

# EVAN C. MAYER

## CURRICULUM VITAE

### Contact

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### Education

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THE UNIVERSITY OF ARIZONA  
DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS

2021-PRESENT  
PhD Research

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF PHYSICS

2013-2017  
AB, Physics (2017)

### Research Interests

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<b>Radio astronomy</b>	Compact radio sources	Active galactic nuclei	Interferometry
<b>Instrument design</b>	Antenna design and simulation	Receiver design	Cryogenic engineering
<b>Signal processing</b>	FPGA and GPU cross-correlators	Data processing pipelines	Data visualization
<b>Accessible science</b>	Software-defined radio	Community science	Science communication

### Publications

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- [1] Barry, P. S. et al. **2018**. “Design and Performance of the Antenna-Coupled Lumped-Element Kinetic Inductance Detector”. In: *Journal of Low Temperature Physics* 193.3-4, pp. 176–183. ISSN: 15737357. DOI: 10.1007/s10909-018-1943-y. arXiv: [arXiv:1801.06265v1](https://arxiv.org/abs/1801.06265v1).

### Conference Proceedings

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- [2] Kim, Junhan et al. **May 2018**. “A VLBI receiving system for the South Pole Telescope”. In: *Proc. SPIE 10708, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy IX, 107082S (9 July 2018)*. Austin, p. 97. ISBN: 9781510619692. DOI: 10.1117/12.2301005. arXiv: 1805.09346. URL: <https://arxiv.org/abs/1805.09346>.
- [1] Khaire, Trupti et al. **Jan. 2018**. “Development of mm-wave sensors for measurements of the Cosmic Microwave Background”. In: *APS March Meeting Abstracts*. Vol. 2018. APS Meeting Abstracts, R08.010.

## Honors and Awards

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2017 BACHELOR OF ARTS IN PHYSICS WITH HONORS  
The University of Chicago

2013-2017 DEAN'S LIST  
The University of Chicago

## Theses

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2017 SIMULATION OF SCALABLE LENSED DUAL SLOT ANTENNAS  
The University of Chicago

## Skills

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Python	C/C++	MATLAB	bash	git
Software defined radio	Signal processing	Simulation dev	Failure analysis	Agile processes
ANSYS HFSS	Fusion360	Solidworks	3D Printing	Soldering

## Work Experience

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2017-2021

RAYTHEON TECHNOLOGIES

Design Realization

- Performed research and literature surveys for, wrote requirements for, wrote unit tests for, implemented, tested, validated, and documented program-critical models of aerospace hardware and operating environments, all in a collaborative software development environment
- Performed massively parallelized Monte Carlo analysis and root cause failure analysis on large sets of telemetry data from six degree-of-freedom system-of-systems simulations
- Presented model development progress and future work to government and company leadership to secure program funding and pass design reviews

2015-2017

THE UNIVERSITY OF CHICAGO

Kavli Institute for Cosmological Physics

- Designed and simulated scalable focal plane array antennas for astronomy with microwave kinetic inductance detectors (MKIDs)
- Designed, simulated, produced, and integrated equipment for cryogenic testing of MKIDs
- Bluefors dilution refrigerator component fabrication and maintenance

2015-2015 & 2017

THE UNIVERSITY OF ARIZONA

Steward Observatory

- Designed, simulated, produced drawings of, and integrated mm-wave optical component support structures for South Pole Telescope Very Long Baseline Interferometry receiver for Event Horizon Telescope project
- Performed VLBI receiver cryostat maintenance & wiring
- Designed environmental seals around VLBI receiver components for South Pole Telescope equipment cabin