Technical Specialist Software Developer
Department of Environment and Geography

Closing date: 2 January 2019
Interview date: tbc
Vacancy reference: 7260
INTRODUCTION

The Stockholm Environment Institute’s York centre (SEI York) is the second largest of the SEIs research centres located around the World. SEI York is embedded within the Environment Dept. at the University of York. SEI York conducts research on environment and development issues and promotes the dissemination of this research through the development of research tools and communication methods, this is performed within the ‘Research Support Group’ within SEI York. We are looking to recruit a Software Developer to this group.

The role of the Software Developer will be to develop and maintain a range of research and modelling tools hosted by SEI York, including command-line, graphical and web application interfaces for these tools. Software development will involve working closely with atmospheric scientists, ecological modellers and mathematicians within SEI York to help develop software solutions for the implementation, automation and integration of a range of modelling tools including LEAP-IBC; the role will also involve evaluating models against experimental or observed data. As such, an important skill is the ability to quickly understand environmental issues and design effective modelling tools and interfaces that can be used to assess impacts and help identify solutions. The role will involve full stack web development enhancing existing tools, developing cross-platform command-line and graphical interfaces written in Python/Django software (preferably Python 3) and deployed to cloud Platform-as-a-Service environments. You will be responsible for identifying the requirements for and maintaining external servers (primarily using Linux) which are used for a number of different applications.

The role also provides programming and database support for our organisational tools (project planning, monitoring, evaluation and communications) used by staff across the institute.

The role provides IT and programming support to researchers requiring hosting of interactive geospatial web-based data and the development of analytical tools for processing large datasets with accompanying user interfaces.
Main purpose of the role

To develop and maintain a number of research and modelling tools including command-line, graphical and web application interfaces for these tools. Working closely with atmospheric scientists, geographers, ecologists and mathematicians, the role holder develops software solutions for the implementation, automation and integration of a range of modelling tools and web platforms to be used effectively by internal and external stakeholders.

The role involves the use of a variety of programming languages and skills including GIS to develop bespoke solutions for various stakeholders and graphical interfaces written in Python, and web applications written in Python/PHP deployed to cloud Infrastructure as a Service (IaaS) / Platforms-as-a-Service (Paas) environments and also a GeoServer running PostgreSQL and PostGIS.

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

- To lead software development of management planning and environmental research modelling tools.
- To lead in the application of management planning and environmental research modelling tools to analyse large datasets (e.g. covering geo-spatial domains and multiple years, decades).
- To take a lead in the evaluation of environmental research modelling tools against experimental and observational data.
- To lead the software development of user interfaces for management planning and research tools, both for local use and in online, cloud-based, environments.
- To take a lead in the management and maintenance of a number of project web platforms including 2 major EU Horizon 2020 research projects e.g. ROCK and PERICLES
- To collaborate with researchers, programmers and software developers, both internally and externally, to develop and combine research tools and develop an understanding of the underpinning science and be able to communicate effectively with the other researchers
- Knowledge and experience in agile development and design of user interfaces using programming (Python/Django) and server side scripting languages (PHP / JavaScript) including knowledge of PHP frameworks such as Zend Framework or Laravel.
- To provide help, advice, and technical support for the development, installation and application of internally and externally hosted software and databases.
- To participate in internal and/or external projects by providing specific technical expertise.
- To develop and deliver training courses for new and existing model programmes, software packages and related applications; write documentation, technical reference information, self-help materials and user guides.
- To provide general IT/server support, including hardware and software and in addition the role advises on data management systems and technologies including server management and data backup systems.
- Undertake full stack web development using HTML, CSS, JavaScript for web-based interface design and web-based GIS techniques and is experienced using of GeoServer, OpenLayers, Leaflet/MapBox. Deploys the use of data visualisation tools (e.g. IDL, D3, etc) to support researchers outreach material
- Provide realistic estimates for development and operation work to support research planning and progress tracking.
- Ensure that all developments are reliable, secure, scalable and can be deployed effectively within research projects.
JOB DESCRIPTION

