Centre for Digital Creativity, Shilling Building,
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StoryFutures PhD Placement Programme: Brief for PhD Students

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1. The PhD Placement Programme

StoryFutures is part of a government UK-wide investment in the creative industries administered through the Arts & Humanities Research Council (AHRC), to fuel industry growth through Research and Development (R&D). Sitting within RHUL's Centre for Digital Creativity, StoryFutures is focused on experimentation in new technologies and the future of storytelling, funding and collaborating with small or medium-sized enterprises (SMEs) working in virtual reality, augmented reality and artificial intelligence and all forms of immersive, technology driven storytelling.

StoryFutures is launching a pilot PhD Placement Programme as a bridge to building jobs, a skills pipeline, creative industry capacity and long-lasting relationships between industry and university talent and expertise.

The PhD Placement Programme will offer up to three Royal Holloway PhD students the opportunity to work within an SME on a placement of up to eight weeks, working on an R&D project in immersive storytelling.

Students are invited to apply for the opportunities outlined in this pack, by completing this form by midnight on Wednesday 19 October 2022. The selection process will take place shortly after, with placements to commence in the autumn, ideally in November/December 2022 (to be mutually agreed between the SME and student) – although January/February 2023 would also be possible.

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2. What is on offer

Up to three placements with SMEs will be available. Placements will last for up to eight weeks (either full time or part time, spread across a longer period of time, to be mutually agreed between the SME and the successful student), and will be paid at an hourly rate of £12.67 funded by StoryFutures and paid to the student by the SME.

The placements will involve work on an R&D project within an SME, outlined by the SME. Please refer to the five placement briefs in this pack for details of the opportunities on offer:

- Factory 42

  - Commercial scoping and business modelling of a large scale XR experience

- Nexus Studios

  - Realtime 'performance' and animation – new economic applications
  - Realtime animation – the impact of 'liveness' with animation

- ScanLAB Projects

  - 4D Photogrammetry Timelapse capture on synchronised iPhones
  - Sharing 3D moments in engaging and delightful ways on iOS

These placements will give students the opportunity to learn more about the immersive sector and creative industries, while being part of an exciting commercial R&D process within an SME at the forefront of innovation in immersive storytelling. Students will have access to a mentor and support from the company, and the opportunity to work from company offices (the exact balance of in-person and remote working will be agreed mutually between the student and the SME).

Students should be aware that these placements will involve work within an SME on a pre-defined R&D project, and should not be seen solely as an opportunity to gather data or carry out research that will feed into the student's PhD. Though we anticipate that there may be some crossover and opportunities for PhD students to enrich their research, these placements should be seen predominantly as a work experience and skills development opportunity.

Placement students will be appointed a mentor from within the SME who will be a direct point of contact throughout the placement. Both the student and the mentor will complete an end of project report.

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3. Eligibility

Student participation within the placement programme must be approved in writing by the student's PhD supervisor(s). Students must interrupt their studies for the period of the placement if they intend to undertake it full time, unless they are on a Student Visa. Students must have the right to work in the UK.

- If you intend to complete the placement part-time, please contact the Doctoral School (doctoralschool@rhul.ac.uk) for advice on your student status, please include StoryFutures in the subject line

- If you hold a Student Visa, please contact the Doctoral School (doctoralschool@rhul.ac.uk) for advice on your eligibility for this programme, please include StoryFutures in the subject line

Royal Holloway University of London is an equal opportunities employer, and will only work SMEs through this scheme who share our values.

4. Process and how to apply

Students are invited to apply by completing this **this form** by midnight on **Wednesday 19 October 2022**.

TIMELINE:

- Student application submission deadline – **midnight 19 October**
- Shortlisting and interviews – **fortnight commencing 24 October**
- Placements confirmed - **early November**
- Placements commence – **ideally November/December, although later starts (January/February 2023) would also be possible**
- End of project reports due – **2 weeks after placement end**

5. Questions

For questions relating to the specific placement opportunities advertised, please contact hannah.wills@rhul.ac.uk

For questions relating to visa eligibility, or interruption of studies, please contact doctoralschool@rhul.ac.uk (please include StoryFutures in the subject line)

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6. StoryFutures PhD Placement Programme: Available Opportunities

Factory 42: Commercial Scoping and Business Modelling of a Large Scale XR Experience

The opportunity:

This is a fantastic opportunity to work on a ground-breaking project that addresses the number one concern of Generation Z - the future of the environment - with a world class Extended Reality (XR) creative technology innovation team. The candidate would work at Factory 42 with senior management to explore business models and commercial opportunities for a new form of XR experience that is designed to engage audiences with the natural world in new ways.

This innovative product will build on the R&D findings behind the high-profile activation of the Green Planet AR Experience and will address the future of the natural world and protecting the planet. The successful candidate will work closely with Factory 42 senior management in helping to define how we create a commercially sustainable product via a review of audience research and the competitive landscape, then clarifying the best business models, revenue streams and pricing mechanics. The role would also help explore which collaborative commercial partners to work with in the UK and internationally and why, as well as working closely with the team to build a business case to attract investment into the project in future.

