

School of Electronic Engineering and Computer Science (EECS)

PhD CASE Studentship in collaboration with Focusrite/Novation

Semantic Audio: bringing audio signal analysis together with future internet technologies

Applications are invited for a PhD Studentship starting in September 2012 to undertake research, supervised by Professor Mark Sandler, in the area of **Semantic Audio**. This is an important emerging research area in Sound and Music Computing, pioneering the technologies that underpin new user experiences of music, from the recording studio to the living room.

The project is concerned with analysis of musical content where it is created (typically in studios), thus affording much cleaner computer representation of musicological information in the music that can then be used both to enhance consumer experiences and recording studio practices. We base the representation on RDF and ontologies, which are the technologies that underpin Open Data, Semantic Web and the Internet of Things. We have collaborated with organisations such as BBC, MusicBrainz and the British Library in developing these principles.

Content (e.g. music, film, tv) recommendation and discovery is reaching a level of maturity (for example, last.fm and Genius). But today, these content descriptions and semantics are derived from the *finished product* (e.g. CD, MP3, DVD). The research question explored in this PhD relies on performing the audio signal content analysis at the *point of content creation*. By using ontologies and RDF (Resource Description Framework – a superior version of XML), many new user modalities are enabled. For example, new and complex user queries/searches of the form, “find songs in A minor, with lead and rhythm guitars, less than 2m30secs, and a rhythm that modulates between 90 and 120 beats per minute”. Not only can content semantics enhance the listener/consumer experience, they also enhance the workflow in the recording studio. This is where Focusrite’s interest lies, and especially integration with OSC.

This studentship, funded by a Queen Mary EPSRC Doctoral Training Account, will cover student fees and a tax-free stipend starting at £15,590 per annum. This studentship is a CASE award and attracts an additional stipend of £5,200 per annum. Further details of the EPSRC scheme including terms and conditions can be found here: www.epsrc.ac.uk/funding/students/dta/Pages/default.aspx

Applicants must be UK nationals or residents as defined here:

www.epsrc.ac.uk/funding/students/pages/eligibility.aspx

Candidates should have a first class honours degree or equivalent (and preferably a Masters Degree) in any relevant area including Electronic Engineering, Computer Science, and Music Technology. The ideal student should be proficient at programming, with experience in one or more of the following: digital signal processing, machine learning, semantic web, ontologies, RDF, XML. A background in musical theory, performance or composition is also helpful.

Informal enquiries can be made by email to Prof. Mark Sandler (mark.sandler@eeecs.qmul.ac.uk). **To apply please follow the on-line process** (see www.qmul.ac.uk/postgraduate/apply) by selecting “**Electronic Engineering**” in the “A-Z list of research opportunities” and following the instructions on the right hand side of the web page.

Please note that instead of the 'Research Proposal' we request a 'Statement of Research Interests'. Your Statement of Research Interest should answer two questions: (i) Why are you interested in the proposed area? (ii) What is your experience in the proposed area? Your statement should be brief: no more than 500 words or one side of A4 paper. **In addition** we would also like you to send a sample of your written work. This might be a chapter of your final year dissertation, or a published conference or journal paper. More details can be found at: www.eecs.qmul.ac.uk/phd/apply.php

The closing date for the applications is 31st. January 2012.

Interviews are expected to take place during February 2012.