

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT

Research Software Developer (2 posts) Ref: EPS/90772

- 1 The University invites applications for the above post which is tenable for a period of 2 years.
- 2 Salary will be within the range £28,839 to £35,469 per annum according to relevant experience and qualifications.
- 3 Informal enquiries may be made to Professor Alan Rector, email: alan.rector@manchester.ac.uk or tel: +44 (0) 161 275 6188
- 4 Applications should be returned by 29 July 2009 to:

The Directorate of Human Resources
Faculty of Engineering and Physical Sciences
P.O. Box 88
Sackville Street
Manchester
M60 1QD

Or by email (**quoting the reference number in the subject line**) to:
eps-hr@manchester.ac.uk

- 5 If you have not been contacted by 30 July 2009 you should assume that, on this occasion, your application has not been successful. We would, however, like to take this opportunity to thank you for your interest in The University of Manchester, and we hope that this will not deter you from applying for other positions in the future.

WITH THE COMPLIMENTS OF THE DIRECTORATE OF HUMAN RESOURCES

THE UNIVERSITY OF MANCHESTER
FACULTY OF ENGINEERING & PHYSICAL SCIENCES
School of Computer Science
Research Software Developer (2 posts)

(REF EPS/90772)

Salary £28,839 - £35,469 p.a.

An opportunity has arisen to join a successful academic and industrial partnership at the forefront of semantic technologies. The University of Manchester and Siemens Medical Solutions USA have entered into a collaboration to develop next generation clinical systems and knowledge management environments using semantic technology. The development will build on the highly successful CO-ODE project (<http://www.co-ode.org>), which is producing the Protégé-OWL cooperative ontology development environment and related tools in collaboration with Stanford University (<http://protégé.stanford.edu>).

You will have experience of the full software design cycle, experience of logic based systems, OWL, description logics or related Semantic Web technologies, and solid and provable grasp of the Java programming language. Prior experience in the healthcare area would be an advantage but is not required. Experience in developing user interfaces is highly desirable. There will be a strong interaction with the industrial partners, and therefore you should be able to communicate technical details effectively in a professional manner. You will design, develop and test prototype and production software to set time scales and to respond flexibly to changing specifications with a high degree of competency and accuracy.

Application forms and further particulars are available from our website www.manchester.ac.uk/jobs

If you are unable to go online you can request a hard copy of the details from The Directorate of Human Resources, Faculty of Engineering and Physical Sciences, Tel: +44 (0) 161 275 8837, Email: eps-hr@manchester.ac.uk

Closing date: **29 July 2009**.

Please quote reference **EPS/90772**.

The University will actively foster a culture of inclusion and diversity and will seek to achieve true equality of opportunity for all members of its community.

THE UNIVERSITY OF MANCHESTER
FACULTY OF ENGINEERING AND PHYSICAL SCIENCES
SCHOOL OF COMPUTER SCIENCE
FURTHER PARTICULARS

Job Title: Research Software Developer

Organisation Unit: School of Computer Science

Reports to: Professor Alan Rector

Date: July 2009

Overall Purpose of the Job:

Objectives

The University of Manchester and Siemens Medical Solutions have entered into a collaboration to develop next generation clinical systems using semantic technology. The BioHealth Informatics Group¹ at Manchester has a long history of development of clinical systems and clinical terminology. Siemens Medical Solutions is a leading vendor of clinical systems, based in the United States. Parallel groups have been established in Manchester and within Siemens.

The goal of the collaboration is to move clinical systems to the next level – to enable systems that are much more easily tailored to specific clinical niches and to develop styles of decision support which are acceptable to clinicians, can be authored by publishers, and can be implemented by systems vendors.

Background

The core of the methodology will be built around the use of the new Web Ontology Language (OWL) and related Semantic Web technologies to build systems based on rich semantics. It will build on a combination of successful ongoing and completed projects. Most immediately it builds on the CO-ODE project,² which has produced the Protégé-OWL ontology development environment in collaboration with Stanford University³. Related ongoing projects include collaborations with WHO on the new revision of ICD-11 and the just-starting EPSRC-funded SWAT⁴ project on using natural language generation techniques to author and present ontologies and knowledge resources in OWL and RDF. Past projects include the GALEN and PEN&PAD/Clinergy programmes on medical ontologies/terminologies and clinical systems respectively⁵, and the MRC Funded CLEF Programme supporting clinical research⁶. There is also a long history of participation in standards work: in the medical arena in CEN, OpenEHR, HL7, WHO, and SNOMED; more broadly in the W3C Semantic Web Best Practice Working Group and Healthcare and Life Sciences Special Interest Groups.

