Lecturer/Senior Lecturer in Machine Learning
Geophysics
School of Geosciences

Closing date: 10 November 2019
Interview date: TBC
Reference number: GEO379A
Introduction

The University seeks a Lecturer/Senior Lecturer in Machine Learning Geophysics to expand its research and teaching capabilities in this emerging field.

This new role of Lecturer/Senior Lecturer in Machine Learning Geophysics within the School of Geosciences will focus on the development and/or application of machine and/or deep learning technologies and their application to multi-disciplinary, high-impact geophysics research.

Geophysics research and teaching in the School of Geosciences is undertaken in the Departments of Geology & Petroleum Geology, Geography & Environment and Archaeology, e.g. solid Earth and exploration geophysics, near-surface geophysics for subsurface fluid-flow imaging, archaeo-geophysics and environmental monitoring. Existing strengths of the Aberdeen geophysics group include passive seismology, quantitative seismic interpretation, hydrogeophysics, gravity and magnetics, basin modelling, lithosphere dynamics, rock physics and seismic image analysis. The School is a well-equipped and successful centre for geophysics research, with a growing PhD student population and research profile. Current externally funded research projects support the work of 5 FTE geophysics academic staff, 1 post-doc and 14 PhD students. The School houses the Aberdeen University Geophysical Equipment Repository (AUGER), an equipment pool comprising 10 Gürälp 6TD seismometers, Geode seismic reflection/refraction, Geoscanners multi-antenna GPR, IRIS resistivity tomography, Leica dGPS and Geometrics total field magnetometers, with associated processing/modelling software. The School has a dedicated seismic analysis and interpretation facility (SeisLab), housing numerous industry-standard software packages and access to the University’s High Performance Computing (HPC) cluster, Maxwell.

We seek to build on these strengths, successes and facilities through increased focus on interdisciplinary research that will deliver impact in the development and/or application of machine learning geophysics to local and global challenges. The successful individual will play a critical role in addressing the next phase geophysics and machine learning integration to solve a variety of geophysical problems. We are particularly keen to attract applicants with experience in novel applications of machine learning to, for example, environmental problems, seismic processing and inversion, natural hazard assessment/monitoring, data conditioning and geophysical data inversion.

Commensurate with the appointment grade, the role will provide research leadership to the growing geophysics group in Aberdeen and contribute to enhancing the delivery of existing MSc and BSc Geophysics degree programmes. To date, Aberdeen has launched both a successful MSc and a new undergraduate programme in geophysics. The Aberdeen MSc. Geophysics programme commenced in September 2014, has recently been awarded industry scholarship and benefits from an industry advisory board. It has a strong external reputation in academia and industry and attracts a solid stream of excellent students. The focus of the programme is to educate via research-led teaching in the broadest aspects of fundamental geophysics. Graduated students have a very high employment rate in: i) the energy industry; ii) near-surface geophysics; iii) digital technology; and iv) continuing their education as PhD researchers. The undergraduate BSc Geophysics degree started in 2017 and runs in parallel with the BSc. Geology and Physics programmes until years 3 and 4, after which it includes dedicated geophysics modules.
Job description

Main purpose of the role:

This position will enhance existing research excellence in the School of Geosciences through high profile publications and high-impact research resourced from externally-funded projects in the emerging field of machine learning applied to geophysics. A focus on research that can be applied to varied geophysical challenges is aligned with the University’s institutional commitment to directing its research profile towards interdisciplinary challenge-orientated research. Teaching expertise in machine learning methods and geophysical coding skills will seek to enhance the MSc and BSc taught curriculum.

Key responsibilities:

Lecturer/Senior Lecturer in Machine Learning Geophysics

- Development or enhancement of an internationally-leading research profile through an externally funded programme in machine learning geophysics
- Publication of 3*/4* papers in internationally-leading journals to contribute to the University REF return
- Delivering research with non-academic impact and high-profile public outreach
- Evolving a thematic research group of post-doctoral fellows and PhD students that will complement the existing strengths within the School
- Commitment to developing inter-disciplinary geophysical research initiatives across the university
- Commitment to developing collaborations with other leading national and international groups in Universities and research institutions
- Delivering teaching in geophysics courses at undergraduate and/or postgraduate levels.
- Input into the development of the geophysics courses and associated materials, ensuring the courses are relevant and up to date
- Contribution to the development of the School and University, including the promotion and advocacy of research and teaching within geophysics

For further information, please refer to the Person Specification.

