

Alok Singh

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Publications

A reinforcement learning environment for mathematical reasoning via program synthesis

Generalization Properties of Machine Learning-Based Weather Model Downscaling, ICLR 2020

A Random Forest Model for the Probability of Large Wildfires in California, ICLR 2020

Numerical Weather Model Super-Resolution, NeurIPS 2019

Detecting Spiky Corruption in Markov Decision Processes IJCAI 2019

Downscaling Numerical Weather Models with GANs Climate Informatics 2019, AGU 2019, AMS 2019 (Oral)

Education

2013 - 2017 **Bachelor's, Mathematics, UC Berkeley**

Experience

Deep Learning Scientist, Lawrence Berkeley National Lab (2020)

ML lead for ARPA-E project on inverse design of metamaterials. I had the idea to do this through differentiable simulation of the electromagnetic force.

Machine Learning Scientist, Terrafuse (2019)

I worked on deep learning for the physical sciences. My work on using GANs for climate modeling was accepted to venues such as NeurIPS and AGU.

Machine Learning Consultant, Papert Labs (2018)

Consulted companies on how to use ML. Also worked with their engineering teams on how to integrate predictive models into their overall engineering system, replacing hand-tuned heuristics.

Recurse Center (2017)

Worked on deep reinforcement learning. Implemented DAGger, DQN, and parallel PPO.

Projects

Spiky CRMDPs

Came up with algorithms for safe exploration in an environment with a noisy reward function. Presented work at IJCAI 2019.

Network Compression

Implemented model compression to test the conclusion of the paper *Understanding Deep Learning Requires Rethinking Generalization*. Blog post and code [here](#).

Skills

• Python, Julia, PyTorch, TensorFlow, Bash, UNIX, Rust, Haskell