- Maintain up to date knowledge of technical developments and best practice in the relevant area of IT including security issues related to the software development environments used.
- Provide support and advice to end-users in line with the team’s support process.
- Attend research group meetings to help manage risks, actions, issues and decisions.
- Contribute expert knowledge on development and application of research models to research proposal development. Support the research support group in maximising the return on investment of research project funding, and contribute to the development of future research proposals that involve programming and software development.
- Ensure the culture is focused on users, customers and systematic continuous improvement, and involves and engages all staff to contribute to groups and projects beyond the team as well as within it.
- Work with staff in the team to establish and develop shared understanding and common goals for the team.
- Build, improve and maintain successful and productive relationships, alliances and partnerships within the SEI York, University and with SEI, external bodies and the wider community.
- Work with the ‘Research Support Group’ to develop and deliver strategies to ensure that key stakeholders in SEI York, University, SEI and the wider community are informed and engaged with the development of services.
- Manage or contribute to projects of the ‘Research Support Group’ Strategy to improve the development and application of programming and software within SEI York, across SEI and, where appropriate the University.
- Assist with the setting of standards for research support delivery that are meaningful to stakeholders and the team and monitor the attainment of that standard.
- Monitor and maintain awareness of the SEI York ‘Research Support group’ and its role in the wider SEI and University.

- Maintain up to date knowledge of technical developments and best practice in IT relevant to the software environment (e.g. security issues, server technology etc).

The above list of duties is not exhaustive and is subject to change. The post holder may be required to undertake others duties within the scope and grading of the post as required by the SEI York Centre Director.
## PERSON SPECIFICATION

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Essential / Desirable</th>
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<tbody>
<tr>
<td>Degree or equivalent qualifications, or proven relevant experience in the relevant field</td>
<td>Essential</td>
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<tr>
<td>Education to degree-level in a computer science based discipline</td>
<td>Desirable</td>
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### Knowledge

- Knowledge of commonly used specialist programming languages (e.g. Python)  
  **Essential**
- Knowledge of commonly used specialist software packages                  
  **Essential**
- Knowledge of current software development practices                        
  **Essential**
- Presentation of information via web-based technologies                      
  **Essential**
- Up to date knowledge of an IT specialist field                              
  **Essential**
- Knowledge of basic principles of ecological/environmental modelling        
  **Desirable**
- Agile development methods, prototyping and testing tools and decision making 
  **Desirable**
- Knowledge of web server hosting and management primarily running Linux      
  **Essential**
- Development of web mapping platforms and spatial databases including associated programming interface languages  
  **Essential**
- Knowledge of software deployment technologies (e.g. Gitlab)                
  **Essential**
- Knowledge of Content Management Systems (e.g. Drupal)                      
  **Desirable**

### Skills, abilities and competencies

- An ability to reconcile conflicting priorities and to respond positively to complete tasks to deadlines and specified standards in a busy working environment  
  **Essential**
- The ability to communicate complex topics to a technical and non-technical audience  
  **Essential**
- Able to think creatively and develop innovative technical solutions to unusual problems involving multiple variables  
  **Essential**
- An ability to work under own initiative and as a team player                 
  **Essential**
- Able to learn quickly and work autonomously                                  
  **Essential**
- Able to communicate (written and verbal) and consult clearly and effectively and develop positive working relationships both internally and externally  
  **Essential**
- Software development experience with Python and Django                        
  **Essential**
- Full stack web application development experience HTML, CSS and JavaScript  
  **Essential**
- Knowledge of database principles including SQL/PostgreSQL                   
  **Essential**
- Project Management skills                                                    
  **Desirable**
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<tr>
<th>Experience</th>
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<tr>
<td>Experience of involvement in IT projects covering the full project lifecycle</td>
<td>Essential</td>
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<td>Experience of resolving technical problems for others</td>
<td>Essential</td>
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<td>Practical experience of up to date development practices</td>
<td>Essential</td>
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<td>Experience of software programming/systems maintenance</td>
<td>Essential</td>
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<td>Experience of version control systems (e.g. Subversion, git) and collaboration platforms (e.g.</td>
<td>Essential</td>
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<td>GitHub)</td>
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<td>Experience with multiple programming languages</td>
<td>Desirable</td>
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<td>Experience of developing, applying and managing services, preferably in an IT or research</td>
<td>Desirable</td>
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<td>environment</td>
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<td>Documenting system requirements and bugs in issue tracking applications</td>
<td>Desirable</td>
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<td>Experience of using Test Driven Development</td>
<td>Desirable</td>
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<tr>
<td>Use of Leaflet or Geoserver and pgSQL, postGIS (or similar)</td>
<td>Essential</td>
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### Personal attributes

