HOLLY M. JACKSON

Academic Curriculum Vitae

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EDUCATION

Columbia University Expected August 2023

MA Human Rights Studies

Massachusetts Institute of Technology September 2018 – May 2022

BS Electrical Engineering and Computer Science

- Minor in Applied International Studies

PUBLICATIONS

Journal Papers

- J. Dambrogio*, A. Ghassaei*, D. S. Smith**, H. Jackson**, M. L. Demaine, G. Davis, D. Mills, R. Ahrendt, N. Akkerman, D. van der Linden, and E. D. Demaine, "Unlocking history through automated virtual unfolding of sealed documents imaged by X-ray microtomography," ***Nature Communications***, vol. 12, no. 1184, 2021.
- H. Jackson, P. Jofré, K. Yaxley, P. Das, D. de Brito Silva, and R. Foley, "Using heritability of stellar chemistry to reveal the history of the Milky Way," ***Monthly Notices of the Royal Astronomical Society***, vol. 502, no. 1, pp. 32–47, 2021.
- P. Jofré, H. Jackson, and M. Tucci Maia, "Traits for chemical evolution in solar twins," ***Astronomy & Astrophysics***, vol. 633, no. L9, 2020.

Conference Papers

- J. Bhatia, H. Jackson, Y. Tian, J. Xu, and W. Matusik, "Evolution Gym: A Large-Scale Benchmark for Evolving Soft Robots," in *Advances in Neural Information Processing Systems (**NeurIPS**)*, M. Ranzato, A. Beygelzimer, Y. Dauphin, P. Liang, and J. W. Vaughan, Eds., vol. 34. Curran Associates, Inc., 2021, pp. 2201–2214.
- H. M. Jackson, "Topological Optimization of a Cuboct Truss Structure Using a Genetic Algorithm," in *58th AIAA/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference (**AIAA SciTech**)*, 2017.

Papers in Progress

- H. Jackson, "*The New York Times* Distorts the Palestinian Struggle: A Case Study of Anti-Palestinian Bias in American News Coverage of the First and Second Palestinian Intifadas," pre-print, **submitted to *Media, War & Conflict,*** 2021.

RESEARCH EXPERIENCE

MIT History Department, Cambridge, MA February 2022 – August 2022

Undergraduate Researcher | Supervisor: Prof. Pouya Alimagham

- Researched bias against Syria, Yemen, and Iran in American media using computational methods.

MIT Geometric Data Processing Group, Cambridge, MA June 2021 – December 2021

Undergraduate Researcher | Supervisors: Prof. Justin Solomon & Dr. Oded Stein

- Developed a segmentation algorithm for approximate piecewise developable surfaces.

MIT Computational Fabrication Group, Cambridge, MA February 2021 – June 2021

Undergraduate Researcher | Supervisor: Prof. Wojciech Matusik

- Co-developed a benchmark suite and computational pipeline for soft robotic evolution.

MIT Media Lab, CSAIL, and Libraries, Cambridge, MA July 2016 – March 2021

Research Assistant | Supervisors: Prof. Erik Demaine (CSAIL) & Prof. Neil Gershenfeld (CBA)

- Co-developed an algorithm to virtually unfold 3D CT scans of unopened historical documents.

Diego Portales University, Astronomy Nucleus, Santiago, Chile June 2019 – January 2021

Research Assistant | Supervisor: Prof. Paula Jofré

- Generated phylogenetic trees to map the chemical evolution of stars in the Milky Way based on their elemental makeup.

Adobe Research, San Francisco, CA May 2020 – August 2020

Software Engineering Intern | Supervisor: Dr. Noam Aigerman (Creative Intelligence Lab)

- Developed adaptive B-splines using deep learning methods.

NASA Ames Research Center, Mountain View, CA June 2015 – August 2017, Summer 2018

Intern | Supervisor: Dr. Kenny Cheung (Coded Structures Lab)

- Developed genetic algorithms for the automatic generation of programmable 3D truss structures. Created prototypes and performed physical stress testing.
- Developed systems for robotic assembly of truss structures.

TALKS

Ethics of artificial intelligence

Youth and the Future of AI Conference February 2022

A large-scale benchmark for evolving soft robots

NeurIPS Poster Session December 2021

Virtually unfolding sealed locked letters

Utrecht University Medical Imaging Conference June 2021
Rijksmuseum Technical Art History Series May 2021
MIT Digital Humanities Speaker Series April 2021
Private Conference at the Museum voor Communicatie June 2018
MIT MacVicar Day March 2017

Building an evolutionary tree of the Galaxy

Max Planck Institute of Astronomy November 2020

Genetic algorithms for programmable 3D truss structures

AIAA SciTech Forum January 2017

SELECTED AWARDS

2022 MIT EECS Undergraduate Teaching Award for Teaching Excellence
2020 Adobe Research $10,000 Women-in-Technology Scholarship Recipient
2015 White House Science Fair Exhibitor
2014 Broadcom MASTERS National Science Fair $25,000 Grand Prize

TEACHING

Graduate Student TA and Grader

Columbia CSOR 4231, Analysis of Algorithms I Fall 2022

- Held office hours. Graded assignments and exams.

Undergraduate TA and Recitation Instructor

MIT 6.006, Introduction to Algorithms — Fall 2021 – Spring 2022

- Planned and taught biweekly recitation section for 30 students. Developed recitation materials and problem sets. Hosted office hours and review sessions for entire class.
- Rated 6.9/7.0 in Spring 2022, 6.6/7.0 in Fall 2021.
- One of few undergraduates selected from A-level students to TA the class.
- Nominated by professors and awarded MIT EECS undergraduate teaching award in Spring 2022.

Guest Instructor

MIT Book and Letter Making Lab — January 2022

- Guest lecturer on day one of the course presenting on virtual unfolding technologies.

REVIEWING

Conference Reviewing

- IEEE-RAS International Conference on Soft Robotics (RoboSoft): 2023

SELECTED PRESS

A large-scale benchmark for evolving soft robots
Scientific American, IEEE Spectrum, WIRED, MIT News — December 2021

Anti-Palestinian bias in American media
TRT World — May 2021

Virtually unfolding sealed locked letters
Scientific American — April 2021
The New York Times, WIRED, NPR, Wall Street Journal, MIT News, CNN, The Economist, The Guardian, New Scientist — March 2021

Building an evolutionary tree of the Galaxy
MIT News — December 2020

Genetic algorithms for programmable 3D truss structures
IEEE Women in Engineering Magazine — June 2018
NASA Ames TechBytes Newsletter — Winter 2017