

Guillaume SARTORETTI

Assistant Professor, National University of Singapore, Mechanical Engineering Dpt. (2019-)

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Education

June 2018 – June 2019	Manufacturing Futures Initiative (MFI) Postdoctoral Fellow, Robotics Institute, CMU <u>Project Title:</u> <i>Distributed Learning for large-scale multi-robot path planning in complex environments.</i> <u>Advisor:</u> Prof. Howie Choset.
June 2016 – June 2018	Postdoctoral Fellow, Robotics Institute, Carnegie Mellon University <u>Advisor:</u> Prof. Howie Choset.
April 2016	PhD in <i>Robotics, Control and Intelligent Systems</i>, EPFL, Switzerland <u>Title:</u> <i>Control of Agent Swarms in Random Environments</i> <u>Advisor:</u> Prof. Max-Olivier Hongler.
March 2012	Master of Science in Mathematics and Computer Science, University of Geneva.
June 2010	Bachelor of Science in Mathematics and Computer Science, University of Geneva.

Professional and Teaching Experience

2019 - Current	Lecturer Activities, Mechanical Engineering Department, NUS. <ul style="list-style-type: none">▪ 2020 – Now: “Microprocessor applications”, ME3241, (Bachelor, 3rd year).▪ 2022 – Now: “Deep learning for robotics”, ME5406, (Master’s level course).▪ 2021 – 2023: “Machine Vision”, ME5405 (Master’s level course).▪ 2023 – Now: “Machine learning in robotics”, ME5418, (Master’s level course).
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Student Supervision

	<u>Postgraduate students supervised to date</u>
2023 – 2024	DENG Mingxiang, M.Sc., <i>Visual Exploration and Search in Challenging Environments</i>
2023 – 2024	ZHONG Ningze, M.Sc., <i>Whole-body control for legged robot manipulation</i>
2023 – 2024	LU Mingyu, M.Sc., <i>Selective Communication Learning (CL) for MAPF</i>
2023 – 2024	WANG Shuheng, M.Sc., <i>CL for Multi-Agent Path Finding (MAPF) with Obstructed Vision</i>
2021 – 2023	YANG Tianze, M.Eng, <i>Deep Reinforcement Learning in Multi-Agent Path Finding</i>
2022 – 2023	ZHU Yueqing, M.Sc., <i>LiDAR SLAM on Hexapod for Terrain Traversability Understanding</i>
2022 – 2023	ZHAO Rui, M.Sc., <i>Comms Learning for Multi-Robot Systems with Hierarchical Topologies</i>
2022 – 2023	YI Xian, M.Sc., <i>Distributed Multi-Robot Exploration of Unknown Environments</i>
2022 – 2023	XIANG Bairan, M.Sc., <i>Communication Learning for Multi-Agent Path Finding</i>
2022 – 2023	WANG Ziqing, M.Sc., <i>Distributed RL for Decentralized Urban Traffic Signal Control</i>
2022 – 2023	HUANG Shinan, M.Sc., <i>Targeted Communication Learning for Multi-Robot Systems</i>

2021 – 2022	CAO Yuhong, M.Eng, Multi-robot Exploration via Deep Reinforcement learning
2021 – 2022	HOU Tianxiang, M.Sc, DRL-based Robot Exploration of Unknown Environments
2021 – 2022	WAN Yi, M.Sc, Distributed RL for Pedestrian- and Vehicle-optimized Traffic Signal Control
2021 – 2022	LI Hainuo, M.Sc, RL for decentralized Adaptive Traffic Signal Control in Urban Networks
2021 – 2022	GAO Xinwei, M.Sc, Individual Voting for Combined Learning/Conventional based MAPF
2021 – 2022	FAN Haolin, M.Sc, Attention-based Network for 3D Adaptive Informative Path Planning
2021 – 2022	LU Yujie, M.Sc, Active-SLAM For Hexapod Robot Based On LiDAR
2021 – 2022	XIA Langmeng, M.Sc, Decentralized Attention-based Neural Network for the CVRP
2020 - 2021	WANG Yutong, M.Sc, Communication Learning for Multi-Agent Cooperation.
2020 - 2021	ZHANG Yifeng, M.Sc, dRL for Decentralized Traffic Management in Urban Environments.
2020 - 2021	WANG Yizhuo, M.Sc, Reinforcement Learning for Multi-Agent Search and Rescue.
2020 - 2021	ZHANG Xiaoyang, M.Sc, Visual/LiDAR-based SLAM on legged articulated robot.
2020 - 2021	HUANG Jiangeng, M.Sc, Multi-agent Search based on Distributed RL.
2020 - 2021	LI Aijia, M.Sc, Urban Traffic Management and Optimization for Pedestrians.
2019 - 2020	LUO Zhiyao, M.Sc, Deep Reinforcement Learning Based Multi-Agent Pathfinding.
2019 - 2020	DAI Weiheng, M.Sc, Multi-Agent Search based on distributed Deep RL.
2019 - 2020	XIA Yixuan, M.Sc, Obstacle Avoidance for A Legged Robot Based on FFT Control.
2019 - 2020	GE Sun, M.Sc, Bio-inspired Visual Servoing for a Legged Robot.
2019 - 2020	XING Yan, M.Sc, Model-based Dynamic Obstacle Avoidance on Inclined Surface.

