Joseph L. Marino

email: josephmarino@google.com **website**: joelouismarino.github.io

Education

California Institute of Technology (Caltech) 2014 – 2021
Ph.D. in Computation & Neural Systems
Pasadena, CA

University of Minnesota, Twin Cities 2010 – 2014
B.S. in Physics, Minor in Computer Science High Distinction
Minneapolis, MN

Work Experience

Google DeepMind Senior Research Scientist
London, UK May 2024 – Present

Research Scientist
October 2021 – May 2024

Disney Research R&D Lab Associate (Intern)
Pittsburgh, PA March 2017 – June 2017

Technical Reports

SIMA 2: A Generalist Embodied Agent for Virtual Worlds 2025
SIMA Team
arXiv, Google DeepMind Blog

Scaling Instructable Agents Across Many Simulated Worlds 2024
SIMA Team
arXiv, Google DeepMind Blog

Conference Publications

Iterative Amortized Policy Optimization 2021
Joseph Marino, Alexandre Piché, Alessandro Davide Ialongo, Yisong Yue
Neural Information Processing Systems (NeurIPS)

Hierarchical Autoregressive Modeling for Neural Video Compression 2021
Ruihan Yang, Yibo Yang, **Joseph Marino**, Stephan Mandt
International Conference on Learning Representations (ICLR)

VAEs with Jointly Optimized Latent Dependency Structure 2019
Jiawei He, Yu Gong, **Joseph Marino**, Greg Mori, Andreas Lehrmann
International Conference on Learning Representations (ICLR)

A General Method for Amortizing Variational Filtering 2018
Joseph Marino, Milan Cvitkovic, Yisong Yue
Neural Information Processing Systems (NeurIPS)

Probabilistic Video Generation using Holistic Attribute Control 2018
Jiawei He, Andreas Lehrmann, **Joseph Marino**, Greg Mori, Leonid Sigal
European Conference on Computer Vision (ECCV)

Iterative Amortized Inference 2018
Joseph Marino, Yisong Yue, Stephan Mandt
International Conference on Machine Learning (ICML)

Journal Publications

A Detailed Theory of Thalamic and Cortical Microcircuits for Predictive Visual Inference 2025
Dileep George, Miguel Lázaro-Gredilla, Wolfgang Lehrach, Antoine Dedieu, Guangyao Zhao, **Joseph Marino**
Science Advances

Bridging the Gap Between Target Networks and Functional Regularization 2023
Alexandre Piché, Valentin Thomas, Rafael Pardinas, **Joseph Marino**, Gian Maria Marconi, Chris Pal, Mohammad Emtiyaz Khan
Transactions on Machine Learning Research

Insights from Generative Modeling for Neural Video Compression 2023
Ruihan Yang, Yibo Yang, **Joseph Marino**, Stephan Mandt
Transactions on Pattern Analysis & Machine Intelligence (TPAMI)

Predictive Coding, Variational Autoencoders, and Biological Connections 2022
Joseph Marino
Neural Computation

Improving Sequential Latent Variable Models with Autoregressive Flows 2021
Joseph Marino, Lei Chen, Jiawei He, Stephan Mandt
Machine Learning

Selected Workshop Publications

Scale Space Flow with Autoregressive Priors 2021
Ruihan Yang, Yibo Yang, **Joseph Marino**, Stephan Mandt
ICLR 2021 Workshop on Neural Compression

Sequential Autoregressive Flow-Based Policies 2020
Alex Guerra, **Joseph Marino**
ICML INNF Workshop

On the Design of Variational RL Algorithms 2019
Joseph Marino, Alexandre Piché, Yisong Yue
NeurIPS Deep Reinforcement Learning Workshop

An Inference Perspective on Model-Based Reinforcement Learning 2019
Joseph Marino, Yisong Yue
ICML Workshop on Generative Modeling & Model-Based Reasoning

Thesis

Learned Feedback & Feedfoward Perception & Control 2021
Joseph Marino
Ph.D. Thesis

Reviewing

Conferences

- ICLR: R: 2021–2023, AC: 2024
- NeurIPS: R: 2019–2023
- ICML: R: 2019–2022
- CVPR: R: 2017–2019
- ECCV: R: 2018
- ICCV: R: 2017

Journals

- Foundations & Trends in Machine Learning: 2021–2022

Teaching

CS 159 - Special Topics in Machine Learning (Teaching Assistant, Lecturer) 2019 – 2021
Lectures: Intro. to Deep Generative Models, Latent Variable Models, Amortized Optimization, Model-Based RL

CS 155 - Machine Learning & Data Mining (Guest Lecturer) 2017 – 2020
Lectures: Intro. to Deep Learning, CNNs & RNNs, Deep Generative Models

CS 259 - [@ UC Irvine] Deep Generative Models (Guest Lecturer) 2019 – 2020
Lectures: Deep Sequential Latent Variable Models

Theory of Biological Computation (Guest Lecturer) 2018
Lectures: Predictive Coding

CNS 187 - Neural Computation (Teaching Assistant, Guest Lecturer) 2015 – 2016
Lectures: Convolutional Neural Networks, Biological Inspiration

Awards

NSF GRFP Honorable Mention 2016
Kunzel Fellowship, Caltech 2014 – 2017
Dean's List, University of Minnesota 2010 – 2014
Summer Undergraduate Research Fellowship, Caltech 2013
Eagle Scout Award, Boy Scouts of America 2010