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 🔗

First author

4. **Emily L. Hunt**, Tristan Cantat-Gaudin, Friedrich Anders *et al.* (2024). "The completeness of the open cluster census towards the Galactic anticentre". A&A, submitted

3. **Emily L. Hunt** and Sabine Reffert (2024). "Improving the open cluster census. III. Using cluster masses, radii, and dynamics to create a cleaned open cluster catalogue". A&A, 686, A42
(18 citations)

2. **Emily L. Hunt** and Sabine Reffert (2023). "Improving the open cluster census. II. An all-sky cluster catalogue with Gaia DR3". A&A, 673, A114
(109 citations)

1. **Emily L. Hunt** and Sabine Reffert (2021). "Improving the open cluster census. I. Comparison of clustering algorithms applied to Gaia DR2 data". A&A, 646, A104
(81 citations)

Co-author

2. Dane Spaeth, Sabine Reffert, **Emily L. Hunt** *et. al* (2024). "Non-radial oscillations mimicking a brown dwarf orbiting the cluster giant NGC 4349 No. 127". A&A, 689, A91

1. Cameren Swiggum *et. al* (incl. **Emily L. Hunt**) (2024). "Most nearby young star clusters formed in three massive complexes ". Nature, 661, 8019, p.49-53

Selected Presentations

Talk, Heidelberg-Harvard Star Formation Workshop – Heidelberg, Germany	2024
Seminar, Stars seminar – Geneva, Switzerland	2024
Talk, MW Methods Workshop – Ringberg, Germany	2024
Invited review, EAS (SS33) – Padova, Italy	2024
Talk, EAS (S4) – Padova, Italy	2024
Invited talk, SFML2024 – Budapest, Hungary	2024
Colloquium – University of Vienna, Austria	2024
Talk, From star clusters to field populations – Florence, Italy	2023
Seminar, CEFCA – Teruel, Spain (online)	2023
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 (SS32) – 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

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

Teaching & Supervision

Machine learning*, MWGaia Dr. Schl., University of Coimbra, Portugal	2024
Astronomy Lab Course, Heidelberg University	2021

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

* = as a primary lecturer

Awards

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

Selected Outreach

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

Meeting organization & service

SOC for .Astronomy 13 (Madrid, Spain)   2024
SOC for .Astronomy 12 (New York, NY, USA)   2023
Reviewer for A&A, MNRAS   ongoing

Workshops Attended

.Astronomy 13 – ESAC, Madrid, Spain   2024
.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

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