We encourage applications from candidates representing a broad range of career stages, backgrounds and gender identities. The Department of Geology & Petroleum Geology currently holds a Bronze Athena Swan award and is committed to further improve its representation diversity.
Candidate background

The successful candidate will have an outstanding emerging or existing research profile in geophysics with a commitment to publication in leading international scientific journals and a PhD in geophysics or a related area. The candidate will be committed to developing their existing research profile through challenge-orientated research projects in collaboration with other staff in the School of Geosciences and elsewhere in the University. The appointee’s research portfolio will have a strong applied orientation focussed on applying machine learning technology to geophysical problems. The appointee will be committed to delivering high-impact research that is publicised through outreach activities and will be a team player able to lead and participate in larger, complex interdisciplinary research projects.

Terms of appointment

For appointments at Lecturer level, salary will be at the appropriate point on the Grade 7 salary scale (£41,526 - £49,552 per annum). For appointment made at Senior Lecturer level, salary will be at the appropriate point on Grade 8 salary scale (£52,559 - £59,135 per annum) and negotiable with placement according to qualifications and experience.

Any appointment will be made subject to satisfactory references and a 3 year probation period.

For further information on various staff benefits and policies please visit www.abdn.ac.uk/staffnet/working-here

Should you require a visa to undertake paid employment in the UK you will be required to fulfil the minimum points criteria to be granted a Certificate of Sponsorship and Tier 2 visa. As appropriate, at the time an offer of appointment is made you will be asked to demonstrate that you fulfil the criteria in respect of financial maintenance and competency in English. Please do not hesitate to contact Heather Clark, HR Adviser on +44 (0)1224 273244 or email h.m.clark@abdn.ac.uk for further information.
## Person specification

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<th>Education/Qualifications</th>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>Academic, technical and professional education and training</td>
<td>• PhD in geophysics or related science/engineering area</td>
<td>• Using innovative machine learning approaches to solve complex geophysical problems</td>
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<td>• Good knowledge of machine learning techniques and their application within the broad field of geophysics,</td>
<td>• Formal Higher Education teaching qualification and/or Fellowship of the Higher Education Academy</td>
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<th>Work and Other relevant experience (including training)</th>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>eg Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>• Expertise in one or more areas of fundamental geophysics (commensurate with career stage)</td>
<td>• Experience in the development of taught courses at undergraduate or postgraduate level</td>
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<td>• Record of publications in peer-reviewed international journals (commensurate with career stage)</td>
<td>• International recognition through invited lectures, nominated UK expert, research visits, honours, etc. (for Senior Lecturer).</td>
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<td>• Presentation of research at high profile international conferences</td>
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<td>• Strong research profile with ability to develop, secure income for and lead research projects (commensurate with career stage)</td>
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<td>• Experience of managing research projects and supervising PhD students (for Senior Lecturer)</td>
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<th>Personal qualities and abilities</th>
<th>Essential</th>
<th>Desirable</th>
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<td>eg initiative, leadership, ability to work on own or with others, communication skills</td>
<td>• Outstanding communication skills to provide excellence in teaching and research</td>
<td>• Ability to bridge the boundaries between academic research, industry and societal needs</td>
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<td>• Ability to contribute to the life of the School and the University and to relate well to staff and students</td>
<td>• Ability to present complicated scientific work across a range of media</td>
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<td>• Ability to think critically and to work independently and as part of a team environment</td>
<td>• Excellent networking skills in order to develop strong relationships with partners, academics and researchers from other institutions</td>
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<th>Other</th>
<th>Essential</th>
<th>Desirable</th>
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<td>eg special circumstances (if any) appropriate to the role such as unsocial hours, travelling, Gaelic language requirements etc.</td>
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<td>• Willingness to travel and participate in international research projects.</td>
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<td>• Willingness to contribute to residential undergraduate and postgraduate field trips.</td>
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The University

