

Drew Pendergrass

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EDUCATION

A.B. candidate: Majors: Physics and Mathematics. Minor: English.
Harvard University
GPA: 4.0

Expected May 2020
Cambridge, Mass.

RESEARCH INTERESTS

Natural science: Haze and extreme pollution events, environmental and planetary health, atmospheric modeling, statistical modeling, topological data analysis, extreme value theory, machine learning

Science and technology studies: Philosophy of science, history of environmental science, actor-network theory, epistemology, critical theory

RESEARCH EXPERIENCE

Chinese University of Hong Kong
Earth System Science Programme
Undergraduate research assistant

Shatin, Hong Kong
June 2018 – August 2018
Advisor: Amos Tai

- Used topological data analysis and manifold learning to understand nonlinear interactions between tropospheric ozone, meteorology, the biosphere, and anthropogenic emissions

Harvard University
School of Engineering and Applied Sciences
Undergraduate research assistant

Cambridge, Mass.
December 2016 – Present
Advisors: Daniel Jacob, Lu Shen, Loretta Mickley

- Quantify the observed relationship between Beijing weather patterns and pollution accretion using extreme value theory
- Work with CMIP5 climate models to project changes in air quality under climate change

Radcliffe Institute for Advance Study
Undergraduate research assistant
Music composition program

Cambridge, Mass.
September 2016 – May 2017
Advisor: Anthony Tan

- Designed high-speed algorithms for delay, granular synthesis, and distortion of live audio signals, mixed on stage during a live May 2017 performance

PEER-REVIEWED PUBLICATIONS

Pendergrass, D. C., L. Shen, D. J. Jacob, and L. J. Mickley. Predicting the impact of climate change on severe wintertime particulate pollution events in Beijing using extreme value theory. 2018. (*in revision at Geophysical Research Letters*).

PRESENTATIONS

Pendergrass, D. C., L. Shen, D. J. Jacob, and L. J. Mickley. Predicting the impact of climate change on severe winter haze pollution events in Beijing using extreme value theory. American Geophysical Union Fall Meeting, Washington D.C., December 11, 2018. (Talk, upcoming)

Pendergrass, D.C. and A.P.K. Tai. Understanding tropospheric ozone variability using topological data analysis. Chinese University of Hong Kong Summer Undergraduate Research Programme, Shatin, Hong Kong, August 16, 2018. (Poster)

Pendergrass, D.C. and L. Shen. Predicting extreme winter smog in Beijing under climate change. Harvard Program for Research in Science and Engineering, Cambridge, MA, August 8, 2017. (Talk)

HONORS AND AWARDS

NOAA Ernest F. Hollings Scholarship	April 2018
Jacob Wendell Scholarship Prize, Harvard University <i>Given to "most promising and broad-ranging scholar in his or her class"</i>	April 2018
Detur Book Prize (<i>Given to top 3% of first-year students</i>)	February 2018
Harvard College Veritas Award <i>Given to one first-year who shows "exceptional intellectual curiosity"</i>	April 2017
John Harvard Scholarship (<i>Given to top 5% of class; received twice</i>)	2017
National Merit Scholarship	2016

RESEARCH AND CONFERENCE FUNDING

Harvard-China Project for the Environment summer research fellowship	Summer 2018
Harvard College Program for Research in Science and Engineering fellowship	Summer 2017
Harvard College Research Program funding (<i>received four times</i>)	2017 – 18

SELECTED GENERAL-AUDIENCE WRITING

"How Insulin Became Unaffordable." *Harvard Political Review* (January 2018).

"The Bitter Pill: Harvard and the Dark History of Birth Control." *The Harvard Crimson* (September 2017).

"Inside the Climate Science Witch Hunts." *Harvard Political Review* (March 2017).

EXTRACURRICULAR ACTIVITIES

Mentorship coordinator for *Humanities 10* course
Associate magazine editor, The Harvard Crimson
U.S. Politics Editor and Publisher, Harvard Political Review

September 2018 – present
January 2018 – December 2018
September 2017 – December 2018

TECHNICAL SKILLS

Technical: R, Python, Java, Mathematica, Matlab

Web: JavaScript, PHP, HTML/CSS, WordPress

Music: Finale, Ableton for Live, Max for Live, ProTools, Audacity

Other: LaTeX, InDesign, Photoshop