



Research Centre	Insight Centre for Data Analytics
Post title	Postdoctoral Researcher
Level on Framework	Level 1
Post duration	Fixed term contract up to 18 months

Research Career Framework

As part of this role the researcher will be required to participate in the DCU Research Career Framework <http://dcu.ie/hr/ResearchersFramework/index.shtml>. This framework is designed to provide significant professional development opportunities to researchers and offer the best opportunities in terms of a wider career path.

DCU has a strong track record in attracting both Irish and European Union research funding under Horizon 2020 (and all previous Framework Programmes), Marie Curie Actions and Erasmus. We offer a dynamic and internationally-focused environment in which you can advance your academic career.

Background

The Insight Centre for Data Analytics (<http://www.insight-centre.org>) is a joint initiative between researchers at Dublin City University, NUI Galway, University College Cork, and, University College Dublin, as well as other partner institutions. It brings together a critical mass of more than 450 researchers from Ireland's leading ICT centers to develop a new generation of data analytics technologies in a number of key application areas.

The €88m Centre is funded by Science Foundation Ireland and a wide range of industry partners. Insight's research focus encompasses a broad range of data analytics technologies from machine learning, decision analytics and social network analysis to linked data, recommender systems and the sensor web. Together, with more than 70 partner companies, Insight researchers are solving critical challenges in the areas of Connected Health and the Discovery Economy. Current project funding is to July 2019. The research activity in this program is funded by Allied Irish Banks (AIB).

The Project

The specific project for which this role is being recruited, involves the development and application of computational models of decision making to data collected in the context of real world economic preferences. Computational approaches utilizing data mining, biophysical modelling, computational modelling and computational phenotyping holds great promise in closing the

explanatory gap relating the molecular description of brain function to human cognitive dynamics. In particular we are interested in using approaches from the new field of computational psychiatry to better understand human decision making outside the laboratory in both health and disease. As decision-making is an essential element of human behavior, understanding how we make choices and how this relates to underlying neurobiological function is of enormous importance. We are keen to apply economic games to decision making to better understand cognitive dynamics in health and disease. As these games possess concrete concepts of optimal play we can derive quantitative measures of an individual's performance with respect to optimal play. Deviations from optimal play can then form the basis for derivation of objective biomarkers that may prove useful for exposing and understanding the neural basis of normal and pathological human cognition. Our application of these ideas will focus on data which we will collect in real world environments outside the laboratory.

Background & Role

Insight wishes to recruit a Postdoctoral Researcher on a fixed term contract basis to be responsible for investigating and reporting upon the potential of approaches from the field of computational psychiatry to modelling human decision making in health and disease. Our goal is to better understand, quantify and track the efficacy of human decision making outside the laboratory.

Main Duties and Responsibilities

Reporting to his/her Principal Investigator the Postdoctoral Researcher will:

- Support the research group in software and system development for an Insight Project in the area of data collection in economic decision making.
- Assist in a literature review e.g. by helping to collate/filter literature with respect to the technical and scientific requirements of the project.
- Contribute to the design and implementation of the project's prototype demonstrators.
- Develop configurable economic decision choice gaming interactions for the purposes of data collection with context aware features.
- Develop modelling approaches to characterise subject performance with respect to optimal decision making.
- Develop evaluation statistics/metrics to test the effectiveness of prototypes/solutions.
- Participate in Insight Centre activities, including industry showcases, annual reviews and industry and agency visits to the Insight labs and grant writing.
- Assist with presentation and documentation of demonstrator systems for the industry sponsor.
- Other tasks relevant to successfully implementing the project's and the Research Centre's research program.
- Carry out administrative work associated with the program of research as necessary.

Below are some pointers to examples of technologies that are used in our projects,

to indicate the type of experience we require. The successful candidate should demonstrate strong competence in some of these technologies:

- Knowledge of one or more of: Java, Python, R
- Experience working with UNIX, Linux, OSX or Windows operating systems.
- Database management skills.
- Experience in mathematical modelling approaches
- Experience in the use of statistical methods such as ANOVA, MANOVA, t-tests, chi-square and non-parametric alternatives.
- Experience of modern techniques and implementations in machine-learning and data visualization

Skills

- Excellent written and oral proficiency in English (essential)
- Excellent written and verbal communication and interpersonal skills.
- Proven ability to prioritise workload and work to strict deadlines.
- Ability to work in a team and to take responsibility to contribute to the overall success of the team.
- Strong problem solving abilities.

Minimum Criteria

The ideal candidate will have a PhD in Computer Science, Engineering or a related discipline with strong software skills and relevant experience in data modelling and machine-learning.

Additional Information

The successful candidates will be offered opportunities for developing their own careers in a number of directions including support for conference/workshop travel, upskilling through Insight's continuous professional development in areas like research ethics and data privacy, student supervision and development and submission of their own research project proposals.

Candidates will be assessed on the following competencies:

Discipline specific knowledge and Research Skills (demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline)

Communicating Research (Demonstrates the ability to communicate their research with their peers and the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students)

Managing & Leadership skills (demonstrates the potential to manage a research project including the supervision of undergraduate students)

Understanding the Research Environment (demonstrates an awareness of the research environment (e.g. funding bodies) and takes responsibility for how their research is conducted.

Informal enquiries to:

Professor Tomas Ward
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School of Computing,
Faculty of Engineering and Computing,
Dublin City University, Glasnevin, Dublin 9, Ireland.

Tel: +353-1-700-6076

Email: tomas.ward@insight-centre.org

Please **do not** send applications to this email address, instead apply as described below :

Salary Scale: €37,223 – €43,034 per annum

Closing Date: 23rd November 2018

Application Procedure

Application forms are available from the DCU Current Vacancies (open Competitions) website at <http://www.dcu.ie/vacancies/current.shtml> and also from the Human Resources Department, Dublin City University, Dublin 9. Tel: +353 (0) 1 7005149.

Please clearly state the role that you are applying for in your application and email

subject line: Job Ref #1039 Postdoctoral Researcher, Insight Centre for

Data Analytics

Applications should be submitted by email to hr.applications@dcu.ie or by Fax: +353 (0)1 7005500 or by post to the Human Resources Department, Dublin City University, Dublin 9. Human Resources Department, Dublin City University, Dublin 9. Tel: +353 1 700 5149; Fax: +353 1 700 5500 Email: hr.applications@dcu.ie

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