

Emily L. Hunt – Curriculum Vitae

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Research Profile

Astronomer with interests in machine learning and statistics. Highly skilled programmer with 10+ years of programming experience. During my Ph.D., I used Gaia data and various machine learning techniques to create the largest ever catalogue of star clusters in the Milky Way. I am looking to work on applications of machine learning to large astronomical datasets such as Gaia, Vera Rubin, and JWST surveys.

Education & Employment

2023-2024, Postdoc, Heidelberg University, Germany

Ph.D. 2023, Heidelberg University, Germany

Thesis: “Improving the census of open clusters in the Milky Way with data from Gaia”

Advisor: S. Reffert

M.Phys. 2019, University of Bath, United Kingdom

Thesis: “Inference of photometric galaxy redshifts with a mixture density network”

Advisor: S. Wuyts

Publications

ADS search 

3. **Hunt, Emily L.** and Reffert, Sabine (Submitted). “Improving the open cluster census. III. Using cluster masses, radii, and dynamics to create a cleaned open cluster catalogue”.
2. **Hunt, Emily L.** and Reffert, Sabine (2023). “Improving the open cluster census. II. An all-sky cluster catalogue with Gaia DR3”. *A&A*, 673, A114
(21 citations)
1. **Hunt, Emily L.** and Reffert, Sabine (2021). “Improving the open cluster census. I. Comparison of Clustering Algorithms applied to Gaia DR2 Data”. *A&A*, 646, A104
(58 citations)

Selected Presentations

Talk, From star clusters to field populations – Florence, Italy (upcoming) 2023
Seminar, CEFCA – Teruel, Spain (online) 2023

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| Talk , .Astronomy 12 – Flatiron Institute, New York, NY, USA | 2023 |
| Colloquium , Königstuhl Colloquium – MPIA, Heidelberg, Germany | 2023 |
| Talk , National Astronomy Meeting – Coventry, England, UK | 2022 |
| Invited talk , EAS (SS34) – Valencia, Spain | 2022 |
| Talk , EAS (SS24) – Valencia, Spain | 2022 |
| Talk , EAS (SS15) – Valencia, Spain | 2022 |
| Talk , LGBTQ+ STEMinar – University of Glasgow, Scotland, UK | 2022 |
| Seminar , Galaxy group – ARI, Heidelberg, Germany | 2021 |
| Seminar , Astronomy group – University of Hertfordshire, England, UK | 2021 |
| Talk , Star Clusters: The Gaia Revolution | 2021 |
| Invited talk , EAS (S32) – Leiden, Netherlands | 2021 |
| Talk , EAS (S15) – Leiden, Netherlands | 2021 |
| Seminar , SFB 881 – Heidelberg, Germany | 2021 |
| Seminar , Gaia group – University of Vienna, Austria | 2021 |
| Seminar , Astronomy group – University of Bath, England, UK | 2020 |
| Seminar , Milky Way group – MPIA, Heidelberg, Germany | 2020 |

Selected Outreach

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| Invited talk – OUTer SPACE, Max Planck Institute for Astronomy | 2023 |
| Interviewed for article – Space.com | 2021 |
| Interviewed for article – Thrillist.com | 2020 |
| Radio interview – Deutschlandfunk (public radio) & Neue Zürcher Zeitung | 2020 |

Open-source software

Bluesky Astronomy feeds – lead developer of **astronomy community feeds** on Bluesky social network, which are used daily by hundreds of astronomers to interact

ocelot – lead developer of an upcoming open cluster analysis Python package

Workshops Attended

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| From star clusters to field populations – Florence, Italy | (upcoming) | 2023 |
| .Astronomy 12 – Flatiron institute, New York, NY, USA | | 2023 |
| CZS school on Scientific Machine Learning – Heidelberg, Germany | | 2023 |
| GaiaUnlimited Community Workshop – Heidelberg, Germany | | 2022 |
| ..Astronomy – online | | 2020 |

Awards

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| Ernst Patzer Award for an excellent publication | €2000 – 2023 |
| University of Bath IMI Undergraduate Research Internship | £2000 – 2018 |

Teaching & Supervision

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| Astronomy Lab Course , Heidelberg University | 2021 |
| Introduction to Astronomy I , Heidelberg University | 2020 |
| Co-supervisor of MSc student , Heidelberg University | 2020-2021 |

Meeting organization & service

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| SOC for .Astronomy 12 | 2023 |
| Project leader at CZS school on Scientific Machine Learning in Astrophysics | 2023 |
| Session leader at GaiaUnlimited Community Workshop | 2022 |
| Reviewer for A&A | ongoing |

Relevant expertise

Programming languages

Python: expert (e.g. numpy, tensorflow, emcee)
JavaScript: intermediate (Svelte, SvelteKit)
C/C++: intermediate
Java: basic

Tools and scripting languages

Git/GitHub: expert
LaTeX: expert
HTML/CSS: intermediate
ADQL/SQL: basic

Languages

English: native speaker
German: intermediate