Axel D. F. Bax

adb333@cornell.edu | xablexa.github.io

Education

Expected 2029	Cornell University Ph.D. in Information Science. Advised by: David Mimno and Matthew Wilkens
August 2024	Johns Hopkins University M.S. in Geographic Information Systems
May 2021	Johns Hopkins University B.A. in English and Psychology

Research Interests

Digital humanities, computational literary studies, topic modeling, narratives, cultural analytics, large language models, American literature, geography, geographic information systems

Publications

Bax, A., Mimno, D., Wilkens, M. (2025). Castles, Battlefields, and Continents: A Dataset of Maps from Literature. *Anthology of Computers and the Humanities,* 3. Ed. by Margherita Fantoli Taylor Arnold and Ruben Ros, pp. 280–294. doi: 10.63744/oYbvYsUA743D.

Morales, J., Bax, A., & Firestone, C. (2021). Reply to Linton: Perspectival interference up close. *Proceedings of the National Academy of Sciences*, 118(28), e2025440118.

Bax, A. (2021). Machines over Mind: Computational Literary Studies and the American Gothic. *The Macksey Journal*, 2(1), 27855.

Morales, J., Bax, A., & Firestone, C. (2020). Sustained representation of perspectival shape. *Proceedings of the National Academy of Sciences*, 117(26), 14873-14882.

Conference Presentations

Bax, A. (2021). *Machines over Mind: Computational literary studies and the American gothic* [Conference Presentation]. Macksey Undergraduate Humanities Symposium. Baltimore, MD, United States.

Bax, A. (2021). *Machines over Mind: Computational literary studies and the American gothic* [Conference Presentation]. Day of Undergraduate Research in Engineering, Arts, Medicine, and the Sciences. Baltimore, MD, United States.

Bax, A. (2020). *Billie Holiday's Baltimore: A city of enforcement* [Poster Presentation]. Macksey Undergraduate Humanities Symposium. Baltimore, MD, United States.

Morales, J., Bax, A. & Firestone, C. (2020). *Perspectival Shape*. Presented during a Perception & Mind Lab meeting, Baltimore. MD, United States.

Bax, A. (2019). *Shape Encoding* [Poster Presentation]. Design and Analysis for Experimental Psychology Spring 2019. Baltimore, MD, United States.

Bax, A. & Diakite, M. (2019). *Billie Holiday's Baltimore: A city of enforcement* [Poster Presentation]. Hopkins Career, Academic, and Research Experiences for Students Symposium. Baltimore, MD, United States.

Awards and Honors

2021   General Honors

2021   Departmental Honors, English

2020   Dean's List
2019
2018

2017   David Pickeral Scholarship

Research Projects

Culture and Computation Lab | Dr. David Mimno & Dr. Matthew Wilkens | Fictional Maps   2024
- Research Question: When did maps become common supplementary media to include in fiction novels?
- Finetuned an ensemble of convolutional neural networks and used CLIP to identify maps present in a collection of 90,000 novels from HathiTrust.

GIS Master's Capstone | Dr. Matthew Wilkens | Volunteered Geographic Information: 2024
A Geospatial Comparison of Wikipedia and OpenStreetMap Contribution Trends Globally
- Research Question: How do the goals of VGI sources affect the relative density of geocoded features in different regions?
- Pulled OpenStreetMap and Wikipedia geocoded data, then used ArcGIS to perform geospatial analysis

Chen Lab | Dr. Janice Chen & Dr. James Antony | Narrative Complexity   2023
- Research Question: How does narrative complexity and chronology affect recall?
- Coded script to parse text into events, codeveloped experimental design.

Tracking Literary Trends using Reddit Stories   2022
- Research Question: How does a genre develop over time? How do subgenres and reception affect this development?
- Scraped r/nosleep stories from Reddit using Python, used topic modeling to identify subgenres and common diction.