Founded in 1495, Aberdeen is Scotland’s third oldest University and the fifth oldest in the UK. Ranked within the world top 160 in the Times Higher Education Rankings 2019 and named Scottish University of the Year in the Times and Sunday Times Good University Guide 2019. Aberdeen is ‘open to all and dedicated to the pursuit of truth in the service of others’.

Aberdeen is a broad based, research intensive University, which puts students at the head of everything it does. It has significant academic strengths and potential across a wide variety of disciplines. Outstanding in a wide range of discipline areas, Aberdeen has also been credited for its international reach and its commercialisation of research ideas into spin out companies.

The University has over 14,000 matriculated students and 3,600 staff representing 130 nationalities. We encourage bold thinking, creativity and innovation and we nurture ambition with many opportunities for professional and personal development in an inclusive learning environment which challenges, inspires and helps every individual to reach their full potential.

The University combines a distinguished heritage with a forward-looking attitude. In the past few years, the University has encouraged creativity in its academic staff, broken new ground with an innovative curriculum, and developed state-of-the-art facilities including the new Sir Duncan Rice Library and the Aberdeen Sports Village and Aquatics Centre. In looking to the future, the University seeks to enhance its reputation as one of the world’s leading Universities by moving forward with ever more ground-breaking research; ensuring students have an intellectual and social experience second to none; and capitalising upon the dual role as one of the major institutions of the north and as a cornerstone of regional economic and cultural life.
The city and the region

**Aberdeen and Aberdeenshire**

With a population of approximately 230,000, the city stands between the Rivers Dee and Don. This historic city has many architectural splendours and the use of its sparkling local granite has earned Aberdeen the name of the Silver City. Recognised as the oil capital of Europe, Aberdeen nevertheless retains its old-fashioned charm and character making it an attractive place in which to live.

Aberdeen enjoys excellent communication services with other European cities - e.g. flying time to London is just over one hour with regular daily flights. There are direct air links to London (City, Gatwick, Heathrow, and Luton), Manchester, Birmingham, Leeds, Southampton, Belfast and East Midlands within the U.K. There are also flights to international hub airports: Amsterdam (Schiphol) and Paris (Charles De-Gaulle) as well as flights to other European destinations. http://www.aberdeenairport.com Road and rail links are also well developed.

The Grampian Region which took its name from the Grampian Mountains has a population of approximately 545,000. It is made up of five districts – Aberdeen, Banff & Buchan, Gordon, Kincardine & Deeside and Moray. The city and the surrounding countryside provide a variety of urban, sea-side and country pursuits. Aberdeen has first class amenities including His Majesty's Theatre, Music Hall, Art Gallery, the Aberdeen Exhibition Centre, Museums, and Beach Leisure centre. Within a short time, beach pursuits, equine activities, salmon, trout and sea fishing, hill-walking, mountaineering, golf, sailing, surfing and windsurfing can be reached. The city and the surrounding countryside are repeatedly given high ratings for quality of life in surveys.

Aberdeenshire is one of Scotland’s most appealing regions. Royal Deeside and the Cairngorms National Park are within easy access of the city, and there are a variety of towns and villages scattered along the coastline.

Aberdeen and Aberdeenshire cater for a wide range of tastes in sporting and cultural activities.

To find out more about Aberdeen and Aberdeenshire go to www.visitabdn.com
How to apply

Online application forms are available at www.abdn.ac.uk/jobs

The closing date for receipt of applications is 10 November 2019

Should you wish to make an informal enquiry please contact
Professor David Jolley, Head of School
01224 272894
d.jolley@abdn.ac.uk

Please do not send application forms or CVs to Professor Jolley

Please quote reference number GEO379A on all correspondence

The University pursues a policy of equal opportunities in the appointment and promotion of staff.