

# Katherine Melbourne

*Associate Systems Engineer and Aspiring Space Security Policymaker*

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## Education

2015–2019 **B.S. Astrophysics**, *Yale University*, New Haven, CT.

## Professional Experience

Present **Ball Aerospace**, Boulder, CO  
*Associate Systems Engineer (Full-Time Position)*

Summer 2019 **Ball Aerospace**, Arlington, VA  
*Brooke Owens Fellow – Strategic Operations*

2017 – 2018 **Yale Center for Teaching and Learning**, New Haven, CT  
*STEM Education Undergraduate Fellow*

Spring 2017 **National Aeronautics and Space Administration**, Washington, D.C.  
*Office of International and Interagency Relations Intern*

## Research Experience

Summer 2018 **National Aeronautics and Space Administration**, Greenbelt, MD  
*Astrophysics Research Intern*

Summer 2017 **Cryogenic Underground Observatory for Rare Events**, New Haven, CT  
*Yale College Dean's Research Fellow*

Summer 2016 **University of Chile**, Santiago, Chile  
*Tetelman Fellow for International Research in the Sciences*

Summer 2014 **Boston University**, Boston, MA  
*Astronomy Research Intern*

## Observing Experience

2019 **W. M. Keck Observatory**, Waimea, HA  
*Keck I High Resolution Echelle Spectrometer*

2016 **La Silla Observatory**, Atacama Desert, Chile  
*Swiss 1.2 Meter Leonard Euler Telescope*

2013 **Kitt Peak National Observatory**, Tucson, AZ

## Publications and Presentations

2020 in prep. **Melbourne, K.**, Youngblood, A., Roberge, A., Basu, S. et al. *Predicting the UV Emission of M Dwarfs with Exoplanets from Ca II and H-alpha.*

2020 **American Astronomical Society** (Poster), Honolulu, HI  
*"How to Predict the UV Emission of an M dwarf"*

2019 **Extreme Solar Systems IV** (Poster), Reykjavik, Iceland  
*"Predicting the UV Emission of M dwarfs with Exoplanets from Ca II and H-alpha"*

- 2019 **North Central Region of the Astronomical League Convention**, Moline, IL  
*"Our Coolest Neighbors: M Dwarfs and the Search for Earth 2.0"*
- 2019 **American Astronomical Society** (Poster), Seattle, WA  
*"Characterizing the UV Emission of M Dwarfs with Exoplanets"*
- 2018 **Yale Undergraduate Research Association** (Poster), New Haven, CT  
*First Place: "Characterizing the UV Emission of M Dwarfs with Exoplanets"*
- 2018 **NASA Goddard Space Flight Center Intern Research Fair** (Poster), Greenbelt, MD  
*First Place: "Characterizing the UV Emission of M Dwarfs with Exoplanets"*
- 2018 **Conference for Undergraduate Women in Physics**, New York City, NY  
*First Place: "The Effects of Stellar Activity on Radial Velocity Exoplanet Detection"*
- 2017 **American Physical Society Division of Nuclear Physics** (Poster), Pittsburgh, PA  
*"Analyzing CUORE Data and Geant4 Simulation"*
- 2016 **University of Chile Astronomy Department Professional Seminar**, Santiago, Chile  
*"The Effects of Stellar Activity on Radial Velocity Exoplanet Detection"*
- 2014 **Research Internship for Science and Engineering Symposium** (Poster), Boston, MA  
*"Calibrating a Color-Magnitude Relationship of M Dwarf Stars with Known Distances"*

## Outreach and Community Service

- Present **Popular Astronomy Club Member**, Moline, IL
- 2019 **Space Generation Advisory Council Congress Delegate**, Washington, D.C.
- 2015 – 2018 **Yale Women in Physics Co-President and Secretary General**, New Haven, CT
- 2018 – 2019 **Girls Science Investigations Volunteer**, New Haven, CT
- 2017 **Yale Resonance TED Talk Presenter**, New Haven, CT

## Awards and Grants

- 2019 **Universities Space Research Association Distinguished Undergraduate** (\$5000)
- 2019 **Yale's Brady-Johnson Grand Strategy Program Grant** (\$3100)
- 2019 **Bruce M. Babcock '62 Travel Research Fellowship** (\$1200)
- 2019 **National Space Club and Foundation Keynote Scholarship Finalist**
- 2018 **Women in Aerospace Scholarship in Memory of Molly K. Macauley** (\$2000)
- 2018 **John Mather Nobel Scholar** (\$3000)
- 2017 **Connecticut Space Grant Undergraduate Research Fellowship** (\$5000)
- 2017 **Saybrook Residential College Research Fellowship** (\$545)
- 2017 **Yale College Dean's Research Fellowship** (\$4300)
- 2016 **Horkheimer/Smith First-Place Scholarship for Youth Astronomy Outreach** (\$1750)
- 2016 **Alan S. Tetelman '58 Fellowship for International Research in the Sciences** (\$3200)

## Coursework

- STEM Astrostatistics and Data Mining, Mathematical Methods of Physics, Physical Processes of Astronomy, The Evolving Universe, Galactic and Extragalactic Astronomy, Advanced Classical Physics I and II, Differential Equations, Linear Algebra
- Policy Space Law, Data Science for Public Policy, The Rise of China, Development Under Fire, History of Soviet Russia, U.S. Foreign Policy Crises 1898-2017, Intel and Espionage in Foreign Policy
- 2019 Brady-Johnson Program in Grand Strategy (Seminar, Research, and Lecture Series Student)
- 2019 Center for Strategic and International Studies Understanding Space Security Course