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<tr>
<td>Proactive approach to keeping technical and professional skills relevant and up to</td>
<td>Essential</td>
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<td>A commitment to delivering high quality stakeholder focussed service</td>
<td>Essential</td>
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<td>Open to collaborative ways of working</td>
<td>Essential</td>
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<td>Self motivated and prepared to progress activities with little supervision</td>
<td>Essential</td>
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<td>Prepared to work ‘out of the office’ when required</td>
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<td>Positive attitude</td>
<td>Essential</td>
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<td>Willing to be flexible and adaptable in response to the changing needs of the role</td>
<td>Essential</td>
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THE DEPARTMENT

The Stockholm Environment Institutes York (SEI-York) Centre is a research organisation that is part of the international Stockholm Environment Institute (SEI) family and which sits within The Department of Environment and Geography within the University of York. Our research is geared towards translating scientific evidence into information upon which sound policy can be developed and through which behaviour can be changed. This means that the communication of our research, both to decision makers as well as the general public and other specific stakeholders (at a range of scales – including international organisations) is extremely important.

The role of the Software Developer will be to develop and maintain a range of research and modelling tools hosted by SEI York, including command-line, graphical and web application interfaces for these tools. Software development will involve working closely with management and environmental scientists within SEI York to help develop software solutions for the implementation, automation and integration of a range of management and modelling tools; the role will also involve evaluating models against experimental or observed data. The role involves the use of a variety of programming languages and skills to develop bespoke solutions for various stakeholders interested in SEI York’s modelling tools. As such an important skill is the ability to quickly understand management and environmental issues and design effective modelling tools and interfaces that can be used to assess impacts and help identify solutions. Existing tools that will be involved include cross-platform command-line and graphical interfaces written in Python and web applications written in Python/Django and deployed to cloud Platform-as-a-Service environments. Experience with HTML, CSS, JavaScript and databases are essential, as is experience with common version control systems (e.g. git).

The Department of Environment and Geography was established in 1992 to develop and disseminate the approaches required to address the complex environmental challenges facing society. Our guiding principle is that issues of sustainable development demand interdisciplinary research across the interface between natural, physical and social sciences. This interdisciplinary ethos is unique among university departments in the UK and the Department has established an international reputation for excellence and innovation at the forefront of environmental research. Our strength is augmented by the embedding of the Stockholm Environment Institute at York (http://www.york.ac.uk/sei/) into the Department and the establishment of the York Environmental Sustainability Institute (YESI) (http://www.york.ac.uk/yesi/) YESI has been created to ensure that York’s world-leading researchers can operate in an interdisciplinary setting to undertake the research needed to address major environmental issues. YESI incorporates environmental research across the Departments of Archaeology, Biology, Chemistry, Environment & Geography, Politics, Sociology, Social Policy and Social Work, and the York
THE DEPARTMENT

Law School. It integrates environmental research across these departments to tackle the major themes of: (1) Future food and fuel; (2) Global change; and (3) Sustainable environments.

The interdisciplinary mission of the Department of Environment and Geography is founded on a mix of environmental science, ecology, human and physical geography and environmental economics and policy. Research within the Department is focused within three clusters: Earth Systems and Environmental Change; Ecosystems and Society; and Environmental health. All members of academic staff participate in the activities of at least one of the three research clusters in order to promote collaboration and knowledge exchange across the Department. All research themes have major impacts on national and international environmental policy, helping to shape the debate in a diversity of policy arenas. Our staff advise global policymakers including UNEP, FAO and WHO, support international NGO’s such as WWF, and sit on national and international expert committees.

The Department has a reputation as a friendly and collegiate place to work and study and this is frequently commented on by new staff, visitors and students via feedback such as the National Student Survey. The University as a whole matches this ethos. It has retained a very flat management structure that actively encourages cross-departmental collaboration and seeks to remove any obstacles to cross-disciplinary working.

The Department is committed to supporting equality and diversity for all staff and students and recently (2014) successfully applied for a bronze Athena SWAN award for promoting women in science. The Athena SWAN Charter recognises and celebrates good employment practice for women working in science, engineering and technology (SET) in higher education and research.

The Department operates a set of family-friendly policies. Staff working patterns are flexible and a formal flexible working scheme is also in operation. The Department has a maternity and paternity leave policy to help provide support for staff and the University has a nursery and a Child Care voucher scheme. Social events are held for all categories of staff.

