

Sebastian W. Bodenstein

MACHINE LEARNING RESEARCH ENGINEER

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Summary

I am a physics PhD who moved into machine learning in 2013. After spending almost 6 years in industry at Wolfram Research, I have taken a research sabbatical that has allowed me to take deep dives into reinforcement learning, causal inference, neuroscience and unsupervised learning.

Experience

Wolfram Research

Boston, USA

RESEARCH ENGINEER

October 2013 - July 2019

- One of the two primary developers of the Mathematica Neural Net framework.
- Lead developer of the Wolfram Neural Net Repository.
- Significant contributor to the open source Apache MXNet framework.
- Managed a project that reproduced the OpenAI Baselines PPO implementation in Mathematica. Lead the effort to add reinforcement learning environments to Mathematica.
- Architected and wrote a machine learning data framework used internally at Wolfram Research for managing terabyte-scale datasets. Included writing high-performance Mathematica interfaces to MongoDB and AWS S3.
- Worked on a number of applied deep learning projects, such as speech and image recognition.

Education

Reinforcement Learning Summer SCOOOL

Lille, France

INRIA

2019

- Deep Reinforcement Learning and Bandits.

Doctorate in Theoretical Physics

South Africa

UNIVERSITY OF CAPE TOWN

2014

- Published 10 papers in top international particle physics journals during the PhD.

Bachelor of Science

South Africa

UNIVERSITY OF CAPE TOWN

2007

- Majoring in Mathematics and Physics.

Skills

Languages Python, C/C++, Swift, Mathematica

Frameworks MXNet, PyTorch, TensorFlow, Swift for TensorFlow

Other MongoDB, AWS S3 and EC2, Bash, CMAKE, \LaTeX

Selected Talks

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| 2019 | Will Julia or Swift take Python's Machine Learning Crown? , South African Radio Astronomy Observatory
Data Science Seminar | <i>Cape Town, South Africa</i> |
| 2017 | Data Science in the Wolfram Language , Data, Learning and Inference (DALI) | <i>Tenerife, Spain</i> |
| 2016 | Building Smart Applications that Learn , SXSW | <i>Austin, USA</i> |
| 2016 | Computer Vision and Applied Deep Learning with Mathematica , Conference on Computer Vision and Pattern Recognition (CVPR) | <i>Las Vegas, USA</i> |

Selected Writing

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| 2018 | Launching the Wolfram Neural Net Repository , Wolfram Blog |
| 2017 | Apache MXNet in the Wolfram Language , O'Reilly Ideas |