Dan Twili

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Education

Rutgers University May 2022
B.A., Mathematics and Computer Science *New Brunswick, NJ | GPA: 4.0/4.0*

- Matthew Leydt Society (top 2% of graduating class)
- Honors distinction from mathematics department
- Honors distinction from computer science department
- *summa cum laude*

County College of Morris May 2017
A.S., Mathematics and Engineering Science *Randolph, NJ | GPA: 3.96/4.0*

- Phi Theta Kappa Honor Society
- *summa cum laude*

Research & Teaching

Statistical Machine Learning Researcher May 2021 – May 2022
Rutgers University | Mentor: Dr. Min Xu *New Brunswick, NJ*

- Conducted research on how machine learning models are susceptible to bias and how to make them more equitable
- Solved the optimal linear model satisfying equality of opportunity in the setting of linear regression
- Generalized techniques to non-Gaussian distributions and simulated discoveries in R

Math and Physics Tutor Jan 2015 – May 2017
County College of Morris *Randolph, NJ*

- Tutored college students in various math and science courses, including statistics, college algebra, single and multivariable calculus, differential equations, linear algebra, and engineering physics
- Led collaboration with other tutors in developing innovative methods to increase student confidence and ability

Leadership

Lead Facilitator - Prizm (LGBT Support Group) Oct 2022 – Present
The Pride Center of New Jersey *Highland Park, NJ*

- Conduct weekly meetings and facilitate discussion in support of LGBT community members between ages 18–29

Directed Reading Program Sep 2020 – Dec 2020
Rutgers University | Mentor: Blair Seidler *New Brunswick, NJ*

- Gave weekly lectures on Hilbert spaces and quantum computation, including quantum gates and algorithms
- Presented to program cohort and PhD students on the mathematics of quantum teleportation

Founder - The Vegetarian and Vegan Club Feb 2017 – May 2017
County College of Morris *Randolph, NJ*

- Led the founding the organization, including writing its constitution and presenting to administrators

Treasurer - LGBT+ Alliance Sep 2016 – May 2017
County College of Morris *Randolph, NJ*

- Operated logistics and finances for the LGBT+ prom and Abby Stein speaker events that doubled regular event attendance and club membership

Scholarships & Awards

Dean's List | *Rutgers University* Sep 2020 – May 2022
Stanley Brasefield Mathematics Scholarship | *Rutgers University* Apr 2022
Dean's List | *County College of Morris* Aug 2014 – May 2017
Morris Lieff Prize in Science | *County College of Morris* Oct 2015
Sherman H. and Dorothy M. Masten Memorial Scholarship | *County College of Morris* Jun 2015

Selected Projects

Android Chess App | *Android, Java* Apr 2022

- Developed an application for two users to play chess on Android with features for undoing, resigning, drawing, storing game history, and replaying past games

Flight Reservation System | *mySQL, Java, JDBC, HTML* Sep 2021 – Dec 2021

- Collaborated with other students to develop a flight reservation system using mySQL and Java/JDBC for the database and HTML for the user interface

AI Conjugation Flashcard Creator (conjugations2csv) | *Python, mlconjug3* Jun 2020

- Developed an application to generate Spanish conjugation flashcards using machine learning library mlconjug3
- Published sample conjugation deck that has over 1,000 downloads with 100% positive ratings on AnkiWeb

Independent Study

Real Analysis Summer 2021

- Covered chapters 1–6 of Abbott's *Understanding Analysis*, including completeness, sequences and series, limits, topology of the reals, continuity, derivatives, and sequences of functions
- Received special permission to take Honors Mathematical Analysis at Rutgers based on evaluated performance

Quantum Mechanics and Quantum Computation | *BerkeleyX Verified Certificate* Summer 2020

- Learned about qubits, axioms of quantum mechanics, entanglement, Bell's theorem, quantum gates, quantum teleportation, quantum algorithms, the quantum Fourier transform, and quantum factoring

Paradox and Infinity | *MITx Verified Certificate* Summer 2020

- Covered proof-based mathematics including infinite cardinalities, ordinal arithmetic, omega-sequence paradoxes, probability, non-measurable sets, the Banach-Tarski theorem, computability, and Gödel's theorem

Fundamentals of Statistics | *MITx Verified Certificate* Spring 2019

- Studied confidence intervals, hypothesis testing, KL divergence, multivariate statistics, maximum likelihood estimation, method of moments, M-estimation, Bayesian statistics, and generalized linear models

Number Theory and Cryptography | *UC San Diego Verified Certificate* Spring 2018

- Covered proof-based mathematics including modular arithmetic, Euclid's algorithm, Diophantine equations, the Chinese remainder theorem, Fermat's little theorem, Euler's theorem, and the RSA cryptosystem

Technical Skills

Languages: Python, R, SQL, Java, C, Mathematica, MATLAB, OCaml, Prolog, Bash, LaTeX, HTML/CSS
Libraries and Tools: Jupyter Notebook, Git, Unix, PyTorch, NumPy, SciPy, Matplotlib