ROLE PROFILE

Job Title: Research Associate/Fellow in machine learning and astrophysics/cosmology

School/Department: School of Physics and Astronomy

Job Family and Level: Research and Teaching Level 4 (appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)


Hours of Work: Full time (36.25 hours)

Location: School of Physics and Astronomy, University Park, Nottingham, UK

Reporting to: A. Moss, S. P. Bamford, J. P. Garrahan

Purpose of the Role:

The role holder will contribute to research in astrophysics and/or cosmology, through the use of cutting-edge machine learning methods. The research may be driven by astrophysics/cosmology questions, or may focus on the development of novel machine learning techniques, together with demonstration of their applications to astrophysics and/or cosmology.

The researcher will be an integral part of an interdisciplinary team of researchers working on machine learning as applied to a broad range of physical problems. We seek a motivated, skilled and highly independent researcher to complement our team.

The researcher is expected to actively contribute to the research activities of the astronomy and/or cosmology groups at the School of Physics and Astronomy.

The role holder will have the opportunity to use their initiative and creativity to identify areas for research, develop research methods and extend their research portfolio.

Main Responsibilities

1. To develop research objectives and proposals for own and/or collaborative research area.
2. To plan and conduct research using recognised approaches, methodologies and techniques within the research area.
3. To analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights to research area.
4. To write up research work for publication and/or contribute to the dissemination at national/international conferences, resulting in successful research outputs.
5. To identify opportunities and assist in writing bids for research grant applications. Prepare proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes.
6. To build relationships with both internal and external contacts in order to exchange information, to form relationships for future collaborations and identify potential sources of funds and/or opportunities for collaboration.
7. To co-ordinate the operational aspect of research networks, for example, arranging meetings and updating websites etc and contribute to collaborative decision making with colleagues in area of research.

8. To provide support, guidance and supervision to other staff, where appropriate in own area of expertise.

9. To supervise undergraduate and/or postgraduate students projects, fieldwork and placements, as appropriate. To participate in the assessment of student knowledge and co-supervise projects at Masters level.

10. To collaborate with academic colleagues on areas of shared interest for example, course development, collaborative or joint research projects.

### Knowledge, Skills, Qualifications & Experience

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<th>Qualifications/Education</th>
<th>Essential</th>
<th>Desirable</th>
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<td>PhD or equivalent in relevant subject area or the equivalent in professional qualifications and experience in research area. <strong>OR</strong> Near to completion of a PhD</td>
<td>Ability to foster a research culture and commitment to learn in others.</td>
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| Skills/Training          | Excellent oral and written communication skills, including the ability to communicate with clarity on complex information. High analytical ability to analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights. Ability to creatively apply relevant research approaches, models, techniques and methods. Ability to build relationships and collaborate with others. | |

| Experience               | Experience in use of research methodologies and techniques to work within astronomy, cosmology and/or machine learning. Experience in the application of machine-learning techniques. | Background or strong interest in astronomy and/or cosmology. Background in developing and/or applying modern deep-learning methods. Previous success in gaining support for externally funded research projects. |