Research Grants and Funded Projects

2023 - 2028	ST Engineering Research Funds under IPP-PhD Program (main PI; Co-Pi: M. Ang). <u>Title:</u> <i>Deep Learning for Decentralised Multi-Agent Collaboration.</i> <u>Amount:</u> S\$ 150k.
2023 - 2026	MOE Academic Research Fund (AcRF) Tier 1 FRC Research Grant (main PI). <u>Title:</u> <i>Scalable Whole-Body Control for Legged Mobile Manipulation.</i> <u>Amount:</u> S\$ 250k.
2023 - 2024	Amazon Research Award (main PI). <u>Title:</u> <i>Distributed Learning for Human-Aware Multi-Agent Pathfinding.</i> <u>Amount:</u> US\$ 80k.
2022 - 2024	Funded Research Project, T-Lab@NUS and DSO (main PI). <u>Title:</u> <i>Decentralized Search of Evasive Agents.</i> <u>Amount:</u> S\$ 260k.
2022 - 2025	Maritime Transformation Programme White Space Funding (main PI since 01/2024) <u>Title:</u> <i>Robotic Systems for Securing/Un-securing of Containers in Vessels.</i> <u>Co-PIs:</u> Profs. G. Chirikjian (original PI), M. ANG, Dr. H. ZHANG. <u>Amount:</u> S\$ 4.8M.
2021 - 2026	Project 3, Work Package 4 of “Cisco-NUS Corporate Laboratory” (Co-PI). <u>Title:</u> <i>Scalable, Decentralized Urban Traffic Management for Autonomous Vehicles.</i> <u>Co-PIs:</u> Profs. Biplab Sidkar (PI), Marcelo ANG. <u>Amount:</u> S\$ 650k.
2021 - 2022	Seed Research Project, T-Lab@NUS (main PI). <u>Title:</u> <i>Learning Based Approaches for Advanced Multi-Agent Search Problems.</i> <u>Co-PIs:</u> Dr. Jiawei CAO. <u>Amount:</u> S\$ 60k.
2021 - 2024	MOE Academic Research Fund (AcRF) Tier 1 FRC Research Grant (main PI). <u>Title:</u> <i>Comms-Based AI Methods for Multi-Robot Dec. Cooperation.</i> <u>Amount:</u> S\$ 226,5k.
2020 - 2022	Work Package 3 of “Urban Traffic Flow Smoothing Models” (Co-PI). <u>Title:</u> <i>Traffic Light Control for Optimal Traffic Flow.</i> <u>Co-PIs:</u> Profs. Kien Ming Ng (PI), Marcelo ANG, and Gerard LENG. <u>Amount:</u> S\$ 780k.

