

Max Daniels

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Education

NORTHEASTERN UNIVERSITY – Boston, MA

September 2019 – Present

Khoury College of Computer Sciences

Candidate for B.S. degree in Computer Science and Math (Combined) with a minor in Physics. Expected May 2022.

GPA: 3.99/4.00, Dean's List (2019-Present)

Relevant Coursework:

Graduate: Probability 1, Real Analysis 1 and 2, Algorithms, Machine Learning, Theory of Computation, AI Special Topics: Imaging and Deep Learning

Undergraduate: Mathematical Physics, Differential Geometry, Object Oriented Design

Technical Skills

Languages:

- | Python, Numpy, Tensorflow, Pytorch, Matplotlib
- | Matlab, Mathematica
- | HTML, CSS, Javascript, D3.js

Tools and Systems:

- | Git, Ubuntu, Docker, Bash Scripting
- | LaTeX

Papers & Publications

M. Daniels*, C. Huang*, C. Makdad*, S. Makharia*, "An Overview of Graph Spectral Clustering and Partial Differential Equations," 2020. Work done during the Summer@ICERM 2020 REU program. Available: <https://ghost-clusters.github.io/icerm-spectral-clustering/>.

M. Asim*, **M. Daniels***, O. Leong, A. Ahmed, and P. Hand, "Invertible generative models for inverse problems: mitigating representation error and dataset bias," 2020. Accepted to ICML 2020. Available: <http://arxiv.org/abs/1905.11672>.

M. Daniels, "Statistical Distances and Their Implications to GAN Training," 2019. Workshop Article, VISxAI Workshop at IEEE VIS 2019. Available: <http://prob-vis.danielsmax.com>. **Honorable mention for best submission.**

M. Daniels, R. Heckel, and P. Hand, "Removing the representation error of GAN image priors using the deep decoder," 2020. [Online]. Available: <https://arxiv.org/abs/2001.08747>.

Talks

"Semantic Manipulation through Learned Information Representations" at SUMS 2020 March 2020

- | Given at the Brown University's Symposium for Undergraduates in the Mathematical Sciences.
- | Expository presentation on unsupervised representation learning and noise contrastive estimation.
- | Details and slides available at <https://prob-vis.danielsmax.com/SUMS.html>

"Statistical Distances and their Implications to GAN Training" at IEEE VIS, VISxAI Workshop October 2019

- | Presented independent work in an international conference workshop.
- | Article provides interactive explanations of statistical distances such as Kullback-Leibler and the Wasserstein Distance, and demonstrates their relevance to the design of GAN training algorithms.

Expository talk on "Recovering low-rank matrices from few coefficients in any basis" by D. Gross. January 2020

- | Given at Northeastern University, in CS 7180 Special Topics in AI to an audience of Professors and PhD. Students.

Northeastern University ASME Machine Learning Workshop

June 2019

- | Organized a three-week Machine Learning workshop for Northeastern students. Developed new curriculum and practice exercises. Instructed students during lectures.
- | Emphasis placed on regression, decision trees, and boosting models. Awards

Barry Goldwater Scholar

March 2019

- | Received the national Barry Goldwater Award for outstanding undergraduate research as a sophomore. One of 22 students in computer science to receive this award.

Summit Research Award

September 2019

- | Received Northeastern University internal research award of \$3000.

Honors Early Research Award

February 2019

- | Received Northeastern University Honor's Program award of \$1000 for outstanding research by a freshman or sophomore student.

Service & Extracurriculars

Math Club Executive Board

June 2020 to Present

- | Executive board member of the Northeastern University Math Club.

Chairperson and Communication Lead for MathEMA

June 2020 to Present

- | Chairperson and communication lead for the Northeastern University Math Department's Mathematics Engagement and Mentorship Association.

Volunteer Tutor

May 2019 to September 2020

- | Volunteer tutor for peers in CS 6140: Machine Learning and CS 3000: Algorithms and Data

Course Assistant for CS 1800: Discrete Structures

January 2019 to January 2020

- | Assist Prof. Virgil Pavlu with his CS 1800: Discrete Structures course by helping students during weekly office hours and writing homework/extra credit math problems.

Northeastern University Husky Hunt Planning Committee

June 2019 to Present

- | Planning committee member for Northeastern University's annual 24-hour scavenger hunt, Husky Hunt, typically with 50 teams and over 500 participants.
- | Design and test quiz questions for the qualifying quiz. Help with logistics and event planning.

Wheel Thrown Ceramics at MIT Student Art Center

June 2019 to Present

- | Intermediate level wheel thrown ceramicist.