# David Forman

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## EDUCATION

**Hillsdale College — Hillsdale, MI** May 2021
- Bachelor of Science | Major: Physics | Minor: Mathematics
- GPA **3.995** (4.0 in major)

## RESEARCH

**NSF REU Research Assistant in Computer Vision — UC San Diego** 2020
- Created an image segmentation user interface via interactive machine learning
- Made conservation labeling faster by an order of magnitude at Scripps Inst. of Oceanography
- Implemented in Java; created website https://davidjasperforman.github.io/MLPaintWeb/
- Advisors: Dr. Ryan Kastner and Dr. Curt Schurgers

**NSF REU Research Assistant in Acoustics — Brigham Young University** 2019-2021
- Wrote a paper submission on classifying seabeds into a catalog of representative types
- Doubled the classification accuracy of the group's PyTorch CNN
- Invented a measure of acoustic similarity between seabeds
- Advisor: Dr. Tracianne Neilsen

**Churchill Fellow — Hillsdale College** 2019-2021
- Initiated automated transcription of historical documents
- Used Python and Google Cloud for Optical Character Recognition
- Prototyped search engine for textual search of documents
- Director: Mr. 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: Dr. Timothy Dolch

## PUBLICATIONS

Forman, D. J., Neilsen, T. B., Van Komen, D., & Knobles, D. P. (202). Validating Deep Learning Seabed Classification via Acoustic Similarity. *JASA Express Letters 1, 040802 (2021).* https://doi.org/10.1121/10.0004138

Forman, D. (2020). Churchill and Shakespeare Without Melodrama: A Response to Jonathan Rose. The Churchill Project, Online Articles, Hillsdale College. https://winstonchurchill.hillsdale.edu/rose-litarary-melodrama/

Forman, D., Dolch, T., Lewandowska, N., Lam, M. T., Stinebring, D. R., Chatterjee, S., Cordes, J., Crowter, K., Demorest, P., & Stovall, K. (2019). Abstract: Distinguishing Bright Pulses from RFI via Machine Learning Using Single-Pulse Data from PSR J1713+0747. *American Astronomical Society Meeting 233*. http://adsabs.harvard.edu/abs/2019AAS...23315315F

## PRESENTATIONS

**179th Meeting of the Acoustical Society of America, virtual** 2020
- Oral presentation on deep learning in seabed acoustics
  https://www.youtube.com/watch?v=9lQkjBUZNm0&feature=youtu.be

**223rd Meeting of the American Astronomical Society, Seattle, WA** 2019
- Poster on distinguishing bright pulses from RFI via machine learning
  https://drive.google.com/file/d/1rtf-Z-fgGs1HetzE3vOOb6NURusCgUJL/view

## SERVICE & INVOLVEMENT

Spring Branch Academy — Programming Teacher Spring 2021

**Hillsdale College Music Department**
- Two-time concerto competition winner, performing solo with orchestra 2019 & 2020
- Chamber Choir member 2019-present
- Principal violist for the Hillsdale College Symphony Orchestra 2018-present
- Acted "Sergeant of Police" in the light opera *The Pirates of Penzance* 2017

**Equip Discussion Forum — Leadership Team** 2019-present
- Set topics and lead discussion for an all-campus discussion forum

**Society of Physics Students — Astronomy Chair** 2019-present
- Host astronomy nights for college students

**Spoken German table, Stammtisch** 2017-2020

**Music in the Community — Retirement Home Musician** 2017-2020
- Perform music for and engage with the elderly on a weekly basis

## HONORS

**British Marshall Scholarship Finalist** 2020

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

**Hillsdale College Dean's List — All semesters**

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

## NON-RESEARCH WORK

**Northwest Boychoir & Seattle Symphony** 2016-2019
- Annual chamber orchestra violist for the "Lessons and Carols" performance

**Hillsdale College** 2018
- Teaching assistant for class in visualization & data analysis