2020 - 2021	<p>Seed Research Project, T-Lab@NUS (main PI).</p> <p><u>Title:</u> <i>Scalable Decentralized Multi-Robot Search via Distributed RL.</i></p> <p><u>Co-PIs:</u> Drs. Swee Huat Rodney TEO and Jiawei CAO. <u>Amount:</u> S\$ 60k.</p>
2018 - 2019	<p>Manufacturing Futures Initiative (MFI) Postdoctoral Fellowship.</p> <p><u>Title:</u> <i>Distributed Learning for large-scale multi-robot path planning in complex environments.</i></p> <p><u>Advisor:</u> Prof. Howie Choset.</p>
2018 - 2019	<p>Extreme Science and Engineering Discovery Environment (XSEDE)</p> <p>Startup grant in the form of 2'500 additional hours of GPU computation at the PSC.</p>

Prizes and Awards

2023	NUS' College of Design and Engineering (CDE) Outstanding Early Career Award 2023.
2022	Amazon Research Award (ARA). See details in grants and funded projects above.
2022	Best Student Paper Award at the International Symposium on Distributed Autonomous Robotic Systems (DARS 2022). See details in publication list below.
2022	Best Paper Award at the IEEE International Conference on Unmanned Systems (ICUS 2022). See details in publication list below.
2021	Best Paper Award at the International Symposium on Distributed Autonomous Robotic Systems (DARS 2022). See details in publication list below.
2020	First place at the first round of the NeurIPS 2020 "Flatland" Competition (https://www.aicrowd.com/challenges/flatland), and fourth place overall.

Invited Lectures, Seminars and Colloquia

07/05/2024	Keynote Speaker at the OptLearnMAS workshop at AAMAS.
22/02/2024	Caltech Special Seminar; Host: Prof. Soon-Jo Chung.
20/02/2024	Multi-Robot Systems Lab, Stanford University, Palo Alto, USA, Invited Seminar.
19/02/2024	Daltorio Lab, CASE Western Reserve University, Cleveland, USA, Invited Seminar.
16/02/2024	GRASP Seminar, University of Pennsylvania, USA; Host: Prof. M. Ani Hsieh.
09/02/2024	ARCS Lab, Carnegie Mellon University, Pittsburgh, USA, Invited Seminar.
02/02/2024	Computational Robotics Lab, ETHZ, Zürich, CH, Invited Seminar.
01/02/2024	Biorobotics Lab, EPFL, Lausanne, CH, Invited Seminar.
27/09/2023	Algorithmic Alignment Group, MIT, Cambridge, USA, Invited Seminar.
25/09/2023	Speaker at the SUTD Workshop on Robotic Perception.
20/09/2023	Speaker at the ArmaSuisse Workshop on Swarm Intelligence.
08/06/2023	Prorok Laboratory, Cambridge University, Cambridge, UK, Invited Seminar.
29/05/2023	ICRA 2023 Workshop on Multi-Robot Learning, Panelist.

14/02/2023	AAAI 2023 Workshop on Multi-Agent Pathfinding (MAPF), Keynote Speaker.
17/10/2022	Machine Learning and Its Applications Intl. Workshop, NUS-IMS. Invited Seminar.
20/05/2022	Amazon Robotics, Boston, USA, Invited Seminar.
27/09/2021	ETHZ Autonomy Talk, 1h Invited Seminar (virtual), https://youtu.be/2Jts4uFbbBM
02/12/2019	National University of Singapore, Invited Seminar, Temasek Laboratory.
06/11/2019	Case Western Reserve University, Invited Seminar, Mechanical & Aerospace Eng. Dpt.
09/19/2018	Invited Seminar at the National Robotics Engineering Center (NREC).
08/09/2018	Tufts University, Invited Seminar, Computer Science Department.
01/28/2016	EPFL, Informal private presentation, DISAL laboratory.
09/29/2015	Drexel University, Private presentation, SAS and GRASP laboratories.

Other Academic Activities

13/05/2024	Workshop Organizer at ICRA 2024: Full Day “Tutorial on Ergodic Planning.”
2023 - Current	Associate Editor for the IEEE International Conference on Robotic and Automation (ICRA), in the “Robot Learning” area.
2023 - Current	Associate Editor for SAGE’s International Journal of Robotics Research.
2022 - Current	Section Editor for Springer Nature’s Encyclopedia of Robotics, for the “Multiple Mobile Robot Systems” Section.
2021 - 2023	Associate Editor for the IEEE International Conference on Robotic and Automation (ICRA), in the “Mechanism, Design, and Control” area.
2021 - Current	Program Committee Member (PC) for the International Joint Conference on Artificial Intelligence (IJCAI), the AAAI Conference on Artificial Intelligence, and the European Conference on Artificial Intelligence (ECAI).
2021 - Current	Associate Editor for the Intl. Symp. on Multi-Robot and Multi-Agent Systems (MRS).
2020 - Current	Associate Editor for IEEE RA-L (in the <i>Multiple and Distributed Systems</i> area).
2019 - 2023	Guest Editor for Springer Nature Applied Sciences’ topical collection on “Distributed Mobile Robotic Systems.”
2019 - Current	Reviewer for <i>Science Robotics</i> (ScienceMag), JAAMAS (Springer), <i>SICOMP</i> (Sage), <i>Robotics and Automation Letters</i> (RA-L, IEEE), as well as various international conferences on robotics and AI (RSS, ICRA, IROS, WAFR, AAMAS, ECC, ACC, CASE).

