

SEAHA

CENTRE FOR DOCTORAL TRAINING IN
SCIENCE AND ENGINEERING IN
ARTS HERITAGE AND ARCHAEOLOGY

SEAHA Studentship: Mass digitization and metadata enrichment of 3D cultural heritage artefacts by automatic and user-based metadata acquisition

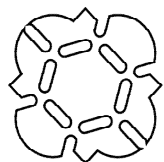
The EPSRC Centre for Doctoral Training in Science and Engineering in Arts, Heritage and Archaeology at University College London (UCL), University of Oxford and University of Brighton (www.seaha-cdt.ac.uk), in collaboration with the Fraunhofer Institute for Computer Graphics Research (Darmstadt, Germany) (www.igd.fraunhofer.de/en/Institut/Abteilungen/Digitalisierung-von-Kulturerbe), and the Brighton Royal Pavilion and Museums (www.brighton-hove-rpml.org.uk/), is seeking applications for one fully funded studentship on the above topic. Funded by the Engineering and Physical Sciences Research Council (EPSRC) through the Centre for Doctoral Training and co-funded by Fraunhofer IGD, the four year doctoral research programme will be supervised jointly by University of Brighton School of Computing, Engineering and Mathematics (about.brighton.ac.uk/cem/), Fraunhofer IGD and the Brighton Royal Pavilion and Museums. The first year of your study will be based at UCL, London, the final three years in Darmstadt/Brighton. The award will be subject to a Grant Agreement between UCL, University of Brighton, the Fraunhofer Institute for Computer Graphics Research and the Brighton Royal Pavilion and Museums.

As the technology for high fidelity 3D digitization of complex cultural artefacts advances, the demand for museums and heritage institutions to undertake large-scale acquisition campaigns becomes ever more pressing. Building on research in the 3D-COFORM project (www.3dcoform.eu), Fraunhofer IGD has recently developed a 'conveyor belt' approach for the mass digitization of cultural heritage artefacts. (See www.youtube.com/watch?v=sRLyEuzuF2A) Assessing the implications for cultural organisations of the availability of such mass digitization technology requires exploration of their use both within the organisation and in collaboration with external users. Most importantly, effective management and exploration of collections depends on the acquisition not just of the artefacts themselves, but also of semantic metadata, providing annotation of, and linkage between, acquired assets in the collection. This PhD project aims to explore the potential for the application of mass digitization technology in cultural heritage organisations, and to develop tools and techniques for the enrichment of collections with metadata by automatic and user-based acquisition. The key research questions are:

- (i) What impact can mass digitization technology have on the working practices and core activities (conservation, documentation, education, research etc.) of cultural heritage organisations, and what metadata is required to support them?
- (ii) What new opportunities for automatic and user-based metadata acquisition are facilitated by such technology and what tools are required to support them?
- (iii) How can cultural heritage organisations deploy mass digitization and metadata acquisition approaches to undertake effective large-scale acquisition campaigns?

The research project will develop skills in the field of semantics and ontologies in the cultural heritage domain, the ability to manage metadata based on CIDOC-CRM, Dublin Core or EDM and underlying data formats such as RDF, RDFS, XML, n-Triples or TriG, and relational and non-relational databases (triple stores, SPARQL queries etc.). Key technical abilities for this project include: excellent programming skills in Java and optionally C# and C++, as well as experience with HTML5, JavaScript and Apache Tomcat. Some experience with computer graphics environments is desirable, and knowledge of the Repository Framework "Fedora Commons Repository" would be an advantage.

SEAHA is a Doctoral Training Centre at University College London (UCL), University of Oxford, and University of Brighton. SEAHA is funded by the Engineering and Physical Sciences Research Council (EPSRC).



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As a SEAHA student, you will have unparalleled access to research infrastructure and expertise across three universities and almost 50 heritage, research and industrial partners. In addition to the university doctoral training requirements, SEAHA students take part in an exciting range of cohort activities, ranging from residential events and group projects, to conferences and careers events. Please visit the SEAHA website (www.seaha-cdt.ac.uk) for details. This exceptionally interdisciplinary project will enable you to seek employment in any number of multidisciplinary environments: from academia to creative industries.

You will have an outstanding record in aspects of computer science related to the project (consistent with a first or upper-second in Computing Science) and will be able to demonstrate knowledge and commitment within a cultural context. Excellent proficiency in the English language is mandatory and knowledge of the German language is encouraged. Professional experience in industry would be an advantage. For further details contact Dr. Roger Evans, R.P.Evans@brighton.ac.uk.

The SEAHA Studentship will cover home fees and a stipend of up to a maximum of £16,726 per year (current rate) for eligible applicants (<http://www.seaha-cdt.ac.uk/opportunities/eligibility-criteria/>), and a substantial budget for research, travel, and cohort activities.

The application should include:

- A covering letter clearly stating your motivation
- The UCL graduate application form which can be downloaded via UCL's web site: <http://www.ucl.ac.uk/prospective-students/graduate/apply/apply-now/ucl-graduate-application-form.pdf>
- Two academic references
- A copy of your degree certificate(s) and transcript(s) of degree(s),
- Proof of meeting the UCL English language proficiency requirements where necessary. For SEAHA candidates, an advanced level certificate is normally required (details of English language proficiency requirements can be found at <http://www.ucl.ac.uk/prospective-students/graduate/apply/english-language/index>)
- A short research proposal (max. 2000 words) written by taking into consideration the above research questions.

The applications should not be submitted by UCL online admissions system. Instead, they should be sent directly to:

SEAHA Manager
manager@seaha-cdt.ac.uk
UCL Centre for Sustainable Heritage
Faculty of the Built Environment
UCL
14 Upper Woburn Place
London WC1E 0NN

UCL Taking Action For Equality.

Application deadline: 1200 (noon) 13 August 2014; thereafter the position will remain open for applications until filled. Interviews are expected to take place in the first week of September.

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