

PhD Studentship: Building Information Modelling (BIM) and Linked Data Applications for Building Operational Efficiency

Applications are invited for a PhD studentship in the area of Building Information Modelling (BIM) and Linked Data Applications for Building Operational Efficiency at the School of Engineering and Sustainable Development, De Montfort University. The student will be supervised by Professor Ljiljana Marjanovic-Halburd.

In offering this scholarship the University aims to further develop its proven research strengths in the area of built environment. It is an excellent opportunity for a candidate of exceptional calibre to contribute to a stimulating, world-class research environment.

Applications are invited from the UK, EU and overseas students with a Master's degree or good first degree (First, 2:1 or equivalent) in a built environment, computing or engineering field. Doctoral scholarships are available for up to three years full-time study commencing in July 2018 consisting of a bursary of **£15,000** per annum in addition to waiver of tuition fees. Please note that the scholarship only covers the value of home/EU fees, overseas applicants would have to arrange to pay the difference between the home/EU and overseas fees.

Research Topic

As part of UK Government efforts to meet carbon reduction targets and cost reduction together with improving the quality and efficiency within the construction industry, Building Information Modelling (BIM) is identified as a crucial strategy and tool in meeting these targets. BIM is the process through which the data for planning, design, construction, operation and maintenance can be integrated through a unified model using graphic and non-graphic machine readable attributes for each facility/building component, new or old, which contains all appropriate information created or gathered throughout the building life cycle.

The basic BIM premise is that the ability to store and exchange information in a transparent and unambiguous manner will have transformative impact, and create the opportunity for the development and delivery of disruptive new approaches in built assets design, construction and operation and new business and procurement models. However the success of so-called BIM level 2 (current legislative minimum) has been so far limited and there is no obvious next step in progressing to level 3.

Various specialised knowledge domains such as those within the specific AEC-FM industries tend to maintain their own data structure, content, and value standards, tailored to serve their specific core users. For example, a word 'zone' has very different meaning for architects, construction, MnP engineers, energy consultants.

There is an obvious urgent need for research in developing fit for purpose information management and modelling frameworks, processes, models and controls for different types of data (asset operations and geospatial; sensor and user/social), life-cycle phases, business models and scales of built environment assets. The value proposition to enhance the BIM systems through the integration of Semantic technologies in AEC-FM seems like the next logical step.

The application of existing information technologies (such as semantic web for example) is expected to address the proliferation of schemas and standards related to metadata to facilitate the exchange and sharing of data prepared according to different metadata schemas and to enable cross-domain searching. A key concept in attaining direct metadata exchange and/or sharing in the AEC-FM domain is BIM.

How to apply

The potential applicants are to expected to submit a research proposal as part of their application in order to demonstrated their research aptitude and familiarity with identified area of research. This proposal, no longer than 3 pages including references, should clearly evidence the purpose of the specific problem you propose to investigate, an indication of the methods you expect to use and, finally, the resources you will need to access to complete your research.

To apply, please email Prof Ljiljana Marjanovic-Halburd (ljiljana.marjanovic-halburd@dmu.ac.uk) with your research proposal, a covering letter and a full CV (including contact details for at least two academic referees plus marks/grades achieved on current courses). The covering letter, no more than a page long, should outline your personal interest in researching the suggested topic.

The closing date for applications is 15th May 2018. Interviews will be held in June 2018. The successful candidate will then submit the PhD application via Graduate School Office.