Publications: Thesis

2016	PhD Thesis: G. Sartoretti and M.-O. Hongler. <i>Control of Agent Swarms in Random Environments</i> . EPFL, Lausanne (CH).
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Publications: Refereed Journal Papers

- 2024 Y. Cao, R. Zhao, Y. Wang, B. Xiang, and **G. Sartoretti**. Deep Reinforcement Learning-based Large-scale Robot Exploration. *IEEE Robotics and Automation Letters (RA-L)*, 9(5):4631-4638.
- 2024 M. Fan, Y. Wu, Z. Cao, W. Song, **G. Sartoretti**, H. Liu, and G. Wu. Conditional Neural Heuristic for Multiobjective Vehicle Routing Problems. *IEEE Transactions on Neural Networks and Learning Systems*.
- 2023 Y. Wang, Y. Wang, and **G. Sartoretti**. Full Communication Memory Networks for Team-Level Cooperation Learning. *Autonomous Agents and Multi-Agent Systems (JAAMAS)*.
- 2023 Y. Gong, G. Sun, A. Nair, A. Bidwai, R. CS, J. Grezimak, **G. Sartoretti** and K. A. Daltorio. Legged robots for object manipulation: A review. *Frontiers in Mechanical Engineering*.
- 2022 M. Fan, Y. Wu, G. Wu, Z. Cao, H. Guo, and **G. Sartoretti**. Deep Reinforcement Learning for UAV Routing in The Presence of Multiple Charging Stations. *IEEE Transactions on Vehicular Technology*, 72(5):5732-5746.
- 2022 Y. Wang, M. Damani, P. Wang, Y. Cao, and **G. Sartoretti**. Distributed Reinforcement Learning for Robot Teams: A Review. *Springer's Current Robotics Reports*, 3(4):239-257.
- 2022 G. Sun and **G. Sartoretti**. Joint-Space CPG for Safe Foothold Planning and Body Pose Control during Locomotion and Climbing. *IEEE RA-L*, 7(4):9889-9896.
- 2022 B. Chong, Y. Ozkan-Aydin, J. Rieser, **G. Sartoretti**, et al. A general locomotion control framework for multi-legged locomotors. *Bioinspiration & Biomimetics*, 17(4):046015.
- 2022 S. Shaw, E. Wenzel, A. Walker, and **G. Sartoretti**. ForMIC: Foraging via Multiagent RL with Implicit Communication. *Robotics and Automation Letters (RA-L)*, 7(2):4877-4884.
- 2021 M. Damani, Z. Luo, E. Wenzel, and **G. Sartoretti**. PRIMAL₂: Pathfinding via Reinforcement and Multiagent Imitation Learning - Lifelong. *IEEE RA-L*, 6(2):2666-2673.
- 2021 B. Chong, Y.O. Aydin, C. Gong, **G. Sartoretti**, ..., D.I. Goldman & H. Choset. Coordination of lateral body bending and leg movements for sprawled posture quadrupedal locomotion. *The International Journal of Robotics Research*, 40(4-5):747-763.
- 2020 B. Freed, **G. Sartoretti**, and H. Choset. Simultaneous policy and discrete communication learning for multi-agent cooperation. *IEEE RA-L*, 5(2):2498-2505.
- 2019 **G. Sartoretti**, W. Paivine, Y. Shi, Y. Wu, H. Choset. Distributed learning of decentralized control policies for articulated mobile robots. *Transactions in Robotics*, 35(5):1109-1122.
- 2019 **G. Sartoretti**, J. Kerr, Y. Shi, G. Wagner, T. K. S. Kumar, S. Koenig, H. Choset. PRIMAL: Pathfinding via Reinforcement and Imitation Multi-Agent Learning. *IEEE RA-L*, 4(3):2378-2385.
- 2016 **G. Sartoretti**. Leader-based versus soft control of multi-agent swarms. *Artificial Life and Robotics*, 21(3):302-307.
- 2016 **G. Sartoretti** and M.-O. Hongler. Interacting Brownian swarms: Analytical results. *Entropy*, 18, 27.
- 2014 **G. Sartoretti**, M.-O. Hongler, M. Elias de Oliveira, and F. Mondada. Decentralized self-selection of swarm trajectories: From dynamical system theory to robotic implementation. *Swarm Intelligence*, vol. 8(no. 4):329-351.

