

VASHISHT MADHAVAN

MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

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University of California, Berkeley

M.S. ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Computer Vision and Machine Learning - Advisor: Trevor Darrell

Berkeley, CA : Aug'16 - May'17

GPA : 3.82 / 4

University of California, Berkeley

B.E. ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Berkeley, CA : Aug'12 - May'16

Experience

Element Inc. Research Engineer

November 2019 - Present

- Developing on-device facial recognition and ID validation systems using neural networks.
- Reduced memory/latency of recognition models by 50% by leveraging network compression techniques
- Built de-duplication services for large image databases based on graph-based clustering approaches.
- Led the development, iteration, and deployment of on-device OCR models and document annotation tools.

Uber Technologies Inc. Research Scientist II

June 2017 - October 2019

- Published 4 research papers on deep reinforcement learning with a focus on exploration, generalization, and fast adaptation.
- Improved performance & reduced latency by 12% for autonomous vehicle perception models by using neural architecture search.
- Facilitated the application of reinforcement learning projects in various business units such as Uber Freight and Uber POOL.

Berkeley Artificial Intelligence Research Lab Graduate Student Researcher

Jan 2016 - May 2017

- Released the BDD100k dataset and annotation tool to catalyze large-scale perception research for autonomous vehicles.
- Leveraged synthetic urban environments for unsupervised/semi-supervised transfer learning in vehicle perception.

SafelyYou Computer Vision Engineer

Jan 2017 - May 2017

- Worked on improving patient care in assisted living facilities via real-time tracking and event detection.
- Implemented active learning pipelines for quicker labeling and deployment of object detection models.

Microsoft Corporation Software Engineering Intern

May 2015 - Aug 2015

- Investigated machine learning models for build time prediction within the Windows testing framework.
- Developed pipelines for data ingestion, iterative model updates, and subsequent Azure deployment.

Research

Scaling Map-Elites to Deep Neuroevolution

GECCO 2020

- Cedric Colas, Joost Huizinga, Vashisht Madhavan, Jeff Clune

BDD100K: A Diverse Driving Video Database with Scalable Annotation Tooling

CVPR 2020

- Fisher Yu, Wenqi Xian, Yingying Chen, Fangchen Liu, Mike Liao, Vashisht Madhavan, Trevor Darrell

An Atari Model Zoo for Analyzing, Visualizing, and Comparing Deep RL Agents

IJCAI 2019

- Felipe Petroski Such, Vashisht Madhavan, ... , Joel Lehman

Improving Exploration in Evolution Strategies for Deep Reinforcement Learning via a Population of Novelty-Seeking Agents

NeurIPS 2018

- Edoardo Conti*, Vashisht Madhavan*, Felipe Petroski Such, Joel Lehman, Kenneth O. Stanley, Jeff Clune

Deep Neuroevolution: Genetic Algorithms are a Competitive Alternative for Training Deep Neural Networks for Reinforcement Learning

NeurIPS 2018 Deep RL Workshop

- Felipe Petroski Such, Vashisht Madhavan, Edoardo Conti, Joel Lehman, Kenneth O. Stanley, Jeff Clune

Best Practices for Fine-Tuning Visual Classifiers to New Domains

ECCV 2016 Task CV Workshop

- Brian Chu*, Vashisht Madhavan*, Oscar Beijbom, Judy Hoffman, Trevor Darrell

Skills

Languages

- Python, R, Java, C/C++, Javascript

Machine Learning

- TensorFlow, PyTorch, Caffe, Spark, Scikit-Learn, OpenCV

Achievements

- ICML 2019 Reviewer: Exploration in RL Workshop
- Invited Talk 2019: US Patent and Trademark Office - Deep Neuroevolution
- Patent 2018: Scalable Parameter Encoding of Artificial Neural Networks Obtained via an Evolutionary Process
- Patent 2018: Training Neural Networks Using Evolution Based Strategies and Novelty Search
- NIPS 2017 Reviewer: Machine Learning for Intelligent Transportation Systems
- 2016 Outstanding Student Instructor Award - Introduction to Machine Learning