

JOB DESCRIPTION

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| Job title: | Research Associate |
| Grade: | This post has been evaluated at Grade 6 |
| Responsible to: | Dr Edward Powley |
| Responsible for: | Research in Artificial Intelligence (AI) / Machine Learning (ML) for Procedural Content Generation (PCG) in digital games |
| Date: | May 2017 |

Job purpose

We seek an outstanding interdisciplinary researcher to harness the potential of research in Procedural Content Generation (PCG) to boost the creativity of human game designers. We are looking for candidates with a strong record of research output and collaboration and the potential to deliver world-leading research in PCG for digital games. They will have in-depth knowledge of cutting-edge Artificial Intelligence (AI) / Machine Learning (ML) technologies, and the ability to apply these technologies to new problem domains. They will be keen to work with games companies to find out their requirements and co-create PCG research which will seed new developments in commercial games.

This role is funded by Digital Creativity Labs, a collaborative project spanning the University of York, Falmouth University and Goldsmiths, University of London. The postholder will play a key role in fostering collaboration between the two world-class research teams at York and Falmouth, being primarily based in York, and employed by Falmouth.

Digital Creativity Labs (DC Labs) is a world centre of excellence for impact-driven research in digital creativity, focusing on digital games and interactive media. With £18 million in funding, it brings together top researchers in computer science areas such as AI, ML, human-computer interaction, and analytics, with experts from games design, media, archaeology, sociology, electronics, education and psychology. It brings together a team of more than 30 leading researchers across seven departments at the main "Hub" site at the University of York and smaller "Spoke" sites at Falmouth University and Goldsmiths, University of London. We have over 80 external partners, many from the games industry. York's Russell Group status, aligned with the City's fast-growing digital creative sector and designation as the UK's only UNESCO City of Media Arts means it is uniquely placed to host DC Labs. Researchers in DC Labs work as interdisciplinary teams, harnessing the huge potential of games and interactive media for economic, social and cultural impact. These researchers generate impact through collaborative research with partners in industry, government, the third sector and members of the public. It

is important that the postholder welcomes the opportunity to work with researchers from other disciplines and with external stakeholders, particularly from the games industry.

Falmouth University, has a growing reputation as the UK's leading Arts University, embracing a wide range of art forms and creative sectors. Games are transforming the way that we experience stories and are driving the development of new technologies that make those experiences more responsive, immersive and engaging. The Games Academy at Falmouth University was founded in 2014 to take part in this exciting journey into the future of digital games. The Academy brings together internationally renowned researchers with veterans of the games industry to drive forward the development of games technologies and techniques, to advance games as an art form, to stimulate the economic growth of the games industry in Cornwall and beyond, and to apply these exciting new technologies in other areas. The MetaMakers Institute is a research group within The Games Academy, working with DC Labs, at the forefront of applying AI, PCG and Computational Creativity to digital games and beyond. Our current research focuses on leveraging automatic game generation and play testing to create new software tools that allow anyone with a smartphone to design new game mechanics and create compelling casual games, with no technical skills required.

The postholder will have a key role within DC Labs as a Research Associate, working closely with the core DC Labs team at York and members of the MetaMakers Institute and the Games Academy at Falmouth. Research will be driven by the need for economic, social and cultural impact, through working with external stakeholders, particularly games companies, and developing prototypes to demonstrate ideas and tools they can use. They will address important questions such as "How can developers, particularly smaller independent developers, harness state-of-the-art PCG techniques to deliver more engaging games on a tight development budget?" and "What new game mechanics and genres does PCG technology enable in order to drive forward digital games as a culturally significant art form?".

The postholder will bring an appetite for learning new skills and knowledge and will have the opportunity to develop their career by engaging (with appropriate training and mentorship) in the process of writing research grant applications, research management/supervision, and teaching. The DC Labs works closely with the £12 million Intelligent Games and Game Intelligence (IGGI) Centre for Doctoral Training (www.iggi.org.uk), providing an excellent opportunity for the postholder to work with a wide range of highly motivated research students.

Due to the importance of working with teams at both York and Falmouth, regular travel between the two sites, every 1-2 months, is essential.

Health and safety at Falmouth University

The University takes health and safety matters very seriously. Every staff member has a responsibility to take reasonable care for the health and safety of themselves and others who may be affected by their actions and omissions. They also have a duty to comply with the University's arrangements for health and safety. Staff with responsibility for others must ensure the proper enactment of University policy within their areas in line with levels of responsibility set out in the University's Health and Safety Policy.