The core task for this post will focus on the development of the Knowledge Management Environment which is now the central goal of the collaborations with Siemens Health. However, the successful candidate will be expected to contribute flexibly to all aspects of development. The work builds on the work on ontology development environments

¹ <http://www.cs.manchester.ac.uk/bhig/>, formerly the Medical Informatics Group (MIG)

² <http://www.co-ode.org>

³ <http://protégé.stanford.edu>

⁴ <http://www.swatproject.org/>

⁵ <http://www.opengalen.org>

⁶ <http://www.clef-user.com>, <http://www.clinical-esciences.org>

produced by the CO-ODE project (<http://www.co-ode.org>). It requires the ability to work innovatively and flexibly in to come to a mutual set of specifications and requirements with the industrial partner. A solid understanding of logic and semantic web languages and their application is desirable as is experience in user interface design and development. Previous experience of health informatics, healthcare systems, electronic health records, or related would be an advantage. Good Java skills are essential. The group works closely with users and collaborates with Bioinformaticians and biologists as well as biomedical scientists. The Northwest Institute of BioHealth Informatics⁷ a multidisciplinary centre that spans Schools of Computer Science, Life Sciences, and Medicine within the University and includes Liverpool, Salford, and Lancashire Universities and numerous further research institutes.

A major goal of the proposed project is open standards, therefore some of the work will be open source although there will be development of specific prototype applications for Siemens Medical Solutions which will be proprietary.

The BioHealth Informatics Group is part of the School of Computer Science, which is a leader in the Semantic Web, e-Science and Grid Computing. It played a key role in the development of the original OWL specification and in its refinement to the soon-to-be-released OWL 2.0. There are large groups working on the underlying technologies for description logics and the Semantic Web and on practical applications including managing workflows (*myGrid* / *Taverna* / *myExperiment*). Manchester is the home of e-Science Northwest⁸ and of one of the three branches of the UK Open Middleware Infrastructure Institute⁹, which seeks to make the output of IT research projects sustainable and available to the rest of the research community.

The project is led by Professor Alan Rector¹⁰ and is funded for two years in the first instance, but the goal is a long term relationship between the University of Manchester and Siemens Medical Solutions.

Responsibilities

The project offers an unusual opportunity to join a successful team to work on practical applications of leading edge technology within the context of world-class research groups.

We are seeking a team capable of both software engineering and developing the foundations for the knowledge resources needed for advance clinical system – models, ontologies, knowledge bases, rules etc. The balance of skills between the appointees will be considered flexibly depending on the applicants. The primary goal is to deliver sound scalable systems that can be rapidly adapted to local circumstances and evolve to meet changing needs.

Responsibilities of the team will include:

- Requirements gathering and analysis including close liaison with users
- Design, development and testing of the prototype and delivery software
- Design, development and testing of the prototype knowledge management environment.
- Developing the schemas, ontologies and models covering data gathering, order entry, clinical guidelines for the knowledge that will drive that software.
- Development of extensions to existing software and tools.

⁷ <http://www.nibhi.man.ac.uk/>

⁸ <http://www.esnw.ac.uk/>

⁹ <http://www.omii.ac.uk/>

¹⁰ http://www.cs.man.ac.uk/~rector/home_page_rector/

- Working with industrial collaborators and users in workshops, tutorials and formative evaluations. The project will use an iterative design methodology. The field is new, and the interface can be expected to require repeated revisions to get right.
- Documentation and preparation of training material.
- Participation in the evaluation and analysis.
- Taking part in the research life of the Group, publishing papers, preparing demonstrations, attending conferences, etc.

Person Specification

Essential Knowledge, Skills and Experience:

- Experience in software development; with experience of the full software cycle.
- Degree or equivalent in Computer Science or a similar discipline with a substantial amount of computation or equivalent experience
- In depth experience of object-oriented programming language; JAVA strongly preferred.
- Experience of OWL and/or underlying technologies of description logics or related.
- Ability to work flexibly in a multidisciplinary team in which roles may evolve, tasks may be change, and user requirements are often ill- specified.
- Good communication and presentation skills; including the ability to relate in depth technical details to both a technical and non-technical audience.
- Ability to work effectively with end-users and commercial collaborators in a professional manner.

Desirable Knowledge, Skills and Experience:

- Experience in one or more of human computer interaction or user centred design
- Experience in Health Informatics, Electronic Health Records, or related.
- Expertise in modern software development tools, techniques and processes.
- Experience and knowledge of the Semantic Web, Web Services, Web II, and/or related technologies.
- Experience of writing technical reports and academic papers.