The successful candidate will receive mentoring from the company's Chief Financial Officer, and will have regular interaction with other members of the team including the Founder and CEO. They will have the opportunity to attend weekly creative review meetings, all hands meetings and daily sprint stand ups. The placement will take place as much as possible at Factory 42's riverside offices at Somerset House in central London - allowing the candidate to experience the exciting and fast-paced environment of a start-up at the forefront of the XR revolution.

What skills you'll bring:

- Experience of researching and analysing new commercial and product markets and opportunities
- Ability to write up succinct reports with evidence driven recommendations
- An interest in technology and consumer behaviour
- An understanding of the XR market would be a definite advantage - but not a must

The ideal candidate will be highly motivated and a clear communicator who is able to work collaboratively in a fast-paced environment.

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About Factory 24:

Factory 42 is a multi-award-winning immersive technology and experience studio.

We combine the science of stories with the magic of technology to make impact entertainment - entertainment that ignites curiosity and creates impact. Credits include the multi-award-winning Green Planet AR Experience, powered by EE 5G, with BBC Studios and Sir David Attenborough, Time Out's Best New Theatre-rated Lost Origin with Almeida Theatre and Sky, and SxSW 2018 official selection Hold the World VR Experience, with Sir David Attenborough.

Factory 42 is based in Somerset House, a former Royal Palace overlooking the River Thames and on the edge of Covent Garden.

Somerset House is home to the largest and most diverse collection of creative organisations, freelancers, artists, makers and thinkers in London.

Our neighbours include the British Fashion Council, the Courtauld Institute of Art and an eclectic range of producers, developers, musicians, dancers, marketeers and artists.

Our first floor, high-ceiling and light-filled office overlooks the River Thames, South Bank and Houses of Parliament.

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Nexus Studios (1): Realtime 'Performance' and Animation - New Economic Applications

The opportunity:

Nexus Studios are leading innovators in the world of animation, using motion capture and immersive technologies to create animated content in realtime. With the flourishing of realtime engines (Unreal and Unity) and powerful GPUs, it is now possible to fully render high fidelity output without typical render farms and comping. With improved shaders, it is possible to create outputs that are as diverse as animation styles. Using motion capture suits and computer-vision based tracking systems, the physical 'performance' data of actors, athletes, singers, and more, can be reliably extracted, with this information then used to transform, stream, or add layers onto the physical performance. Nexus Studios are already exploring the storytelling possibilities of these technologies, with projects around live digital puppetry and realtime animation. Between sport, acting and beyond, there is a dizzying array of potential applications, creating new forms of media and new interaction points between the audience and the performers.

This placement will involve exploring and evaluating potential markets and audiences for realtime performance and animation, identifying the top candidates for future investment and prototyping, and light financial modelling of the opportunities for each.

The successful individual will be embedded within an exciting large-scale R&D team ranging from producers and directors to creative technologists and more - working with major US sports leagues and one of the largest streamers in the world as part of an ongoing R&D collaboration. There would be an opportunity to work with the team in the studio in Shoreditch, London (ideally two days per week), gaining hands-on experience and access to mentoring.

What skills you'll bring:

- Strong research and numeracy skills, that will be used to research growing markets and to produce financial models
- An understanding of current modes of media consumption, and where this technology might have most impact
- An interest in immersive technologies and animation

Nexus Studios (2): Realtime Animation - the Impact of 'Liveness' with Animation

The opportunity:

Nexus Studios are leading innovators in the world of animation, using motion capture and immersive technologies to create animated content in realtime. With the flourishing of realtime engines (Unreal and Unity) and powerful GPUs, it is now possible to fully render high fidelity output without typical render farms and comping. With improved shaders, it is possible to create outputs that are as diverse as animation styles. Using motion capture suits and computer-vision based tracking systems, the physical 'performance' data of actors, athletes, singers, and more, can be reliably extracted, with this information then used to transform, stream, or add layers onto the physical performance. Nexus Studios are excited by where the element of 'live performance' in animation can take us (see an example of their work here), and would like to work with a placement student to investigate the importance of 'liveness', in terms of how audiences value this quality, and how best to communicate it to an audience.

This placement will involve qualitative and quantitative research around the value of 'liveness', and how this kind of technology might benefit audiences and creators alike. The successful individual will be embedded within an exciting large-scale R&D team ranging from producers and directors to creative technologists and more - working with major US sports leagues and one of the largest streamers in the world as part of an ongoing R&D collaboration. There would be an opportunity to work with the team in the studio in Shoreditch, London (ideally two days per week), gaining hands-on experience and access to mentoring.