2013 **G. Sartoretti** and M.-O. Hongler. Self-organized mixed canonical-dissipative dynamics for Brownian planar agents. *Cybernetics and Physics*, 2(1):41-46.

2013 B. Barbieri, **G. Sartoretti**, J.-L. Falcone, B. Chopard, and M. J. Gander. Traffic prediction based on a local exchange of information. *Journal of Cellular Automata*, 8(5-6):429-441.

Publications: Refereed Conference Papers

2024 Y. Wang, Y. Cao, J. Chiun, S. Koley, M. Pham, **G. Sartoretti**. ViPER: Visibility-based Pursuit-Evasion via Reinforcement Learning. *Conference on Robot Learning (CoRL 2024)*.

2024 Y. Ma, J. Liang, Y. Cao, D. Tan, and **G. Sartoretti**. Privileged Reinforcement and Communication Learning for Distributed, Bandwidth-limited Multi-Robot Exploration. *International Symposium on Distributed Autonomous Robotics Systems (DARS 2024)*.

2024 G. Sun, M. Shafiee, P. Li, G. Bellegarda, A. Ijspeert, and **G. Sartoretti**. Learning-based Hierarchical Control: Emulating the Central Nervous System for Bio-Inspired Legged Robot Locomotion. *IEEE Intl. Conference on Intelligent Robots and Systems (IROS 2024)*.

2024 S. Sood, G. Sun, P. Li, and **G. Sartoretti**. DecAP: Decaying Action Priors for Accelerated Learning of Torque-Based Legged Locomotion Policies. *IROS 2024*

2024 D. Tan, Y. Ma, J. Liang, Y. C. Chng, Y. Cao, and **G. Sartoretti**. IR2: Implicit Rendezvous for Robotic Exploration Teams under Sparse Intermittent Connectivity. *IROS 2024*.

2024 Y. Zhang, P. Li, M. Fan, and **G. Sartoretti**. HeteroLight: A General and Efficient Learning Approach for Heterogeneous Traffic Signal Control. *IROS 2024*.

2024 J. Taylor, I. Nursultan, M. Y. Chuah, W.-Y. Yau, **G. Sartoretti**, and E. Camci. Reconfigurable multi-rotor for high-precision physical interaction. *IROS 2024*.

2024 A. Rao, **G. Sartoretti**, and H. Choset. Learning Heterogeneous Multi-Agent Allocations for Ergodic Search. *IEEE Intl. Conference on Robotics and Automation (ICRA 2024)*.

2024 C. He, T. Yang, T. Duhan, Y. Wang, and **G. Sartoretti**. ALPHA: Attention-based Long-horizon Pathfinding in Highly-structured Areas. *ICRA 2024*.

2024 W. Dai, A. Bidwai, and **G. Sartoretti**. Dynamic Coalition Formation and Routing for Multirobot Task Allocation via Reinforcement Learning. *ICRA 2024*.

2024 Y. Wu*, M. Fan*, Z. Cao, R. Gao, Y. Hou, and **G. Sartoretti**. Collaborative Deep Reinforcement Learning for Solving Multi-Objective Vehicle Routing Problems. *International Conf. on Autonomous Agents and Multiagent Systems (AAMAS 2024)*.

2024 Y. Yang*, M. Fan*, C. He, J. Wang, H. Huang, and **G. Sartoretti**. Attention-based Priority Learning for Limited Time Multi-Agent Path Finding. *AAMAS 2024*.

