Justin D. Delano

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EDUCATION

Northeastern University Boston, MA

Master of Science, Applied Mathematics, GPA: 4.0 May 2021

Bachelor of Science, *summa cum laude* May 2020

Major: Mathematics

Minors: Data Science, Biology

Related Projects:

Estimate for Muscular Lactic Acid Build-up During Exercise Using Differential Compartmentalization Model

- Created a mathematical model to study lactic acid build-up in the bloodstream during a marathon
- Set a lower bound on VO_2 Max (maximum oxygen consumption) for a hypothetical, less than one hour marathon runner

Chester Square Neighborhood Association Bus Lane Analysis

- Analyzed MBTA data with Python to quantify the benefits on wait time and trip time by adding a dedicated bus lane
- Designed and implemented bespoke visualizations for dedicated website using HTML, CSS, JavaScript, and D3.js

Taking the "Cat" out of Categorization

- Used neural networks to classify 20,000 images across 120 breeds from the Stanford Dog Dataset
- Voted by peers as top project for the semester

Community Engagement with Super Smash Bros.

- Forecast the opinion of consumers on the first day of release of a new video game
- Applied the sentimentr package from R to measure sentiment of Reddit community comments, and then fit a Holt Winters model that predicted a moderately positive response

Seinfeld Script Natural Language Processing

- Predicted TV ratings of Seinfeld scripts using bag-of-words models
- Achieved greater than 90% accuracy in both training and test data sets

HONORS AND AWARDS

Northeastern University 2017-2020
Honors Program
Dean's Scholarship
Dean's List

National Institutes of Health 2019
Travel Fellowship for Critical Assessment of Genome Interpretation

RESEARCH EXPERIENCE

Massachusetts General Hospital, Institute for Innovation in Imaging Boston, MA
Computational Biological Researcher, Laboratory of Matthew Dubach, Ph.D. 2020-present

- Predict cell fates through use of convolutional neural networks
- Develop new image acquisition, processing, and analysis pipeline for tracking cell movement across microscopy images
- Increase efficiency by 400% of cell track acquisition by using automated pipelines
- Promoted from full-time co-op position to full-time staff

Northeastern University, Statistical Methods Lab Boston, MA
Research Assistant, Laboratory of Predrag Radivojac, Ph.D. 2018-present

- Analyze and define molecular impact of genomic variation in humans across populations
- Manipulate gigabytes of genetic data from multiple sources, including *gnomAD* and *UniProt*
- Perform statistical tests to measure significance of analytical results
- Assist lab members with projects and serve as co-author of peer-reviewed publications

PUBLICATIONS

Naidu J, **Delano J**, Mathews S, Radivojac P. An examination of citation-based impact of the computational biology conferences, *Bioinformatics,* Volume 36, Issue 9, 1 May 2020, Pages 2958–2962, 10.1093/bioinformatics/btaa071.

Jain S, **Delano J**, Sharma H, Radivojac P. Class Prior Estimation with Biased Positives and Unlabeled Examples. *Proceedings of the AAAI Conference on Artificial Intelligence*. Volume 34, 3 April 2020, Pages 4255-4263, 10.1609/aaai.v34i04.5848.

CONFERENCE PRESENTATIONS

Delano J, The impact of missense human variation on post-translational modifications in proteins. Critical Assessment of Genome Interpretation. Flash talk and poster presentation delivered at CAGI* Workshop, 6-8 December 2019.

Delano J, An examination of citation-based impact of the computational biology conferences. Poster presentation delivered at International Conference on Intelligent Systems for Molecular Biology, 13-16 July 2020.

EXTRACURRICULARS AND VOLUNTEER EXPERIENCE

Northeastern University — Boston, MA
Explore Program, Mathematics Major Representative — 2020

Husky Ambassadors, Tour Guide — 2018-2020

Concert Band, Percussionist — 2018-2020

Pep Band, Percussionist — 2017-2018

Weymouth Public Schools — Weymouth, MA
Volunteer Teacher, Hour of Code — 2017-2020

COMPUTER SKILLS

Programming: Python, MATLAB, R, JavaScript

Applications: Microsoft Office, Fiji, LaTeX

Platforms: Windows, MacOS

OTHER WORK EXPERIENCE

Northeastern University, Disability Resource Center — Boston, MA
Academic Note Taker — 2017, 2019

Rising Stars Summer Drama Camp — Boston, MA
Senior Camp Counselor, Stage Manager — 2017-present

REFERENCES

Dr. John Matthew Dubach, Principal Investigator, Associate Professor of Radiology
Institute for Innovation in Imaging
Massachusetts General Hospital
Phone: (617) 460-4003
Email: dubach.matt@mgh.harvard.edu

Dr. Solomon Jekel, Associate Professor, Head Faculty Advisor
Mathematics
Northeastern University
Phone: (617) 312-9352
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Dr. Predrag Radivojac, Professor, Director of the Data Science Masters Program, Associate Dean of Research
Computer Science
Northeastern University
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