**UNIVERSITY COLLEGE LONDON**

**Job Description and Person Specification**

**Job Title**: PhD Studentship in Real-time Data Fusion for Image-guided Fetal Surgery

**Department**: Medical Physics and Bioengineering

**Subsection**: Translational Imaging Group (TIG) within the Centre for Medical Imaging Computing (CMIC)

**Duration** : 4 years (1st year MRes followed by 3 years PhD)

**Stipend:** £16,851 per annum tax-free, full fees paid.

**Project outline:**

Applications are invited for a PhD funding opportunity based within the Translational Imaging Group of the Centre for Medical Image Computing at UCL, commencing in September 2014.

UCL was recently awarded £10million to develop better tools and imaging techniques that will improve the success of surgery and other therapies on unborn babies in collaboration with KU Leuven, Great Ormond Street Hospital and University College London Hospital. As part of this widely scoped endeavour, different imaging modalities such as pre-operative MR, real-time ultrasound and intra-operative photoaccoustics will be introduced to guide the surgery. While the addition of imaging sources may provide decision-changing information, there’s a clear need for computational tools that would help the physician in correlating these images and fusing them for efficient surgery guidance. While image fusion is a very active field of research, developing it for fetal surgery poses major methodological challenges due to the large movements that may occur between the pre-operative images and the intra-operative ones but also during the surgery itself.

This PhD project will consider new methodologies for image fusion by borrowing models and concepts from medical image registration, computer vision and machine learning. Candidates with a strong interest in the following areas are encouraged to apply: medical image registration, statistical/machine learning, computer vision, and translational applications of medical image computing, real-time image processing. Informal enquiries to Prof. Seb Ourselin are welcomed.

**To apply**: Please go to: <https://www.prism.ucl.ac.uk> . Under "Opportunities" there is a scroll down box with the title of this project. Please click the Apply Now button.

The studentship compromises of fees and a tax-free stipend of £16,851 per annum. In order to qualify candidates must be UK/EU passport holders or qualify for UCL home fees status.

If you wish to discuss this opportunity, please contact Prof. Seb Ourselin ([s.ourselin@ucl.ac.uk](mailto:s.ourselin@ucl.ac.uk)) or Dr. Tom Vercauteren ([t.vercauteren@ucl.ac.uk](mailto:t.vercauteren@ucl.ac.uk) ) but please note applications need to be submitted using the above instructions.

**Deadline for applications**: **Friday, July 11th, 2014**

**Person Specification:**

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|  | **Essential** | **Desirable** |
| **Knowledge, Education, Qualifications**  **and Training**  Upper Second Honours degree (or equivalent) in Physics, Engineering, or Computer Science from a recognised university. | \*\*\* |  |
| **Skills and/or Abilities**  Strong mathematical abilities  Strong problem solving abilities  Good understanding of the basis for medical imaging (MRI, Ultrasound)  Ability to develop computer object-oriented software using C++ and python  Understanding of the principles and practice of digital image processing and medical image analysis  Ability to work effectively within a collaborative environment  Proficiency in MATLAB programming  Excellent written and spoken communication skills in English | \*\*\*  \*\*\*  \*\*\*  \*\*\*  \*\*\*  \*\*\*  \*\*\* | \*\*\* |
| **Experience**  Experience of algorithm and software development for medical image analysis, digital image processing or computer vision. | \*\*\* |  |
| **Other requirements**  Strong interest in medical image analysis and the application of imaging technology to solving medical problems | \*\*\* |  |