Main duties and responsibilities

1. To assist in the identification and development of potential areas of research (e.g. through working with external partners) and the development of proposals for independent or collaborative research projects.
2. To conduct individual and collaborative research projects, duties to include:
 - a. Production of research artefacts, mainly in the form of software;
 - b. Analysis and interpretation of research data;
 - c. Use of appropriate research techniques and methods;
 - d. Writing up of research results and dissemination through publications, seminar and conference presentations and public engagement and outreach activities;
 - e. Contributing to the identification of possible new areas of research.
3. To contribute to the preparation of research proposals and applications to external funding bodies.
4. To undertake appropriate organisational and administrative activities connected to the research project, including conference organisation, and the development of promotional or educational material including website maintenance and development.
5. To develop and initiate collaborative working internally and externally, duties to include:
 - a. The building of internal contacts and participation in internal networks;
 - b. Collaboration with colleagues on joint projects as required;
 - c. Participation in and identification of external networks in order to share information and identify potential opportunities for collaboration and possible sources of funding;
 - d. Attendance at and contribution to relevant meetings, both face-to-face and online (e.g. Skype).
6. To provide guidance to other staff and students, as required, as well as coordinating the work of small research teams.
7. To collaborate with a network of external organisations in conducting applied and translational research. The network will include digital games companies, which can incorporate research advances into the next generation of games, and organisations

which can make use of games to conduct science and social science research, for public engagement and research dissemination, for learning, for therapy, etc., and media organisations.

8. To take a proactive role in maintaining and growing this network of external organisations, seeking out new opportunities to collaborate with new and existing stakeholders.
9. To engage with research and researchers from other scientific and humanities disciplines in areas such as Theatre Film and Television, Archaeology, Sociology, Electronics, Education, and Psychology.
10. To achieve substantial economic, social and cultural impacts from research, principally by working with external partners.
11. To work across disciplines and encourage a multidisciplinary perspective on research and impact, across the DC Labs and its partners, and across the wider communities of both the University of York and Falmouth University.

General duties and responsibilities

1. To work within and actively support the equality and diversity policies and practices of Falmouth University and the University of York.
2. To notify a more senior member of staff of any errors or concerns at the earliest opportunity.
3. To participate in the annual Performance Development Review process.
4. To ensure that the university's cross-cutting themes of partnership, equality and diversity and sustainability inform all activity related to the role.
5. To ensure communications systems and practices support effective management arrangements and promote good relations with staff and students.
6. To work within a framework of effective governance, ensuring compliance with relevant regulations, legislation/policies and procedures.
7. To be responsible for your own continuing self-development.
8. To undertake other duties not specifically stated above, which from time to time are necessary for the effective performance of the University's business without altering the nature or level of responsibility involved.

Health & safety requirements

In relation to health and safety, you are responsible for ensuring that:

- You comply with safe systems of work in operation within your work area.
- You work co-operatively with other staff who have responsibility for health and safety requirements.
- You report any health and safety concerns to your manager or other responsible member of staff as soon as these are identified.
- You attend training as appropriate to your role (see the relevant health and safety training grid for requirements).
- You may be required to undertake duties as a first aider (for which a separate allowance is paid).

PERSON SPECIFICATION

Job title: Research Associate

| Attributes | Essential requirements | Desirable requirements |
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| Education and qualifications | Completed or near-completed PhD in a relevant area (e.g. procedural content generation, machine learning, artificial intelligence, digital games technology), or equivalent experience. | Strong first degree in computer science or software engineering, or equivalent software development experience. |
| Experience and knowledge | <p>Experience of building procedural content generation and/or automated game generation systems.</p> <p>Experience in artificial intelligence for games, e.g. automated game playing, non-player character behaviour, machine learning, evolutionary approaches, etc.</p> <p>Knowledge of a range of research techniques and methodologies.</p> <p>Experience of writing up research work for publication.</p> | <p>Knowledge of state-of-the-art research in deep learning, particularly as used for generative or constructive applications.</p> <p>Experience of software development in an industry environment, ideally in a creative industry.</p> <p>Knowledge of the production and development methods of the digital games industry and wider digital creative industries.</p> <p>Experience of computational creativity research methods and results.</p> <p>Experience of generating research impact through collaboration with industry, public or 3rd sector organisations.</p> <p>Experience of organising cultural outreach events.</p> |
| Skills and personal requirements | <p>Skilled in software engineering using a variety of programming languages, with the ability to quickly learn new languages, tools and development pipelines.</p> <p>Highly developed communication skills to engage effectively with a wide ranging audience.</p> <p>Ability to work with researchers from multiple disciplines and with partners from outside academia.</p> <p>Ability to capture ideas from domain experts and stakeholders and translate them into research questions.</p> <p>Ability to develop research objectives, projects and proposals for own and joint</p> | <p>Skilled in game development using game engines such as Unity and/or APIs such as SpriteKit.</p> <p>An effective leader of research projects.</p> <p>Ability to supervise the work of others, such as MSc or PhD students.</p> <p>Ability to contribute to the process of writing research funding proposals.</p> <p>Evidence of peer review activities.</p> <p>Interest in entrepreneurship for commercialisation of research outputs.</p> <p>Established links with gaming communities and game developers.</p> |

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| | <p>research, with the assistance of a mentor as required.</p> <p>A proactive approach to seeking out new collaboration opportunities, particularly with industrial partners.</p> <p>A team player with strong interpersonal skills.</p> <p>Self-motivated, able to work independently.</p> <p>Ability to deliver high quality research outputs to a deadline.</p> <p>Commitment to personal development and updating of knowledge and skills.</p> <p>Flexible to travel to partner sites in the UK and international conferences and meetings.</p> | <p>A passion for the advancement of digital games as a culturally significant art form.</p> |
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