

# HOLLY JACKSON

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## EDUCATION

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

**Pursuing B.S. in Electrical Engineering and Computer Science**

**Relevant Coursework:** Computation Structures, Circuits and Electronics, Numerical Modeling and Simulation (G), Differential Equations, Introduction to Python, Fundamentals of Programming, Math for Computer Science, Elements of Software Construction, Microcomputer Project Laboratory

**Expected May 2022 | Cambridge, MA**

## SKILLS

### PROGRAMMING

Over 100,000 lines:

Javascript

Over 10,000 lines:

R • Python • Java • MATLAB •  $\text{\LaTeX}$

Over 1000 lines:

Verilog • Bluescript • Julia • C • Assembly

### SOFTWARE EXPERTISE

Word • Excel • PowerPoint • Visio • Solidworks Fusion 360 • Rhino • Antimony (CAD) frame3dd (FEA) • UP (3D printing) • MeshLab GIMP • Adobe Creative Cloud

### HARDWARE EXPERTISE

3D Printers • Laser Cutters • CNC Mills  
Vinyl Cutters • Load Testing Systems (Instron)

## MAJOR AWARDS

- 2019 Adobe Research Women-in-Technology Scholarship Recipient
- 2017 2nd place award in Robotics and Intelligent Systems, Intel International Science and Engineering Fair
- 2015 White House Science Fair Invitee and Exhibitor
- 2014 \$25,000 Samueli Foundation Grand Prize, Broadcom MASTERS National Science Fair

## PRESENTATIONS

- 2018 **Private Conference at the Museum voor Communicatie (The Hague, Netherlands)** – presented research on virtually unfolding 3D CT scan data of 17th century locked letters on a full-paid trip.
- 2017 **MIT MacVicar Day (Cambridge, MA)** – presented my research as guest of Dr. Neil Gershenfeld (MIT, CBA).
- 2017 **AIAA SciTech (Grapevine, TX)** – presented my research on genetic algorithms for programmable 3D trusses conducted at NASA Ames.

## RESEARCH AND WORK EXPERIENCE

### ADOBE RESEARCH | PAID INTERN

May 2020 – Aug 2020 | San Francisco, CA

- Intern at the Creative Intelligence Lab under Dr. Noam Aigerman.
- Defining and computing an implicit function whose zero iso-contours are Bezier curves.

### UNIVERSIDAD DIEGO PORTALES, ASTROPHYSICS DEPARTMENT | INTERN

June 2019 – present | Santiago, Chile

- Developing pipelines (using python and R) to generate phylogenetic trees to map the chemical evolution of stars in the galaxy based on their elemental makeup.
- Collaborating with Time's *100 NEXT* and Science News's *Top 10 Scientists to Watch* Dr. Paula Jofré (UDP - Universidad Diego Portales), Keaghan Yaxley (University of Cambridge), and Dr. Robert Foley (University of Cambridge).

### MIT MEDIA LAB, CSAIL, AND LIBRARIES | PAID INTERN

July 2016 – present | Cambridge, MA

- Developing an algorithm (using Javascript, Java, MATLAB, and Python) to virtually unfold 3D CT scans of unopened historical documents.
- Collaborating with Amanda Ghassaei (Adobe Research), Jana Dambrogio (MIT Libraries), Dr. Erik Demaine (CSAIL - Computer Science and Artificial Intelligence Lab), Dr. Neil Gershenfeld (CBA - Center for Bits and Atoms), and Martin Demaine (CSAIL).

### NASA AMES RESEARCH CENTER | PAID INTERN

July 2018 – Aug 2018 | Mountain View, CA

- Intern (through SGT - Stinger Ghaffarian Technologies) at Coded Structures Lab under Dr. Kenneth Cheung.
- Developed systems for robotic assembly of truss structures.

### NASA AMES RESEARCH CENTER | INTERN

June 2015 – Aug 2017 | Mountain View, CA

- Intern at Coded Structures Lab under Dr. Kenneth Cheung.
- Developed genetic algorithms (using Java) for the automatic generation of programmable 3D truss structures.
- Created prototypes and performed physical stress testing.

## PUBLICATIONS

- 2020 **Journal paper in progress** | H. Jackson, P. Jofré, K. Yaxley, P. Das, M. Tucci Maia, R. Foley. "Reconstructing the shared history of Milky Way disk stars using phylogenetic methods."
- 2020 **Journal paper in progress** | J. Dambrogio, A. Ghassaei, D. Smith, H. Jackson, M. Demaine, G. Davis, D. Mills, R. Ahrendt, N. Akkerman, D. van der Linden, E. Demaine, "Unlocking History: Virtual Unfolding of Sealed Documents to Reveal Text and Letterlocking."
- 2020 P. Jofré, H. Jackson, M. Tucci Maia, "Traits for chemical evolution in solar twins: Trends of neutron-capture elements with stellar age," *Astronomy & Astrophysics*.
- 2017 H. Jackson, "Topological Optimization of a Cuboct Truss Structure Using a Genetic Algorithm," *58th AIAA/ASCE/AHS/ASC Structures, Structural, Dynamics and Materials Conference, AIAA SciTech Forum and Exposition*. Paper published in the conference proceedings.