




# John D. Martin

✉ jdmartin86@gmail.com

🌐 jdmartin86.github.io

## Education

- 2015 – 2021  **Ph.D. Mechanical Engineering** Stevens Institute of Technology.  
Advisor: *Brendan Englot*  
Thesis: *Reinforcement Learning Algorithms for Representing and Managing Uncertainty in Robotics*.
- 2013 – 2015  **M.Sc. Computer Science (Incomplete)** Columbia University.
- 2009 – 2012  **B.S. Physics & Aerospace Engineering** University of Maryland.

## Publications








### Conference Papers

- 1 **J. D. Martin**, M. Bowling, D. Abel, and W. Dabney, “Settling the Reward Hypothesis,” in *International Conference on Machine Learning*, PMLR, 2023.
- 2 R. Rafailov, K. B. Hatch, V. Koley, **J. D. Martin**, M. Phielipp, and C. Finn, “Moto: Offline pre-training to online fine-tuning for model-based robot learning,” in *7th Annual Conference on Robot Learning*, 2023.
- 3 F. Chen, **J. D. Martin**, Y. Huang, J. Wang, and B. Englot, “Autonomous exploration under uncertainty via deep reinforcement learning on graphs,” in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, IEEE, 2020, pp. 6140–6147.
- 4 **J. D. Martin**, K. Doherty, C. Cyr, B. Englot, and J. Leonard, “Variational filtering with copula models for slam,” in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, IEEE, 2020, pp. 5066–5073.
- 5 **J. D. Martin**, M. Lyskawinski, X. Li, and B. Englot, “Stochastically dominant distributional reinforcement learning,” in *International Conference on Machine Learning*, PMLR, 2020, pp. 6745–6754.
- 6 J. McConnell, **J. D. Martin**, and B. Englot, “Fusing concurrent orthogonal wide-aperture sonar images for dense underwater 3d reconstruction,” in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, IEEE, 2020, pp. 1653–1660.
- 7 **J. D. Martin**, J. Wang, and B. Englot, “Sparse gaussian process temporal difference learning for marine robot navigation,” in *Conference on Robot Learning*, PMLR, 2018, pp. 179–189.
- 8 **J. D. Martin** and B. Englot, “Extending model-based policy gradients for robots in heteroscedastic environments,” in *Conference on Robot Learning*, PMLR, 2017, pp. 438–447.


### Articles

- 1 **J. D. Martin**, B. Burega, L. Kapeluck, and M. Bowling, “Meta-gradient search control: A method for improving the efficiency of dyna-style planning,” *arXiv preprint arXiv:2406.19561*, 2024.
- 2 B. Burega, **J. D. Martin**, and M. Bowling, “Learning to prioritize planning updates in model-based reinforcement learning,” *NeurIPS Workshop on Meta Learning*, 2022.
- 3 **J. D. Martin**, “Time to take embodiment seriously,” *RLDM RL as Agency Workshop (Oral)*, 2022.
- 4 **J. D. Martin**, P. Szenher, X. Lin, and B. Englot, “The stochastic road network environment for robust reinforcement learning,” *ICRA Workshop on Releasing Robots into the Wild*, 2022.
- 5 E. Saleh, **J. D. Martin**, A. Koop, A. Pourzarabi, and M. Bowling, “Should models be accurate?” *arXiv preprint arXiv:2205.10736*, 2022.
- 6 **J. D. Martin** and J. Modayil, “Adapting the function approximation architecture in online reinforcement learning,” *arXiv preprint arXiv:2106.09776*, 2021.
- 7 W. Fedus, D. Ghosh, **J. D. Martin**, M. G. Bellemare, Y. Bengio, and H. Larochelle, “On catastrophic interference in atari 2600 games,” *arXiv preprint arXiv:2002.12499*, 2020.

