Matthew Andres Moreno

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Education

Bachelors of Science in Mathematics, Computer Science (GPA: 3.94/4.0) Expected: May 2017
Minor in Chemistry
University of Puget Sound, Tacoma, WA

Relevant Coursework

Mathematics: Linear Algebra, Ordinary Differential Equations, Partial Differential Equations, Topology, Probability, Mathematical Statistics, Complex Analysis, Abstract Algebra
Computer Science: Assembly Language & Computer Architecture, Programming Paradigms, Introduction to Artificial Intelligence, Software Engineering, Algorithms and Data Structures
Biological Sciences: Organic Chemistry I & II, Cellular Biology, Genetics

Academic Awards

- Dean's List (Spring 2014-Present)
- Member of Otis C. Chapman Honors Program (2013-Present)
- Member Phi Beta Kappa (2016-Present)
- Recipient of Great Lakes National Scholarship Program Award (2016-2017)
- Recipient of James R. Slater Phi Beta Kappa Award (2016-2017)
- Recipient of Puget Sound Association of Phi Beta Kappa Scholarship (2016-2017)
- Recipient of Honors Alumni Scholarship (2015-2016, 2016-2017)
- Recipient of Thomas and Hilda Jack (2014-2015), Sprenger (2015-2016, 2016-2017), and McKnight Memorial (2016-2017) Scholarships in chemistry
- Recipient of McGill Family (2015-2016), McKnight (2015-2016), and Thomas and Hilda Jack (2016-2017) Scholarships in mathematics
- Recipient of Beta Theta Pi Men of Principle Scholarship (2014-2015)
- Recipient of University of Puget Sound Trustee Scholarship (2013-2017)
- National AP Scholar (2013)

Research Experience

Mathematical Biosciences Institute (MBI) Research Experience for Undergraduates — Newark, NJ Summer 2016
- *Student Researcher*

- Worked with advisors Jason Graham and Simon Garnier to model the foraging behavior of ants on uneven terrain in the Swarm Lab at the New Jersey Institute of Technology
- Presented slides and a poster at capstone conference in Columbus, Ohio.
- Attended seminars and workshops on mathematical biology coordinated by the MBI at Ohio State University.

Automated Extraction of Mouse Ultrasonic Vocalizations from Noisy Recordings — Tacoma, WA Summer 2015
- *Student Researcher*

- Designed, applied for grant funding, and carried out project with advisor Adam Smith.
- Funded for eleven weeks as a NASA Research Scholar.
- Developed and tested filtering algorithms inspired by the Sobel Edge detection method that, after being trained on human-annotated spectrograms of mouse vocalizations, distinguish between true mouse vocalization signals and background noise.
- The project culminated in a poster session on campus attended by faculty, summer research students, and other students.

COMAP Mathematical Contest in Modeling — Tacoma, WA Spring 2015, 2016
- *Contest Participant*

- Collaborated in a small team of three students for four days to develop a mathematical model in response to a prompt.
- The project results in a journal-style paper describing our model, results, and outlining reccomendations to policy makers.
- In 2015, developed an epidemiological model to investigate the spread of Ebola virus disease and make recommendations on vaccine distribution.
- In 2016, developed a model of satellite fragmentation events and the subsequent disbursement of debris in orbit to investigate the feasibility of quick-response efforts to neutralize debris generated by satellite explosions and collisions; our team received received an "Honorable Mention" designation in the competition.

US Department of Agriculture Horticultural Crops Research Unit — Corvallis, OR June 2013 – Present
- *Biological Science Aide*

- Collect data for patent applications, perform plant propagation, assist with field maintenance.

John Fowler Laboratory at Oregon State University — Corvallis, OR Summer 2011, 2012
- *Laboratory Assistant*
  - Performed experimental inquiry into the role of the exocyst complex in *Arabidopsis thaliana* culminating in a symposium presentation.

Papers and Presentations

Matthew Moreno. *Modeling the Collective Behavior of Ants on Uneven Terrain.* Undergraduate Capstone Conference, Mathematical Biosciences Institute at The Ohio State University, August 2016.

Matthew Moreno and Becky Hanscam. *Relieving the Space Jam: Assessment of a Quick-Response Satellite Mission to Neutralize Debris from Orbital Fragmentation Events.* Math/CS Day, University of Puget Sound, April 2016.

Matthew Moreno. *Automated Extraction of Mouse Vocalizations from Noisy Recordings.* Fall Poster Symposium, University of Puget Sound, September 2015.

Matthew Moreno. *Mathematical Contest in Modeling: Eradicating Ebola.* Math/CS Day, University of Puget Sound, May 2015.

Matthew Moreno. *Screening for NERDs in Arabidopsis thaliana.* Apprenticeships in Science and Engineering Symposium, University of Portland, August 2011.

Skills

Programming Languages: C, Java, OpenCL, Prolog, Haskell, Python
Miscellaneous: LaTeX, Wolfram Mathematica, Matlab, Bash

Employment

University of Puget Sound Center for Writing, Learning, and Teaching September 2015 – Present
- *Tutor and Academic Consultant*

University of Puget Sound Mathematics and Computer Science Department September 2014 – Present
- *Tutor and Grader*

University of Puget Sound Chemistry Department September 2013 – May 2016
- *Storeroom Assistant*

Service Activities

- Oakland High School, Homework Club leader and classroom assistant (2016)
- Orchestral Recital Series, ensemble member (2016)
- University of Puget Sound Office of Donor Relations, student speaker (2016)
- Puget Sound Wind Youth Wind Ensemble, coach (2015-2016)
- Commencement Band, performer (2013-2016)
- Puget Sound Conductors Institute, ensemble member (2014, 2015)
- Le Comte Ory, pit orchestra member (2015)
- Wilson High School, AP Tutor (2014)
- Jacobsen Children's Concert, performer (2014)
- Collage Concert, performer (2014)
- University of Puget Sound Wind Ensemble and Symphony tours, performer (2014, 2015, 2016)

Extracurricular Activities

- Oboe performance in University Wind Ensemble (co-principal) and Symphony, private study
- Model United Nations Club, conference delegate and treasurer (2013 - 2016)
- University of Puget Sound Economics Department Blog, contributor (2013 - 2016)