2023 T. Yang, Y. Cao, and **G. Sartoretti**. Intent-based Deep Reinforcement Learning for Multi-agent Informative Path Planning. *International Symposium on Multi-Robot and Multi-Agent Systems (MRS 2023)*.

2023 J. Liang, Z. Wang, Y. Cao, J. Chiun, M. Zhang, and **G. Sartoretti**. Context-Aware Deep Reinforcement Learning for Autonomous Robotic Navigation in Unknown Area. *Conference on Robot Learning (CoRL 2023)*.

2023 Y. Wang, B. Xiang, S. Huang, and **G. Sartoretti**. SCRIMP: Scalable Communication for Reinforcement- and Imitation-Learning-Based Multi-Agent Pathfinding. *International Conference on Intelligent Robots and Systems (IROS 2023)*.

2023 Y. Wang, Y. Wang, Y. Cao, and **G. Sartoretti**. Spatio-Temporal Attention Network for Persistent Monitoring of Multiple Mobile Targets. *IROS 2023*.

2023 B. Freed, S. Venkatraman, **G. Sartoretti**, J. Schneider, and H. Choset. Learning Temporally Abstract World Models without Online Experimentation. *International Conference on Machine Learning (ICML 2023)*.

2023 Y. Cao, T. Hou, Y. Wang, X. Yi, and **G. Sartoretti**. ARiADNE: A Reinforcement learning approach using Attention-based Deep Networks for Exploration. *International Conference on Robotics and Automation (ICRA 2023)*.

2023 H. Goel, Y. Zhang, M. Damani, and **G. Sartoretti**. SocialLight: Distributed Cooperation Learning towards Network-Wide Traffic Signal Control. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2023)*.

2023 Y. Wang, B. Xiang, S. Huang, and **G. Sartoretti**. SCRIMP: Scalable Communication for Reinforcement- and Imitation-Learning-Based Multi-Agent Pathfinding. *AAMAS 2023 (extended abstract)*.

2022 Y. Cao, Y. Wang, A. Vashisth, H. Fan, and **G. Sartoretti**. CATNIPP: Context-Aware Attention-based Network for Informative Path Planning. *6th Annual Conference on Robot Learning (CoRL 2022)*.

2022 S. Shaw and **G. Sartoretti**. Keyframe-based CPG for Stable Gait Design and Online Transitions in Legged Robots. *IEEE Conference on Decision and Control (CDC 2022)*.

2022 Y. Cao, Z. Sun, and **G. Sartoretti**. DAN: Decentralized Attention-based Neural Network for the MinMax Multiple Traveling Salesman Problem. *International Symposium on Distributed Autonomous Robotics Systems (DARS 2022)*. **Best Student Paper Award**.

2022 Q. Ge, **G. Sartoretti**, J. Duan, S. E. Li, Y. Yin, and S. Zheng. Distributed Model Predictive Control of Connected Multi-Vehicle Systems at Unsignalized Intersections. *IEEE International Conference on Unmanned Systems (ICUS 2022)*. **Best Paper Award**.

2022 A. Rao, I. Abraham, **G. Sartoretti**, and H. Choset. Sparse Sensing in Ergodic Optimization. *International Symposium on Distributed Autonomous Robotics Systems (DARS 2022)*

2022 Y. Zhang, M. Damani, and **G. Sartoretti**. Multi-Agent Traffic Signal Control via Distributed RL with Spatial and Temporal Feature Extraction. *International Workshop on Agent-Based Modelling of Urban Systems (ABMUS) @ AAMAS*.

2022 H. Coffin, I. Abraham, **G. Sartoretti**, T. Dillstrom, and H. Choset. Multi-Agent Dynamic Ergodic Search with Low-Information Sensors. *International Conference on Robotics and Automation (ICRA)*, pages 11480-11486.

2022 Y. Wang and **G. Sartoretti**. FCMNet: Full Communication Memory Net for Team-Level Cooperation in Multi-Agent Systems. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, pages 1355-1363.

2021 F. Laurent, [18 authors omitted], **G. Sartoretti**, Z. Luo, M. Damani, N. Bhattacharya, S. Agarwal, A. Egli, E. Nygren, and S. Mohanty. Flatland competition 2020: MAPF and MARL for efficient train coordination on a grid world. *In NeurIPS 2020 Competition and Demonstration Track*, pp. 275-301.

