Stephen Knox PhD BA (Mod)

CONTACT
INFORMATION

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RESEARCH
INTERESTS

Research interests are as follows:

- Integrating software engineering into research practices.
- Simulation of large-scale systems such as water resource networks or pervasive systems.
- Engineered resource network management and planning.
- Reasoning systems within Pervasive Computing. Highly experienced in case-based reasoners, rule based reasoners and Bayes networks.
- Evaluation of pervasive systems with respect to data acquisition, representation and reasoning.
- Middleware for pervasive systems.
- Context-Aware computing applications.

EDUCATION

2005 to 2010: PhD in Computer Science, UCD Dublin.
PhD entitled "Combining Case-Based Reasoning and the Semantic Web in Recognising Situations". Viva passed 1st April, 2010. Built an Java-based artificial intelligence system to identify the actions of people in a sensor-rich environment. Worked extensively with real-time sensor technologies, Java, Protege Ongology editor and Weka.
2001 to 2005: *2.1*, BA (Mod) (Hons), Computer Science, Trinity College, Dublin, Ireland.
1996 to 2001: 475 points from 600, Leaving Certificate, St Kieran's College, Kilkenny, Ireland. Leaving certificate results: Maths: B1, Economics B1, English B3, Irish C1, Spanish B3,Chemistry B2, Music B3.

WORK
EXPERIENCE

July 2013 to Present: Senior scientific software engineer & team lead, University of Manchester. Developing an open source tool, Hydra Platform, for managing network-based data in water resure planning. Led the design and implementation a web API, requiring expert knowledge of Python, databases (MySql, Sqlite, PostreSQL) and web interfaces (REST, SOAP, JSON, HTML, CSS & Javascript). Developed several client applications which connect to Hydra Platform using Python, Java, C# & Javascript.
In collaboration with project partner Thames Water Utility Limited (TWUL), leading the development of a web-based visualisation tool to help decision making over future investment portfolios.

April 2010 to June 2013: Software developer, Geneity Ltd. Developed production quality software for large clients, most notably Coral, Ladbrokes and The Health Lottery. These websites can take up to 200 bets a second, meaning a high standard of coding, testing and support was required. Supported

these products in production environment. Also heavily involved in developing the back-end administration for these websites. Worked extensively with web technologies such as HTML5, CSS3, Javascript including jQuery, Oracle and Python.

Responsibilities included prototyping, developing and deploying products to test and live environment. Dealt extensively with clients both during development and testing process.

January 2006 to April 2010: Lectured in the principles of programming languages, specifically on compiler design and virtual machines.

Teaching assistant in UCD Computer Science dept. Attended labs and marked assignments and performed various administrative tasks. Senior member of the Computer Programming Support Centre. Roles include tutoring students on Java, C++, Scheme and related logic problems.

Consultency 2008 − 2009: Recipient of an Enterprise Ireland Innovation Voucher [1], which allows small companies to avail of Irish research facilities. Performed a feasibility study of the application of ontologies in their software model.

Java consultancy for UCD Sport Science department. Worked on improving an existing posture monitoring system. Integrated robust bluetooth connectivity protocols, improved data processing algorithms and improved the viewer panel.

SELECTED
PUBLICATIONS

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References

[1] Stephen Knox, Philipp Meier, and Julien Harou. Web service and plug-in architecture for flexibility and openness of environmental data sharing platforms. *IEMSS, San Diego*, 2014.

[2] Stephen Knox, Philipp Meier, Khaled Mohammed, Brett Korteling, Matrosov Evgenii, Anthony Hurford, Julien Harou, David Rosenberg, Amaury Thilmant, Josue Medellin-Azuara, and Jon Wicks. An open-source software platform for data management, visualisation, model building and model sharing in water, energy and other resource modelling domains. In *The American Geophysical Union Fall Meeting*, 2015.

[3] Stephen Knox, Philipp Meier, Philip Selby, Khaled Mohammed, Majed Khadem, and Silvia Padula. An open source simulator for water management. In *The European Geosciences Union General Assembly*, 2015.

REFEREES

Available on request

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[1] http://www.innovationvouchers.ie/