MICHELA PAGANINI

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EDUCATION

Yale University

- *Ph.D.* in Physics, Experimental High Energy Physics - Expected 2018
- *M.Phil.* in Physics - Dec. 2016
- *M.S.* in Physics - Dec. 2014 - Student Marshal

UC Berkeley

- *B.A.* in Physics
- *B.A.* in Astrophysics - Class of 2013

University of Cambridge

- Pembroke-King's Programme - Summer 2012

SKILLS

Computing: Python, C, C++, Matlab, LabView, IDL, LaTeX, Docker, Git, Arduino, HTML

Libraries: NumPy, SciPy, Matplotlib, TensorFlow, Keras, scikit-learn, pandas, ROOT

Languages: English, Italian (bilingual), French (intermediate), Spanish (elementary), Latin

Interpersonal Skills: Management, Event Planning, Effective Communication, Active Listening, Leadership, Flexibility

AWARDS

- HEP Center for Computational Excellence Summer Fellowship, 2017
- Leigh Paige Prize, Yale Physics Department, 2013
- UC Summer Grant, 2012
- University of California Undergraduate Grant, 2011, 2012

INTERESTS

Deep Learning | Experimental High Energy Physics | Reproducible Research | HPC | Software Engineering | Science Education

EXPERIENCE

Graduate Student Summer Intern, NERSC

May 2017 - Present

- Researching, developing, and deploying customized Generative Adversarial Networks to accelerate computationally intensive Physics simulation of particles interacting with matter in heterogeneously segmented 3D detectors
- Exploring and benchmarking deep neural networks training and evaluation in HPC environment on Cori (#6 TOP500) with TensorFlow optimizations for modern Intel architectures.
- Applying Computer Vision solutions for the identification of new Physics events from data in multi-channel, high-resolution sparse image format, using the search for R-parity violating supersymmetry as a case study.

Ph.D. Student, ATLAS Experiment, CERN

May 2013 - Present

- Prototyped object permutation selection using pointer network inspired neural net architectures.
- Designed recurrent neural networks for impact parameter based flavor tagging which beat ATLAS benchmarks by ~200%. Leading effort to integrate into live analysis deployment.
- Pushing multi-stream LSTMs for event-level classification into production for the $hh \rightarrow \gamma\gamma bb$ analysis.
- Using Dark Knowledge to replace the Matrix Element Method (MEM) —a Physics driven, computationally intensive routine — in order to streamline the ttH with $H \rightarrow bb$ analysis pipeline.

PROJECTS

- *Open Geneva Hackathon 2016*
  Emotion recognition through video and text analysis for suicide prevention
- *DiploHack 2016*
  Machine learning for classification of human rights violation evidence
- *CERN/Campus Biotech Hackathon 2015*
  Data aggregator for heterogeneous humanitarian data sources