variational auto encoder; Neural SLAM; Deep pepper - a chess engine

International Institute of Information Technology

Hyderabad, India

BACHELOR OF ENGINEERING IN ELECTRONICS AND COMMUNICATION WITH HONOURS IN ROBOTICS

Aug. 2013 - May 2017

- CGPA: 8.64/10.00; ranked 2nd in class; Dean's Academic Award for all 4 academic years
- Research Projects: Reconstructing Vehicles from a single image: shape priors for road scene understanding; The Mahindra rise autonomous car challenge; Efficient object proposals; Square piece jigsaw puzzle solver

Publications

[AAMAS 2024] GLIDE-RL: Grounded Language Instruction through DEMonstration in RL Chaitanya Kharyal, [Sai Krishna Gottipati](#), Tanmay Kumar Sinha, Srijita Das, Matthew E Taylor. [\[paper\]](#) [\[blog\]](#) [\[webpage\]](#)

[ICLR 2024 GEM workshop, Oral] Generative Active Learning for the Search of Small-molecule Protein Binders Maksym Korablyov, Cheng-Hao Liu, Moksh Jain, ... [Sai Krishna Gottipati](#), Marwin Segler, Michael M. Bronstein, Edward Ruediger, Anne Marinier, Mike Tyers, Yoshua Bengio. [\[paper\]](#)

[AAMAS 2024 AASG workshop, PVP MC 2024] GAIA: Green AI Apprentice [Sai Krishna Gottipati](#), Cloderic Mars, Vahid Abdollahi, Sara Schlemm, Laila El Moujtahid, Matthew E Taylor.

[CAID 2023] Human-Machine Teaming For UAVs: An Experimentation Platform Laila El Moujtahid, [Sai Krishna Gottipati](#), Cloderic Mars, Matthew E Taylor. [\[paper\]](#)

[NeurIPS 2023 ALOE Workshop] Curriculum Learning For Cooperation in Multi-Agent Reinforcement Learning Rupali Bhati, [Sai Krishna Gottipati](#), Cloderic Mars, Matthew E Taylor. [\[paper\]](#)

[AAMAS 2023] Do As You Teach: A Multi-Teacher Approach to Self-Play in Deep Reinforcement Learning Chaitanya Kharyal, Tanmay Kumar Sinha, [Sai Krishna Gottipati](#), Fatemeh Abdollahi, Srijita Das, Matthew E Taylor. [\[paper\]](#)

[AAMAS 2023, IJCAI 2023 Demo track] Hiking up that HILL with Cogment-Verse: Train & Operate Multi-agent Systems Learning from Humans [Sai Krishna Gottipati](#), Luong-Ha Nguyen, Cloderic Mars, Matthew E Taylor. [\[demo\]](#)

[AAMAS 2023 ALA Workshop] Human-AI interactions in real-world complex environments using a comprehensive reinforcement learning framework Md Saiful Islam, Srijita Das, [Sai Krishna Gottipati](#), William Duguay, Cloderic Mars, Jalal Arabneydi, Antoine Fagette, Matthew Guzdial, Matthew E Taylor.

[arXiv 2021] Cogment: Open Source Framework For Distributed Multi-actor Training, Deployment & Operations: AI Redefined, [Sai Krishna Gottipati](#), Sagar Kurandwad, Cloderic Mars, Gregory Szriftgiser, Francois Chabot. [\[paper\]](#) [\[code\]](#) [\[webpage\]](#)

[ICML 2020] Learning To Navigate The Synthetically Accessible Chemical Space Using Reinforcement Learning: [Sai Krishna Gottipati](#), Boris Sattarov, Sufeng Niu, Yashaswi Pathak, Haoran Wei, Shengchao Liu, Karam M. J. Thomas, Simon Blackburn, Connor W. Coley, Jian Tang, Sarath Chandar, Yoshua Bengio. [\[paper\]](#) [\[code\]](#) [\[blog\]](#) [\[talk\]](#)

[NeurIPS 2020 Deep RL workshop spotlight talk] Maximum Reward Formulation In Reinforcement Learning: [Sai Krishna Gottipati](#), Yashaswi Pathak, Rohan Nuttall, Sahir, Ravi Chunduru, Ahmed Touati, Sriram Ganapathy, Matthew Taylor, Sarath Chandar. [\[paper\]](#) [\[code\]](#)

[AAAI 2021] TAC: Towered Actor Critic For Handling Multiple Action Types In Reinforcement Learning For Drug Discovery: [Sai Krishna Gottipati](#), Yashaswi Pathak, Boris Sattarov, Sahir, Rohan Nuttall, Mohammed Amini, Matthew Taylor, Sarath Chandar

[ICRA 2020, RA-L: best paper award] MapLite: Autonomous Intersection Navigation Without a Detailed Prior Map: Teddy Ort, Krishna Murthy, Rohan Banerjee, [Sai Krishna Gottipati](#), Dhaivat Bhatt, Igor Gilitschenski, Liam Paull, Daniela Rus. [\[paper\]](#) [\[thesis\]](#) [\[related media\]](#)

[RA-L 2019] Deep Active Localization: [Sai Krishna Gottipati](#), Keehong Seo, Dhaivat Bhatt, Vincent Mai, Krishna Murthy, Liam Paull. [\[paper\]](#) [\[thesis\]](#) [\[code\]](#)

[ICRA 2017] Reconstructing vehicles from a single image: Shape priors for road scene understanding: Krishna Murthy, [Sai Krishna Gottipati](#), Falak Chhaya, Madhava Krishna [\[paper\]](#) [\[code\]](#)

[arXiv 2018] Deep Pepper: Expert Iteration based Chess agent in the Reinforcement Learning Setting: [Sai Krishna Gottipati](#), Kyle Goyette, Ahmad Chamseddine, Breandan Considine. [\[paper\]](#) [\[code\]](#)

Extracurricular Activity

2018	International Master in Chess , [FIDE profile]	<i>FIDE</i>
2005,08,11	Indian National Champion , U-9, U-13, U-15	<i>FIDE</i>
2006	Asian Champion , U-10	<i>FIDE</i>
2006,09	2nd Runner up in World youth championships , U-10, U-14	<i>FIDE</i>
2006,07,10	Runner up in Commonwealth championships , U-10, U-12, U-14	<i>FIDE</i>
2018-19	Organizer , Robotics Reading Group and Mila Tea talks	<i>Mila, Montreal</i>
2019-24	Reviewer , NeurIPS, ICLR, ICML, ICRA etc.	