Thomas Wagg | Curriculum Vitae

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PhD Student in Astrophysics at the University of Washington

Education

University of Washington — **Seattle, WA**
PhD in Astrophysics — *2021–Present*

Harvard University — **Cambridge, MA**
A.B. in Physics and Astrophysics, Secondary in Computer Science, GPA: 3.82 — *2016–2020*
Cum Laude with Highest Honours in Field

Newcastle-under-Lyme School — **Newcastle-under-Lyme, England**
GCSEs and A-Levels — *2004–2016*
14 GCSEs with A*s
5 A-Levels, four A*s and A, in Maths, Further Maths, Physics, EPQ (focus on Nuclear Fusion) and Latin respectively

Publications

The latest list of publications can be found on ADS using this link

First-author Publications

1. Gravitational wave sources in our Galactic backyard: Predictions for BHBH, BHNS and NSNS binaries detectable with LISA **Tom Wagg**, Floor S. Broekgaarden, Selma E. de Mink, Lieke A.C. van Son, Neige Frankel, et al. *arXiv e-prints*, arXiv:2111.13704, 2021.

2. LEGWORK: A python package for computing the evolution and detectability of stellar-origin gravitational-wave sources with space-based detectors **Tom Wagg**, Katelyn Breivik and Selma E. de Mink *arXiv e-prints & JOSS*, arXiv:2111.08717, 2021.

Co-authored Publications

1. Impact of Massive Binary Star and Cosmic Evolution on Gravitational Wave Observations II: Double Compact Object Rates and Properties Floor S. Broekgaarden, Edo Berger, Simon Stevenson, Stephen Justham, Ilya Mandel, et al. (incl. **Tom Wagg**) *arXiv e-prints*, arXiv:2112.05763, 2021.

2. The redshift evolution of the binary black hole merger rate: a weighty matter L.A.C. van Son, S.E. de Mink, T. Callister, S. Justham, M. Renzo, et al. (incl. **Tom Wagg**) *arXiv e-prints*, arXiv:2110.01634, 2021.

3. Rapid stellar and binary population synthesis with COMPAS Team COMPAS, Jeff Riley, Poojan Agrawal, Jim W. Barrett, Kristan N.K. Boyett, et al. (incl. **Tom Wagg**) *arXiv e-prints*, arXiv:2109.10352, 2021.

4. WASP-South transiting exoplanets: WASP-130b, WASP-131b, WASP-132b, WASP-139b, WASP-140b, WASP-141b and WASP-142b C. Hellier, D.R. Anderson, A. Collier Cameron, L. Delrez, M. Gillon, et al. (incl. **Tom Wagg**) *Monthly Notices of the RAS*, 465(3):3693-3707, 2017.

5. Five transiting hot Jupiters discovered using WASP-South, Euler, and TRAPPIST: WASP-119 b, WASP-124 b, WASP-126 b, WASP-129 b, and WASP-133 b P.F.L. Maxted, D.R. Anderson, A. Collier Cameron, L. Delrez, M. Gillon, et al. (incl. **Tom Wagg**) *Astronomy and Astrophysics*, A55:591, 2016.

Awards and Fellowships

Provost Scholar Award — August 2021
Prize awarded by the University of Washington Astronomy Department for outstanding academic achievement

Leo Goldberg Prize — May 2020
Prize awarded by the Harvard Astronomy Department for the best astronomy senior thesis

Bloomberg Creative Science Prize — May 2020
Prize awarded by Mather House of Harvard College for the most insightful and creative senior thesis in the natural sciences.

Alex G. Booth Fellowship — April 2020
Fellowship awarded to recent Harvard graduates for research by Harvard College

Haase Fellowship June 2018
Grant for research from Harvard University Physics Department

Harvard College Research Program Grant 2017, 2018 and 2019
Funding for summer research from Harvard College

Computer Skills

Programming: C, Python, JavaScript, HTML+CSS
Applications: LaTeX, Mathematica, Matlab

Work Experience

Senior Programmer 2016–2020
Employer: Judaica Division of Widener Library *Harvard University*
As the senior programmer for the Judaica Division of Widener Library, I was responsible for automating library operations and helping to maximise the efficiency of workflows. I worked closely with the division heads to hone my designs exactly to their goals and get feedback from other student workers on how to improve the tools that I designed. Among the many tools I created for the division, two highlights include a chrome extension that automates Alma, the web based library management software, and a Windows desktop app for creating wire transfer requests and efficient searching of vendor book lists.

Project Manager 2019
Employer: Mather House *Harvard University*
In spring 2019, I took initiative to develop MeetMather, a tool designed to build community within Mather House at Harvard. Following approval from Mather's Faculty Deans, I spent four months designing and building a web app that allows undergraduates to search for other students with similar interests within their house. Additionally, I added a feature for inputting your classes and getting placed into study groups within the house to encourage collaboration. Having garnered enthusiastic praise from Harvard officials, I have been asked to adapt this app for all twelve Harvard houses, making it accessible to over 5000 undergraduates.

Teaching Experience

Teaching Fellow 2019–Present
Employer: Harvard SEAS, UW Astronomy *Harvard University, University of Washington*
At Harvard, I was a teaching fellow for CS61, a class of 250 students. I was responsible for holding office hours, teaching a section to 30 students and grading problems sets and exams. I helped students to understand computer systems with topics such as operating systems, assembly code and multiprocessing.
More recently, I have worked as a teaching fellow for two quarters of ASTR 150 at the University of Washington. For this introductory astronomy class of 200 students I was responsible for holding office hours, teaching 3 sections of 35 students as well as grading discussions and exams.

Tutor 2016–2020
Employer: Harvard Student Agencies *Harvard University*
I tutored Harvard College and Harvard Extension Students as well as local high-school students in Physics, Maths and Computer Science.

Coach of Harvard Club Field Hockey 2018–2019
Employer: Harvard Club Field Hockey *Harvard University*
Every week, I organised and facilitated two practices and coached a weekend match for our team of 30 students. Under my leadership, our team rose from 86th place to 15th place nationwide.

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