2021 **G. Sartoretti**, A. Rao, and H. Choset. Spectral-based distributed Ergodic coverage for heterogeneous multi-agent search. *15th International Symposium on Distributed Autonomous Robotics Systems (DARS 2021)*. **Best Paper Award**.

- 2021 **G. Sartoretti**, T. Wang, G. Chuang, Q. Li, and H. Choset. Autonomous decentralized shape-based navigation for snake robots in dense environments. *ICRA 2021*.
- 2020 B. Freed, R. James, **G. Sartoretti**, and H. Choset. Sparse discrete communication learning for multi-agent cooperation through backpropagation. *IROS 2020*.
- 2020 B. Freed, **G. Sartoretti**, J. Hu, and H. Choset. Communication learning via backpropagation in discrete channels with unknown noise. *Proceedings of AAAI 2020 - 34th Conference on Artificial Intelligence*, pp.7160-7168.
- 2019 B. Chong, Y. Ozkan Aydin, **G. Sartoretti**, J. Rieser, C. Gong, H. Xing, H. Choset, and D. Goldman. A hierarchical geometric framework to design locomotive gaits for highly articulated robots. *Proceedings of Robotics: Science and Systems (RSS)*.
- 2019 S. Shaw, **G. Sartoretti**, J. Olkin, W. Paivine, and H. Choset. Workspace CPG with body pose control for stable, directed vision during omni-directional locomotion. *International Conference on Robotics and Automation (ICRA) 2019*, pp.6316-6322.
- 2018 **G. Sartoretti**, Y. Wu, W. Paivine, T. K. Satish Kumar, S. Koenig, and H. Choset. Distributed reinforcement learning for multi-robot decentralized collective construction. *International Symposium on Distributed Autonomous Robotic Systems (DARS)*, pp.35-49.
- 2018 B. Chong, Y. Ozkan Aydin, C. Gong, **G. Sartoretti**, Y. Wu, J. Rieser, H. Xing, J. Rankin, K. Michel, A. Nicieza, J. Hutchinson, D. Goldman, and H. Choset. Coordination of back bending and leg movements for quadrupedal locomotion. *RSS 2018*.
- 2018 **G. Sartoretti**, Y. Shi, W. Paivine, M. Travers, and H. Choset. Distributed learning for the decentralized control of articulated mobile robots. *ICRA 2018*, pp.3789-3794.
- 2018 **G. Sartoretti**, S. Shaw, K. Lam, N. Fan, M. Travers, and H. Choset. Central pattern generator with inertial feedback for stable locomotion and climbing in unstructured terrain. *ICRA 2018*, pp.5769-5775.
- 2018 F. Ruscelli, **G. Sartoretti**, J. Nan, Z. Feng, M. Travers, and H. Choset. Proprioceptive-inertial autonomous locomotion for articulated robots. *ICRA 2018*, pp.3436-3441.
- 2016 **G. Sartoretti**, S. Shaw, and M. Ani Hsieh. Distributed planar manipulation in fluidic environments. *ICRA 2016*, pp.5322-5327.
- 2015 **G. Sartoretti**. Leader-based versus soft control of multi-agent swarms. *SWARM 2015 - International Symposium on Swarm Behavior and Bio-Inspired Robotics*.
- 2014 **G. Sartoretti**, M.-O. Hongler, and R. Filliger. The estimation problem and heterogenous swarms of autonomous agents. *SMTDA 2014*.
- 2013 **G. Sartoretti** and M.-O. Hongler. Self-organized mixed canonic-dissipative dynamics for Brownian planar agents. *EUROCAST 2013*, volume 1, pp.45-52.
- 2013 **G. Sartoretti** and M.-O. Hongler. Soft control of swarms: Analytical approach. *ICAART 2013*, volume 1, pp.147-153.
- 2012 **G. Sartoretti**, J.-L. Falcone, B. Chopard, M. J. Gander. Decentralized method for traffic monitoring. *ACRI 2012: Cellular Automata for Research and Industry*, Vol. 1, pp.464-73.

Languages

<i>French</i>	mother tongue		
<i>English</i>	fluent	<i>Spanish</i>	oral comprehension
<i>German</i>	good knowledge	<i>Hungarian</i>	weak oral comprehension

References for Guillaume Sartoretti

Available upon request.