**logo-uob-resize[1]**

**Job Description**

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| **Job title** | Research Associate in Visual Computing (MyWorld Project) |
| **Department/School** | Computer Science |
| **Job family** | Education and Research |
| **Grade** | 7 |
| **Reporting to** | Dr Neill Campbell |
| **Responsible for** | Some co-supervision of doctoral, postgraduate or undergraduate students may be required. |
| **Location** | University of Bath premises (Claverton Down Campus and Bottleyard Studios) |

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| **Background and context** |
| We are looking for highly motivated individual to work on 4D capture from visual information to form the next generation of technologies for the creative industries including virtual production. This work will include a range of approaches from model-based tracking to data driven volumetric/point cloud information – our goals are to ensure high fidelity (i.e. cinematic quality) and control (e.g. artistic direction) in the process to create new technologies for the creative industries including applications in film, TV, games and immersive AR/VR experiences.  This work is part of the wider MyWorld Project (<https://www.myworld-creates.com>). Broadcasters, filmmakers and streaming organisations are commissioning content with increasingly challenging acquisition specifications that extend realities into new hybrid spaces merging the real and the virtual. They demand content capture of faster, smaller, more colourful, darker and generally more immersive spaces.  This position plays a role in the wider research goals of tackling complex problems in motion and volumetric capture, in the creation of digital humans, in virtual production, particularly through the development of new technology making use of AI and data to drive mobile platforms – enhanced workflows for the most challenging human and natural acquisition environments. In addition, we will hide the technology behind interfaces that allow for creative users to control, assess and direct the process interactively.  These innovations will result in a new perception-driven framework for solving important video production problems that offer more efficient and flexible workflows and ultimately improved visual quality. All specifically directed to work directly with creative end-users, e.g. artists, actors and directors. Together, these innovations are capable of making a step change in performance capture and generalisation to enable creation of the next generation of more engaging visual media. |

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| **Job purpose** |
| This position will form part of a team of researchers (across the Universities of Bath and Bristol) dedicated to creating the next generation of capture technologies for the creative industries. Your research tasks will involve the creation of new hardware, capturing new datasets and creating new machine learning models and algorithms to solve real-world tasks. In addition to writing papers about the novel research, you will produce showcase demonstrations of the new technologies in action. As well as working within the team, you will collaborate with a number of industrial and academic creative partners (including Academy awarding winning VFX studios) to ensure that the solutions developed are both relevant/appropriate as well as to ensure that they will be adopted in the real-world.  This post will be associated with the Centre for the Analysis of Motion, Entertainment Research and Applications (CAMERA) at the University of Bath (<https://www.camera.ac.uk/>) that has a world-class production standard motion-capture studio, including a range of body and facial capture systems and multi-camera arrays. This is currently being expanded to include a full virtual production suite.  You will also join the vibrant Visual Computing group at Bath which comprises around 30 doctoral students, 10 post-doctoral researchers and 8 academics and presents many opportunities for collaborative work and shared publications.  In addition to the standard duties of performing research and the dissemination of research through publications and demonstrations (e.g. CVPR, SIGGRAPH, FMX), you will be involved in the supervision of PhD students and may have some teaching duties at undergraduate or graduate level.  We are working to improve the gender balance within the department’s population and particularly welcome applications from women.  For further details, please contact Dr Neill Campbell: n.campbell@bath.ac.uk |

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| **Main duties and responsibilities** | |
|  | Responsible to the PI/CI for (as appropriate to discipline): |
| **1** | Research and development of new hardware and technologies for 4D capture from visual sensors and use these to create new datasets. |
| **2** | Research and development of new machine learning and computer vision models and algorithms to transform raw visual data into useful (e.g. controllable and editable) surface/volumetric/light-field information to solve creative tasks (e.g. avatar creation or virtual production). |
| **3** | The production of working prototypes to demonstrate and evaluate new and existing technologies in this area and work with collaborators to integrate into new or existing software tools. |
| **4** | Working with researchers, artists and other MyWorld collaborators to gather research goals and specifications, to perform and assess user studies and to assist with the transfer of developed technologies to real-world products. |
| **5** | Documenting research and results including, but not limited to, the production of papers in leading peer-reviewed conferences and journals, the development and maintenance of a code base and engage in public dissemination of research outputs as appropriate. |
| **6** | Liaise closely with and support other CAMERA centre staff working on related fields to the common benefit of the centre and research group. |
| **7** | Participate regularly in research group meetings and prepare and deliver presentations and reports to the project team, internal and external collaborators and partners. |
| **8** | Disseminate research at national and/or international conferences (via presentations and posters) and/ or at other appropriate events such as workshops with partners. |
| **9** | Assist with the supervision of graduate students and undergraduate project students and the assessment of student knowledge. |
| **10** | Continually update knowledge and understanding in field or specialism to inform research activity. |
| **11** | Provide assistance with preparing bids to funding bodies contribute to securing of funds for research. |
| **12** | Disseminate knowledge of research advances to inform departmental teaching. |
| **13** | You will from time to time be required to undertake other duties of a similar nature as reasonably required by your line manager. You are required to follow all University policies and procedures at all times and take account of University guidance. |

**logo-uob-resize[1] Person Specification**

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| **Criteria** | **Essential** | **Desirable** |
| **Qualifications** |  |  |
| PhD in Computer Vision, Graphics, Machine Learning or a strongly related discipline | X |  |
| **Experience/Knowledge** |  |  |
| Excellent background knowledge of standard visual computing and machine learning approaches | X |  |
| Experience with the practical implementation/application of visual computing and machine learning methods | X |  |
| Evidence of published research in high quality peer reviewed journals and/or conferences | X |  |
| Familiarity with industrial visual effects pipelines and workflows |  | X |
| Experience with the production of interactive, graphical software |  | X |
| Experience of conducting evaluation studies |  | X |
| Post doctoral experience |  | X |
| **Skills** |  |  |
| Experience of programming in technical languages such as Python, C++, CUDA, OpenGL, Matlab | X |  |
| Proven track record of production of clean and robust research code including numerical code | X |  |
| Design and production of graphical user interfaces |  | X |
| Use of industry standard creative software; e.g. Nuke, After Effects, Maya, etc.. |  | X |
| Excellent written and oral communication skills | X |  |
| Ability conduct independent research | X |  |
| Ability to prepare research proposals |  | X |
| Ability to organise and prioritise own workload | X |  |
| Ability to write research reports and to effectively disseminate outcomes | X |  |
| **Attributes** |  |  |
| Motivated to perform research using visual computing and machine learning with applications in the VFX arena | X |  |
| Enthusiasm and self-motivation | X |  |
| Commitment to excellence in research | X |  |
| Organisation – able to plan and deliver work to meet required deadlines | X |  |
| Tenacity – working to achieve own and team objectives and to overcome obstacles | X |  |
| Ability to work individually and as an effective team member | X |  |
| Commitment to working within professional, safe and ethical codes of conduct | X |  |