## Employment History

- 2023 – . . . .  **Adjunct Professor**, University of Alberta, Department of Computing Science.  
I supervise graduate students studying reinforcement learning.
- 2022 – . . . .  **Research Scientist**, Intel Labs.  
I conduct applied and fundamental research in reinforcement learning. My applied work focuses on the detection of processor errors with code-specialized LLMs, fine-tuned for particular failure modalities. My fundamental work focuses on algorithms for model-based RL, sparsity in neural networks, and the design of reward functions.
- 2021 – 2022  **Postdoctoral Fellow**, University of Alberta, Department of Computing Science.  
Advisor: *Michael Bowling*  
I studied the reward hypothesis, representations, and algorithms for sample-efficient planning.
- Summer 2020  **Research Scientist Intern**, DeepMind.  
Advisor: *Joseph Modayil*  
I studied online RL algorithms for building representations from unstructured observations.
- 2019 – 2020  **Student Researcher / Research Scientist Intern**, Google AI.  
Advisor: *Marc G. Bellemare*  
I studied algorithms for reducing plasticity in neural networks.
- 2017 – 2019  **Technical Consultant**, Piasecki Aircraft.  
Focus areas: Conceptual design of experimental aircraft, proposal writing.
- 2012 – 2015  **Robotics and Flight Controls Engineer**, Sikorsky Aircraft.  
Focus areas: Design of motion planning and control algorithms, automation of full-scale S-76.

## Invited Talks

- 2024  **The Methodological Tangle of AI Research.**  
University of Alberta, Edmonton, Canada.
-  **Reinforcement Learning and The Extended Mind Hypothesis.**  
Cohere for AI virtual talk.
- 2023  **The Issaquah Plan.**  
Seattle Minds and Machines Meetup, Google DeepMind Seattle.
- 2022  **Learning to Prioritize Planning Updates in Model-based Reinforcement Learning.**  
University of Massachusetts, Amherst
- 2021  **Adapting the Function Approximation Architecture in Online Reinforcement Learning.**  
Google AI, Sparsity Reading Group
- 2020  **Uncertainty, Perception, and Their Lessons for Creating General-purpose Robots.**  
University of California, Berkeley
- 2019  **From Tasks to Timescales: A path to generalization in reinforcement learning.**  
Massachusetts Institute of Technology  
DeepMind, Edmonton  
Google Robotics, New York
- 2014  **Sikorsky R&D: Motion Planning for Autonomous Rotorcraft.**  
Stevens Institute of Technology


## Academic Service

### Masters Thesis Advising



- 2024 – . . .  **Deepak Ranganatha Sastry Mamillapalli**, University of Alberta, co-advised with Matt Taylor.
- 2023 – . . .  **Luke Kapeluck**, University of Alberta, co-advised with Michael Bowling.
- 2022 – 2023  **Bradley Burega**, University of Alberta, co-advised with Michael Bowling.

## Academic Service (continued)

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2021 – 2024     **Fatima Davelouis**, University of Alberta, co-advised with Michael Bowling.




### Organizer

- 2024     **Finding the Frame Workshop**: An RLC workshop for examining conceptual frameworks in RL.
- 2023 – ...     **Seattle Minds and Machines Meetup**: a seminar series for Reinforcement Learning in Computer Science and Computational Neuroscience researchers in the Seattle-area.













### Workflow Chair

2022     **AAAI**.

### Program Chair

- 2023     **Barbados RL Workshop**.
- 2021     **NAAMII Winter AI School**.
- 2020     **ICML Reinforcement Learning Social**.

### Program Committee

- 2023     **Nature Machine Intelligence**.  
          **TMLR**.
- 2021     **ICLR**.
- 2020–2022     **NeurIPS**.
- 2020–2024     **ICML**.
- 2019     **AAAI**.  
          **CoRL**.
- 2020     **WAFR**.
- 2019     **RAL**.
- 2018–2020     **ICRA**.
- 2017     **IROS**.
- 2020     **JOE**.

### Mentor

- 2022     **Neuromatch Academy**.
- 2020     **NeurIPS New in ML Workshop**.

## Teaching Experience

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### Primary Instructor

Winter 2021     **RL Lecture Series**, Nepal Applied Mathematics and Informatics Institute.

### Guest Lecturer

2017, 2020, 2021     **Advanced Robotics**, Stevens Institute of Technology.

## Skills

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Languages     English, Nepalese.

## Skills (continued)

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Coding	Python, C, C++, R, $\LaTeX$ , OCaml, ...
Libraries	JAX, Haiku, Tensorflow, Pandas, NumPy, Docker, Kubernetes, ROS, ...

## Miscellaneous Experience

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### Awards and Achievements

2019 – 2020	<b>Robert Brooks Stanley Doctoral Fellow</b> , Two-time recipient.
2015	<b>Department of Homeland Security Doctoral Fellow</b> .
	<b>Howard Hughes Award</b> , American Helicopter Society.

## References

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Available on Request