The Department provides support for all categories of staff in their applications for promotion, role reviews, awards and prizes and rewarding excellence nominations. The Department strives to address gender inequalities and ensure that there is a culture that supports equality and encourages better representation throughout the department. Support for women at all stages of their career is recognised as being extremely important.
Founded on principles of excellence, equality and opportunity for all, the University of York opened in 1963 with just 230 students. In 2018 it is the home of more than 17,000 students across more than 30 academic departments and research centres. Since opening over fifty years ago, we have become one of the world’s leading universities and a member of the prestigious Russell Group.

We are consistently recognised as one of the leading Higher Education Institutes and are ranked 16th in the Times & Sunday Times league table (2017). The University of York has won six Times Higher Education (THE) Awards and five Queen’s Anniversary Prizes.

The University is proud of its association with Athena SWAN, holding 12 awards in support of gender equality, representation and success for all, with gold awards for Chemistry and Biology and a University-wide bronze award.

Of 154 universities that took part in the Research Excellence Framework (REF) in 2014, The University of York ranked 14th overall and 10th for the impact of our research. The University is consistently in the top ten UK research universities and attracts over £60m a year of funding from research alone.

Our vision is to make the University of York a world leader in the creation of knowledge through fundamental and applied research, the sharing of knowledge by teaching students from varied backgrounds and the application of knowledge for the health, prosperity and well-being of people and society.
Attractive workplace

Centred around the picturesque village of Heslington on the edge of the city of York, our colleges are set in an attractive landscaped campus. York enjoys a safe, friendly atmosphere with facilities including bars, shops, theatres and concert halls all within easy walking distance.

The University has undergone an unprecedented period of expansion and renewal since 2000. We have invested in twenty new buildings on the original campus and have completed the first and second phases of a £750m campus expansion. Our investment in new colleges, teaching and learning spaces, laboratories, research facilities and a new sports village mean there has never been a better time to join us.

During this period of change we’ve worked hard to retain our friendly, informal and collegiate atmosphere, which is important to our core values of inclusivity and interdisciplinarity.

We have a thriving international community and are committed to providing staff moving to York with as much support as possible through our Relocation Package and Welcome Officers.

The University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit. We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.

For further information please visit our employee benefit pages.
THE CITY AND THE REGION

The City of York

Internationally acclaimed for its rich heritage and historic architecture, York’s bustling streets are filled with visitors from all over the world. Within its medieval walls you will find the iconic gothic Minster, Clifford’s Tower and the Shambles - just a few of the many attractions.

But York isn’t just a great place to visit - it’s also a great place to live and work. While nourishing a vibrant cosmopolitan atmosphere, York still maintains the friendly sense of community unique to a small city.

Visit [www.visityork.org](http://www.visityork.org) for more information on the city of York.

Shopping, culture and entertainment

York boasts specialist and unique boutiques but also all the high street stores on its busy shopping streets. Alongside them you will find cinemas, theatres, an opera house, art galleries, a vast range of restaurants, live music venues and clubs. York is particularly renowned for its multitude of pubs and bars, from the modern to the medieval.

Housing and schools

Whether you choose to live close to the city, in one of the surrounding villages or further afield, you will find a wide range of housing within comfortable distance of York and the University. For families, the area has a range of excellent schools both in the state and independent sector.

Great location

York is one of Britain’s best-connected cities. Halfway between London and Edinburgh on the East Coast mainline, on intercity trains you can reach London King’s Cross in less than two hours and Edinburgh in two and a half hours. York is also well served by road links, and it is easily accessible from the A1, M1 and the M62.

For those travelling from overseas, Manchester Airport is two hours away and Heathrow Airport just three and a half. Flights from nearby Leeds Bradford Airport provide easy access to mainland Europe. By Eurostar from London St Pancras, Paris is just over six hours away.

Yorkshire

The Lonely Planet guide recently declared Yorkshire the third best region in the world to visit. There is something to cater to every taste, whether it be the rugged landscapes of the Moors or the Dales, the picturesque seaside towns of Scarborough and Robin Hoods Bay, the gothic architecture of Whitby or the vibrancy of cosmopolitan Leeds.
Apply online

- Go to https://jobs.york.ac.uk
- Find this job using reference 7260
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 2 January 2019.

What will I need?

We will ask you for details of:

- your employment history
- relevant qualifications
- two referees

You need to be ready to show us how you meet the requirements of the job, either in a written statement and / or by answering questions.

Help and assistance

Direct any informal queries to Howard Cambridge (howard.cambridge@york.ac.uk)

If you have any questions about your application, contact the HR Services team:

recruitment@york.ac.uk
+44 (0)1904 324835