# EVAN RACAH

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**Current:** Montréal, QC, Canada ◇ **Permanent:** Oakland, CA, USA

## EDUCATION

**University of Montreal/Mila** 2017-2019
MSc. in Computer Science
Thesis: *"Unsupervised Representation Learning in Interactive Environments"*
Advisor: Christopher Pal

**University of California, Davis** 2009-2014
BS with Honors in Engineering (MechE)
Minor: Computer Science

## EXPERIENCE

**Research Assistant**, Mila, Montréal, QC Jan 2020-present

- Researching object-centric representation learning and learning models for model-based reinforcement learning

**Research Engineer**, NERSC/Berkeley Lab Aug 2015-Jul 2017

- Developed deep, semi-supervised computer vision climate event detection model for climate simulation data
- Implemented deep, unsupervised methods for visualizing High Energy Physics events
- Contributed to a massive scale deep learning training at 10,000 nodes on Cori HPC supercomputer

**Research Intern**, NERSC/Berkeley Lab Jan-Aug 2015

- Analyzed multi-node Spark performance for random forests algorithm on protein folding data and randomized linear algebra algorithms.

**Undergraduate Researcher**, CS Department, UC Davis Mar 2014-Sept 2014

- Created machine learning framework for training and visualizing score prediction for protein folding data in Matlab, then ported it to Python

## CONFERENCE PUBLICATIONS

**Unsupervised State Representation Learning in Atari**
A Anand*, E Racah*, S Ozair*, Y Bengio, MA Ct, RD Hjelm
NeurIPS, 2019

**ExtremeWeather: A large-scale climate dataset for semi-supervised detection, localization, and understanding of extreme weather events**.
E Racah, C Beckham, T Maharaj, SE Kahou, M Prabhat, C Pal.
NeurIPS, 2017

**Deep Neural Networks for Physics Analysis on low-level whole-detector data at the LHC**
W Bhimji, SA Farrell, T Kurth, M Paganini, E Racah
Journal of Physics: Conference Series, 2018

**Deep Learning at 15PF: Supervised and Semi-Supervised Classification for Scientific Data**
T Kurth, J Zhang, N Satish, E Racah, I Mitliagkas, MMA Patwary, T Malas.
Supercomputing (SC), 2017

**Revealing Fundamental Physics from the Daya Bay Neutrino Experiment using Deep Neural Networks**
E Racah, S Ko, P Sadowski, W Bhimji, C Tull, SY Oh, P Baldi.
IEEE ICMLA, 2016

**Matrix factorizations at scale: A comparison of scientific data analytics in Spark and C+ MPI using three case studies**
A Gittens, A Devarakonda, E Racah, M Ringenburg, L Gerhardt, J Kottalam, J Liu, K Maschhoff, S Canon, J Chhugani, P Sharma, J Yang, J Demmel, J Harrell, V Krishnamurthy, M Mahoney
IEEE Big Data, 2016

**Application of deep convolutional neural networks for detecting extreme weather in climate datasets**
Y Liu, E Racah, J Correa, A Khosrowshahi, D Lavers, K Kunkel, M Wehner, W Collins
ABDA, 2016

**H5spark: bridging the I/O gap between Spark and scientific data formats on HPC systems**
J Liu, E Racah, Q Koziol, RS Canon, A Gittens
Cray User Group, 2016

## WORKSHOP PUBLICATIONS

**Supervise Thyself:Examining Self-Supervised Representations in Interactive Environments**
E Racah, C Pal
ICML Workshop on Self-Supervised Learning, 2019

**A multi-platform evaluation of the randomized CX low-rank matrix factorization in Spark**
A Gittens, J Kottalam, J Yang, MF Ringenburg, J Chhugani, E Racah, M Singh, Y Yao, C Fischer, O Ruebel, B Bowen, N Lewis, MW Mahoney, V Krishnamurthy, Prabhat
IPDPS Workshop, 2016

## SELECTED TALKS

**Unsupervised State Representation Learning in Atari**. July 2019, Mila Tea Talk Seminar Series (with Ankesh Anand)
**Machine Learning Tutorial**, August 2016, NERSC Data Day 2016
**Spark on HPC**, June 2016, CS/NERSC Data Seminar Series

## SKILLS

**Languages:** Python, Bash, C/C++
**Tools:** NumPy, scikit-learn, matplotlib, slurm
**Frameworks:** PyTorch, TensorFlow, Caffe, Theano, Keras, Spark

## PROFESSIONAL SERVICE

**Reviewer:** ICML 2019, NeurIPS 2019

## AWARDS/AFFILIATIONS

Dean's Honor List, UdeM Faculty of Arts and Sciences, 2019
UCOP SPOT Award. Twice (2016)
Tau Beta Pi Engineering Honors Society, Member, 2013-Present
Dean's List, UC Davis College of Engineering (Five times), 2011-2014
Dean's List, UC Davis College of Biological Sciences (Five times), 2009-2011

## SELECTED PRESS COVERAGE

*A look at deep learning for science*, by Prabhat. O'Reilly. April 3, 2017.
*Berkeley Lab Staff to Participate in Major Machine Learning Conference*, NERSC Center News. December 1, 2017

## LANGUAGES

English (native), French (intermediate), Spanish (intermediate, but rusty)