David Forman—CV

forman[first initial]@mit.edu

EDUCATION

Massachusetts Institute of Technology — Cambridge, MA

- PhD student in Electrical Engineering and Computer Science (EECS) 2027 (expected)
- Master of Science in EECS 2023
  - Thesis: "Bayesian Time Series Structure Learning: Formulation of an Event Driven Prior Distribution"
- Research interests: computer vision, active learning, Bayesian optimal experiment design

Hillsdale College — Hillsdale, MI

- Bachelor of Science in Physics | Minor: Mathematics 2021
- GPA **3.995** (4.0 in major)

PUBLICATIONS & PRESENTATIONS

Front Cover Article — Journal of the Acoustical Society of America, Express Letters 2021

Forman, David J., et al. "Validating Deep Learning Seabed Classification via Acoustic Similarity." *JASA Express Letters* 1.4 (2021): *040802* https://doi.org/10.1121/10.0004138

Oral Presentation — 179th Meeting of the Acoustical Society of America, virtual 2020
Recorded video: https://www.youtube.com/watch?v=9lQkjBUZNm0&feature=youtu.be

Forman, David J., Tracianne B. Neilsen, and David F. Van Komen. "A Classification Approach to the Characterization of Seabed Geoacoustic Profiles via Deep Learning." *JASA* 148.4 (2020): 2444-2444. https://doi.org/10.1121/1.5146742

Poster Presentation— 223rd Meeting of the American Astronomical Society, Seattle, WA 2019
Poster content: https://drive.google.com/file/d/1rtf-Z-fgGs1HetzE3vOOb6NURusCgUJL/view

Forman, David J., et al. "Distinguishing Bright Pulses from RFI via Machine Learning Using Single-Pulse Data from PSR J1713+0747." *American Astronomical Society Meeting Abstracts*, Vol 233. 2019. http://adsabs.harvard.edu/abs/2019AAS...23315315F

UNDERGRADUATE RESEARCH

NSF REU Research Assistant in Computer Vision — UC San Diego 2020

- Created an image segmentation user interface via interactive machine learning
- Accelerated conservation labeling by an order of magnitude at Scripps Inst. of Oceanography
- Implemented in Java; created website https://davidjasperforman.github.io/MLPaintWeb/
- Advisors: Prof. Ryan Kastner and Prof. Curt Schurgers

NSF REU Research Assistant in Acoustics — Brigham Young University 2019-2021

- Published first-author paper in JASA–Express Letters, featured on the front cover
- Doubled the classification accuracy of the group's PyTorch CNN
- Designed a measure of acoustic similarity between seabeds
- Advisor: Prof. Tracianne Neilsen

Churchill Fellow — Hillsdale College 2019-2021
- Initiated automated transcription of historical documents, via Python and a Google Cloud API
- Prototyped a search engine for textual search of documents
- Director: Dr. Colin Brown

Research Assistant in Astrophysics — Hillsdale College 2018-2020
- Distinguished neutron star radio pulses from interference using scikit-learn machine learning
- Discovered a bright single pulse, which I presented at the American Astronomical Society
- Advisor: Prof. Timothy Dolch

HONORS

Matthew Lorber (1956) Presidential Fellowship, MIT 2021

British Marshall Scholarship Finalist 2020

Barry Oxford Scholarship Winner 2020

2nd Place, Solo Strings Competition, Michigan State ASTA 2020

National Honorary Societies
- Kappa Mu Epsilon — Mathematics Honorary
- Phi Kappa Phi — Academic Honorary
- Sigma Pi Sigma — Physics Honorary
- Sigma Zeta — Science and Mathematics Honorary

EXTRACURRICULAR

Music Director — MIT Cross Products *a cappella* group 2023—
- Arrange vocal pieces and select pre-existing arrangements
- Direct twice-weekly music rehearsals for a group of 12 graduate and undergraduate students

Teaching Assistantships
- Advances in Computer Vision — MIT 2023
  - Hold weekly office hours and help students formulate final projects
  - Grade homework and final project presentations
- Data Visualization — Hillsdale College 2018
  - Graded data visualizations over a 4-day intensive 1-credit course

Volunteer Programming Teacher — Spring Branch Academy, Jonesville, MI 2021
- Taught 6 students; met weekly for 6 weeks
- Used the UC Berkeley *Snap!* blocks programming language