What skills you'll bring:

- An understanding of qualitative and quantitative user research, and how this might be used to tailor experiences to push the novel and valuable aspects of this technology
- An interest in immersive technologies and animation

About Nexus Studios:

Nexus Studios is a global creative studio working at the cutting edge of creative technology and fostering world-class talent to produce immersive, branded and film & episodic content. With studios in London, LA and Sydney, they harness the power of emerging technologies to create meaningful experiences across the XR and Interactive spectrum. Their prolific output includes the Emmy nominated Google Doodle turned VR and AR stories, the 5G Dallas Cowboys and AT&T experience, the world's first AR wayfinding character - the HotStepper, and the Real-Time digital puppetry live show for Amazon and Critical Role. Clients include the likes of Netflix, Niantic, Disney, BBC, Sony, Google, Apple, Headspace and Meta.

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ScanLAB Projects (1): 4D Photogrammetry Timelapse capture on synchronised iPhones

The opportunity:

ScanLAB Projects would welcome an applicant to contribute to R&D of the next generation of tools used to create Timelapse 3D scans.

For the past 3 years ScanLAB has been recording timelapse LiDAR data across the British landscape to measure landscape scale change in our environment. This body of work is called FRAMERATE and consists of millimetre precise datasets (pointclouds), which are actively used in science and engineering, as well as a growing body of Artistic work based on that data, described here. To date, our timelapse LiDAR data has been collected using very precise, but large and expensive terrestrial LiDAR instruments. ScanLAB's next big R&D project is to invent a new toolchain to leverage sensors readily available to consumers to capture accurate 3D timelapses so that they can be used by many, quickly and cheaply all around the world.

This placement will involve writing code and conducting experiments to utilise multiple iPhone cameras & LiDAR sensors to construct a networked array capable of collecting imagery and 3D data for photogrammetry. Challenges include synchronising camera shutters, management of data, and communication of said data back to the processing node. No such solutions exist in the market today.

The successful individual will be supported by the Technical Director, Software Engineer and Pointcloud Artist, with mentoring provided throughout the placement from Senior Leadership. The individual will have the opportunity to attend the company's studios in central London, and experience first-hand technical R&D within a leading immersive company.

What skills you'll bring:

We welcome applications from individuals with a combination of the following skills (not necessarily all of them), and are open to shaping the project collaboratively, depending on the skills and interests of the individual.

- Experience in iOS development languages: Swift and/or Objective C
- Comfort (or curiosity) working across software architecture, research, and debugging/problem solving
- Preferred: experience with AVFoundation and/or iOS Network frameworks
- Preferred: knowledge of 3D scanning, photogrammetry, and/or LiDAR/true depth capture would be an advantage - but not a requirement

ScanLAB Projects (2): Sharing 3D moments in engaging and delightful ways on iOS

The opportunity:

ScanLAB Projects would welcome an applicant to contribute to R&D of the next generation of photography - prototyping and creating a ScanLAB-grade user experience to interrogate and share 3D media captured on iPhone.

ScanLAB Projects is actively working on R&D to capture and work with 3D media natively on Apple devices and silicon. While there are plenty of solutions on iOS to create point clouds, there are no solutions on the market to interrogate and create artistic 3D media from iOS depth sensors or share it. Part of our next big phase of R&D projects is to dive deeper into the UI and UX mechanics of interrogating, editing, and sharing 3D moments.

This placement will involve prototyping UI, writing code, and conducting experiments to explore editing and sharing beautiful 3D moments on iPhone. We have a strong understanding of the workflow and creative differences in editing and publishing media created from real-world 3D data (vs 2D photos and video); we believe a native expression for quick edits and previsualization on device will be a powerful app for in-house use, and for consumers.

The successful individual will be supported by the Technical Director, Software Engineer and Pointcloud Artist, with mentoring provided throughout the placement from Senior Leadership. The individual will have the opportunity to attend the company's studios in central London, and experience first-hand technical R&D within a leading immersive company.

What skills you'll bring:

We welcome applications from individuals with a combination of the following skills (not necessarily all of them), and are open to shaping the project collaboratively, depending on the skills and interests of the individual.

- Experience in iOS development languages: Swift and/or Objective C, Unity
- An interest in the artistry of photography and video
- Experience with any sort of 3D media or in 3D space (games, effects, camera animation, modelling, etc)
- Comfort (or curiosity) working across UI architecture, research, and debugging/problem solving
- Preferred: comfort working in a prototype-to-production workflow
- Preferred: knowledge of 3D scanning, photogrammetry, and/or LiDAR/true depth capture would be an advantage - but not a requirement

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About ScanLAB Projects:

ScanLAB Projects is a pioneering creative practice.

We digitise the world, transforming temporary moments and spaces into compelling permanent experiences, images and film. We design online environments, immersive installations and objects.

Our primary medium is 3D scanning, a form of machine vision that we argue is the future of photography and much more beyond. As the electronic eyes for billions of mobile phones and driverless vehicles, 3D scanners are the cartographers of the future. By critically observing places and events through the eyes of these machines our work hopes to glance at the future we will all inhabit.

Founded in 2010, we have worked with leading architects, broadcasters, scientists and artists from across the world. ScanLAB operate from concept, through on location scanning, to delivered product. Our work has featured in major TV documentaries and cinema screenings, and been widely published and exhibited internationally.