Wikipedia Speedruns   2021 - 2023
- Developer for website to generate Wikipedia pages for speedrunners to navigate through using links in the Wikipedia articles.
- Wrote for Developer Blog, attended meetings, shadowed coding process.
- Wikispeedruns.com

Introduction to Research Methods | Dr. Sarah Ross | Tracking Trends in   2021
Feminist Literary Criticism of Wide Sargasso Sea
- Research Question: How has Feminist literary critique changed over the last 50 years?

- Used word frequency analysis and sentiment analysis to track changes in language used by feminist literary critics over time, assessed landscape of feminist literary criticism, [coded webpage](#) to present findings.

Perception & Mind Lab | Dr. Chaz Firestone | Time Perception   2020 - 2021
- Research Question: How do different sensory modalities affect the perception of time duration using naturalistic scenes?
- Designed experiment, coded online experiment using javascript/HTML/CSS, used Prolific and Amazon Mechanical Turk to run participants, analyzed data using R Studio.

Chen Lab | Dr. Janice Chen | Choose Your Own Adventure Story   2021
- Research Question: How does control over a narrative affect recall? How does event centrality and perceived causation affect recall?
- Co-designed experiment, gathered project team members, provided literary expertise.

JHU English Department Honors Thesis | Dr. Jesse Rosenthal | Machines Over Mind   2020
- Research Question: What differences separate the Frontier Gothic subgenre from the larger Early American Gothic genre? Can computational methods be used to identify these differences?
- Created literature review on computational literary methods, used natural language processing, part of speech analysis, and word frequency analysis to quantify fictional stories.

Perception & Mind Lab | Dr. Chaz Firestone & Dr. Jorge Morales | 2019 - 2021
Perspectival Shape
- Research Question: How does the mind process a 2-dimensional image? Does it create a 3-dimensional representation or does the retinal projection persist in the mind?
- Built the testing apparatus using a Raspberry Pi to operate a set of LED cues, co-designed experiment, ran participants.

JHU English Department Bloomberg Distinguished Professor Summer   2019
Program | Dr. Lawrence Jackson | Billie Holiday Project
- Research Question: Was Billie Holidays' adulthood involvement with drugs and alcohol influenced by exposure to these misfortunes in her childhood in 1920s East Baltimore?
- Digitized crime records, examined death certificates, created map of crime data, transcribed letters.
- Independently expanded on analysis to include current day crime data with updated maps.

Batlab | Dr. Kirsten Bohn   2018
- Research Question: How does bat activity in Baltimore change seasonally and annually?
- Recorded bat activity in longitudinal study, calculated regression with local weather data.

Batlab | Dr. Cynthia Moss & Dr. Iven Yu   2018
- Research Question: How do spatial navigation tasks affect hippocampal activity in big brown bats?
- Trained bats, assisted with brain slicing and staining.

Teaching Experience

INFO 1300 – Introductory Design and Programming for the Web

Teaching Assistant   Fall 2024, Fall 2025

- Managed undergraduate student and master's student Teaching Assistants' scheduling and grading responsibilities.
- Attended and assisted with weekly lectures.
- Proofread and edited course documents, including the syllabus and assignment instructions.

Work Experience

Johns Hopkins University Undergraduate Admissions

Admissions Officer   2021 – 2024
- General responsibilities include: recruiting applicants within a specific region, reading applications within a specific region, and assisting with admitted student events.
- Additional responsibilities include: onboarding new staff, organizing all-staff training, advising student workers and affiliated student organization, guiding broader recruitment strategies across staff, moderating the admitted student Discord server, and mentoring new staff.
- Specific projects: coded Python bots for Discord server, created rural index using Census data in R, created a workflow for sorting student data into metropolitan areas, managing an international region.

New Member Student Coordinator   2018 – 2021
- General responsibilities include: recruiting, training, and evaluating over 100 new tour guide volunteers for Blue Key Society.

Technical Skills

Python

R

Javascript/HTML/CSS

ArcGIS Pro, ArcGIS Online, ArcPy, ArcGIS API for Python

QGIS

Slate