Katherine Melbourne

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EDUCATION

Yale University; *3.74 GPA, Astrophysics, B.S.;* New Haven, CT (Anticipated graduation: December 2019)

- *Relevant Courses:* Astrostatistics and Data Mining, Advanced Classical Mechanics, Mathematical Methods of Physics, Advanced Electricity and Magnetism, Data Science for Public Policy
- *Awards and Grants:* 2018 John Mather Nobel Scholar, 2018 Women in Aerospace Foundation Scholarship, 2017 NASA Connecticut Space Grant Consortium Undergraduate Research Fellowship, 2016 Astronomical League Horkheimer/Smith Youth Service Award for Astronomy Outreach, 2014 National Merit Finalist

RESEARCH PROJECTS

National Aeronautics and Space Administration; *Astrophysics Research Assistant;* Greenbelt, MD (Summer 2018)

- Characterize spectra of M dwarf stars to support photochemical analysis of exoplanet atmospheres
- Extend and improve previous analysis completed for MUSCLES collaboration from 15 to 107 stars
- Lead author on paper in preparation with anticipated publication in August 2019
- First-Place Research Poster out of 157 science category submissions

Universidad de Chile; *Tetelman Fellow for International Research in Science;* Santiago, Chile (2016—2018)

- Explored relationship between stellar activity and radial velocity data on exoplanets
- Expedited runtime 500% by parallel-processing codes in Python and associated astronomy packages
- Observed exoplanet targets through Swiss Euler 1.2m telescope at La Silla Observatory
- Forged partnership between the universities for future undergraduate research exchanges
- First-Place Research Presentation at 2018 Conference for Undergraduate Women in Physics

Yale University; *Yale College Dean's Research Fellow;* New Haven, CT (Summer 2017)

- Collaborated with 300 physicists on Cryogenic Underground Observatory for Rare Events experiment
- Developed new analysis step to compare calibration and simulation data and identify potential problems
- Coded project in C/C++ through ROOT software system designed for particle physics analysis
- Presented research poster at American Physical Society Division of Nuclear Physics Conference

Boston University; *Research Internship in Science and Engineering for Astronomy;* Boston, MA (Summer 2014)

- Analyzed data from Cerro Tololo Observatory to produce an HR diagram of M Dwarf stars
- Formulated and tested new image processing method to reduce raw astronomical observations

WORK EXPERIENCE

Center for Teaching and Learning; *STEM Education Undergraduate Fellow;* New Haven, CT (2017—2018)

- Operated communications for Helmsley STEM Education Program at Yale
- Coordinated professional events with leaders in STEM education research from universities nationwide

National Aeronautics and Space Administration; *Officer Support Intern;* Washington, D.C. (Spring 2017)

- Drafted and negotiated 15 agreements that align with the missions of NASA nationally and globally
- Finalized 3 agreements with foreign partners by communicating diplomatically with their legal teams
- Briefed senior officials about upcoming meetings with foreign administrators and international trips
- Spearheaded and ensured success of Aeronautics Research Associate Administrator's visit to Russia

LEADERSHIP POSITIONS

Yale Women in Physics; *Co-President and Secretary General;* New Haven, CT (2015—present)

- Mobilize efforts to support and unite women in physics and STEM fields through outreach events
- Mentor younger students starting their careers in physics about academic opportunities
- Delegate responsibilities for weekly event management to other board members
- Facilitate initiative to bring inaugural Schultz Undergraduate Prize visiting lecturer to campus

Camp Kesem Yale; *Head Counselor and Development Committee Member;* New Haven, CT (2015—2017)

- Fundraised $75,000 a year to send kids affected by cancer in their families to summer camp at no cost
- Cultivated positive environment for 100 campers and 60 counselors by creating engaging activities
- Promoted cooperation and conflict resolution among campers and counselors

Yale Precision Marching Band; *Class Representative and Section Leader;* New Haven, CT (2015—2018)

- Fostered enthusiasm in upper woodwind section during Yale football, hockey, and basketball games
- Enhanced performances by coordinating music and drills for 20 shows a year
- Stimulated growth of section and organization through recruitment of new members

State of Iowa Youth Advisory Council; *Bill Leader and Committee Member;* Des Moines, IA (2013—2015)

- Orchestrated lobbying efforts to gain legislator support of bill banning indoor tanning for minors
- Addressed council members and state senate sub-committee about importance of tanning legislation

SPECIAL SKILLS

Programming Experience: Python, C/C++ through ROOT, HTML/CSS, Linux and Mac OS X environments

Interests: Marine Corps Marathon 2017 finisher (in training for 2018 race); Get This Girl a Job podcast co-host