

# Francisco M. Garcia

Applied Scientist, Amazon Alexa

Phone: (215) 758-1583 • E-Mail: fmaxgarcia@gmail.com

## Education

---

### Doctor of Philosophy

**2015-2019**

College of Information and Computer Sciences, University of Massachusetts Amherst  
Advisor: Philip S. Thomas

### Master of Science

**2013-2015**

College of Information and Computer Sciences, University of Massachusetts Amherst  
Advisor: Sridhar Mahadevan

### Bachelor of Science

**2008-2011**

Misher College of Arts and Sciences, University of the Sciences in Philadelphia

## Experience

---

### Amazon Alexa

**2019-Present**

Applied Scientist

Conduct research and implement solutions for the core natural language understanding system in Alexa.

### University of Massachusetts Amherst

**2015-2019**

Doctoral Student

Conducted research in reinforcement learning with a focus on temporal abstraction and meta-learning.

### Microsoft Research

**2016**

Research Intern

Conducted research in navigation of unmanned air vehicles (UAVs).

### Adobe Research

**2014**

Research Intern

Conducted research in natural language techniques to support business analytics teams.

### DmgCtrl

**2011-2013**

Software Developer

Developed and maintained iOS and web applications for third-party projects.

## Publications

---

**[NAACL 2021]** L. Chen, **F. G. Garcia**, V. Kumar, H. Xie, J. Lu. Industry Scale Semi-Supervised Learning for Natural Language Understanding. In *Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics*.

**[Ph.D. Dissertation 2020]** **F. G. Garcia**. Improving Reinforcement Learning Techniques by Leveraging Prior Experience.

**[NIPS 2019]** **F. M. Garcia**, P. S. Thomas. A Meta-MDP Approach to Exploration for Lifelong Reinforcement Learning. In *Proceedings of the Thirty Third Conference on Neural Information Processing Systems*, December 2019.

**[RLDM 2019]** **F. M. Garcia**, C. Nota, P. S. Thomas. Learning Temporal Abstractions from Demonstration: A Probabilistic Approach to Offline Option Discovery. In *The Fourth Multidisciplinary Conference on Reinforcement Learning and Decision Making*, July 2019.

**[AAMAS 2019]** **F. M. Garcia**, B. C. da Silva, P. S. Thomas. A Compression-Inspired Framework for Macro Discovery. In *Proceedings of the Eighteenth International Conference on Autonomous Agents and Multiagent Systems*, May 2019. Extended Abstract

**[CAVW 2014]** K. Ninomiya, M. Kapadia, A. Shoulson, **F. M. Garcia**, N. I. Badler. Planning Approaches to Constraint-Aware Navigation in Dynamic Environments. In *Computer Animation and Virtual Worlds*, 2014.

**[ICRA 2014]** **F. M. Garcia**, M. Kapadia, N. I. Badler. GPU-Based Dynamic Search on Adaptive Resolution Grids. In *Proceedings of International Conference on Robotics and Automation*, June 2014

**[MIG 2013]** M. Kapadia, K. Ninomiya, A. Shoulson, **F. M. Garcia**, N. I. Badler. Constraint Aware Navigation in Dynamic Environments. In *Proceedings of the Sixth International Conference on Motion in Games*, 2013

**[IROS 2013]** M. Kapadia, **F. M. Garcia**, N. I. Badler. Dynamic Search on the GPU. In *Proceedings of the International Conference on Intelligent Robots and Systems*, 2013

**[SCA 2013]** M. Kapadia, A. Porres, **F. M. Garcia**, V. Reddy, N. Pelechano, N. I. Badler. Multi-Domain Real-Time Planning in Dynamic Environments. In *EUROGRAPHICS Symposium of Computer Animation*, 2013

**[MIG 2011]** A. Shoulson, **F. M. Garcia**, M. Jones, R. Mead, N. I. Badler. Parameterizing Behavior Trees. In *Proceedings of the Fourth International Conference on Motion in Games*, 2011

## Workshops and Non-peer reviewed Publications

---

**[Arxiv 2020]** **F. M. Garcia**, C. Nota, P. S. Thomas. Learning Reusable Options for Multi-Task Reinforcement Learning. <https://arxiv.org/abs/2001.01577>

**[AAAI 2019]** **F. M. Garcia**, B. C. da Silva, P. S. Thomas. A Compression-Inspired Framework for Macro Discovery. In *Workshop on Reinforcement Learning in Games*, 2019.  
Extended version: <https://arxiv.org/abs/1711.09048>

**[AAAI 2019]** **F. M. Garcia**, P. S. Thomas. A Meta-MDP Approach to Exploration for Lifelong Reinforcement Learning. In *Workshop on Reinforcement Learning in Games*, 2019.  
Extended version: <https://arxiv.org/abs/1902.00843>

**[Arxiv 2016]** S. Giguere, **F. M. Garcia**, S. Mahadevan. A Manifold Approach to Learning Mutually Orthogonal Subspaces. <https://arxiv.org/abs/1703.02992>

## Academic Service

---

I served as reviewer for:

- Association for the Advancement of Artificial Intelligence (AAAI): [20',21']
- International Conference on Machine Learning (ICML): [19',20',21']
- Advances in Neural Information Processing Systems (NIPS): [19',20']
- International Conference on Autonomous Agents and Multi-agent Systems (AAMAS): [21']
- International Conference on Learning Representations (ICLR): [21']
- International Conference on Motions in Games (MIG): 2014
- International Conference on Intelligent Robots and Systems (IROS): 2015

## References

---

Available upon request.

