

Mariel Pettee

Physics PhD Candidate at Yale University

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Education

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|----------------|--|---------------|
| 2015 - Present | YALE UNIVERSITY PhD in Physics (Expected 2021) | New Haven, CT |
| 2015 | UNIVERSITY OF CAMBRIDGE • Trinity College MASt in Physics, Commendable Performance | Cambridge, UK |
| 2014 | HARVARD UNIVERSITY AB in Physics and Mathematics (Cum Laude, High Honors in Field) Dramatic Arts Secondary | Cambridge, MA |

Research

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| 2017 - Present | GENERATIVE CHOREOGRAPHY WITH MACHINE LEARNING I lead an independent research group of 5 artists and scientists in generating and performing novel choreography based on 3D motion capture of my own movements. Sponsor: Yale Center for Collaborative Arts & Media | Yale |
| 2016 - Present | ATLAS EXPERIMENT $VH, H \rightarrow \tau\tau$ Search Prof. Sarah Demers | CERN |
| 2016 - Present | ATLAS EXPERIMENT Tau Identification with Recurrent Neural Networks in the ATLAS Trigger Prof. Sarah Demers | CERN |
| 2015 - 2016 | MUZE EXPERIMENT Trigger & Data Acquisition Studies for the Muze Experiment Prof. Sarah Demers | Fermilab |
| 2012 | ATLAS EXPERIMENT Improving k-factor Estimations for NNLO $H \rightarrow b\bar{b}$ Interactions Prof. John Huth, Dr. David Lopez Mateos | CERN |
| 2011 | HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS Reconstructing the Baryon Acoustic Oscillatory Peak Dr. Daniel Eisenstein | Cambridge, MA |

Awards

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| 2018 | US LHC Users Association Lightning Round Talk Winner Women's Faculty Forum Seed Grant |
| 2016 | Winner, Windy City Physics Slam (PBS Chicago Interview Clip) Poster Award, <i>Trigger Studies for the Muze Experiment</i> , ICHEP |
| 2015 | Honorable Mention, NSF Graduate Research Fellowship Program Leigh Page Prize, Yale University |
| 2014 | Harvard-Cambridge Scholarship Julia Shaffner Memorial Prize (Outstanding Woman in Science), Harvard University |

- 2013 Finalist, The Harvard Innovation Lab President's Challenge
15 Most Interesting Seniors, *The Harvard Crimson*
- 2012 Harvard University Certificate of Distinction in Teaching
The Caroline Isenberg and Elizabeth Cary Agassiz Fellowships

Talks

- 2018 RNN TAU IDENTIFICATION WITHIN THE ATLAS HLT *Fermilab*
US LHC Users Association Meeting
- RNN TAU IDENTIFICATION IN THE ATLAS HLT *CERN*
ATLAS Machine Learning Workshop
- THE 2018 ATLAS TAU TRIGGER & COMBINED PERFORMANCE *Pittsburgh, PA*
US ATLAS Summer Workshop
- TAU TRIGGER & CP PERFORMANCE AT HIGH μ *CERN*
ATLAS P&P Physics Plenary
- FTK & THE TAU TRIGGER *CERN*
ATLAS TDAQ Week

Posters

- 2017 PERFORMANCE OF THE ATLAS TAU TRIGGER IN RUN 2 *Seattle, WA*
Advanced Computing & Analysis Techniques in Physics Research (ACAT)
- 2016 TRIGGER STUDIES FOR THE MU2E EXPERIMENT *Chicago, IL*
International Conference on High Energy Physics (ICHEP)

Teaching

TRAINING

- 2016 PHYSICS 530: Theory and Practice of Scientific Teaching for Physical Scientists *Yale University*
- 2014 ASTRO 302: Scientists Teaching Science *Harvard University*

YALE UNIVERSITY

- 2018 Physics 115: The Physics of Dance
American Studies 349: Technologies for Movement Research
- 2017 Physics 171: University Physics for the Life Sciences
Physics 115: The Physics of Dance
- 2016 Physics 205L: Modern Physical Measurement
Physics 115: The Physics of Dance
- 2015 Physics 165L: General Physics Laboratory

HARVARD UNIVERSITY

- 2013 Math 110: Vector Space Methods for Differential Equations
- 2012 & 2013 Math 121: Linear Algebra and Applications

Writing

- 2018 [Theories of Everything](#), *Sightline Arts*
[Now or Never: The Case for a Larger Hadron Collider](#), *Yale Distilled Magazine*

Service & Outreach

- 2018, 2019 US LHC Users Association advocacy trip to Capitol Hill
→ Met with the offices of 15 representatives from Congress to advocate for their support of high-energy physics research funding
- 2017 - 2018 Speaker, *Science in the News*, delivering scientific talks to the New Haven public
Girls' Science Investigations at Yale
- 2016 Winner, Windy City Physics Slam
Choreographer: *Form Factors*, a dance intervention with physicists at ICHEP
- 2015 - Present Yale Women in Physics Mentor

Arts

YALE UNIVERSITY

- 2019 Bill T. Jones/Arnie Zane Dance Company Intensive, *Yale Dance Theater*
→ Dancer in a restaging of *D-Man in the Waters*
- 2018 Featured performer, *Machine Woman*
→ An experiential short film documenting my AI-generated choreography research
Paul Taylor Dance Company Intensive, *Yale Dance Theater*
→ Leading role as "The Hostess" in the first restaging of Taylor's *Party Mix* in four decades
- 2017 Choreographer: "La Mort du Chorégraphe", *A Different Drum Dance Company*
→ Ongoing Research in AI-generated choreography
Urban Bush Women Intensive, *Yale Dance Theater*
- 2016 Gaga Intensive with Saar Harari & Lee Sher, *Yale Dance Theater*
Choreographer: "Rang Cherries", *A Different Drum Dance Company*

HARVARD UNIVERSITY

- 2014 Director/Writer/Choreographer: *Symmetry Breaking*
→ My creative physics thesis project: an experimental multimedia performance
President, *The Signet Society of Arts & Letters*
Choreographer-in-Residence, *Harvard Dance Center*
- 2013 Arts@CERN Internship
- 2012 The International Student Drama Festival Judges' Award for Acting
Vice-President & Mainstage Coordinator, *The Harvard-Radcliffe Dramatic Club*
→ 35+ productions as a performer, director, producer, designer, & choreographer
Director: *for the purpose of catching ourselves in the act of being the most*
→ Set the Guinness World Record for the longest telephone conversation between two people
- 2011 Harvard Theater Award for Best Lead Actress in a Play
Co-founder and collaborator, *The Harvard Generalist*
Drama & Dance Proctor, *Freshman Arts Program* (2011-2014)