Music Technology: Pedagogy and Research @ the University of Limerick

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Abstract

Music Technology at the University of Limerick (UL) was developed in 1994, with full educational provision in 1997. It is unique in that is exists entirely within a computer science department. This paper presents an overview of its pedagogy and research.

Introduction

The University of Limerick is Ireland’s most recent university. It is located within a 600-acre green-field site of the National Technological Park, and situated on the banks of the Shannon river in the mid-West of Ireland. It provides undergraduate and postgraduate education to over 12,000 students, has a 1200-seater concert hall (with variable acoustics), and resident professional dance troupe (Daghdha Dance) and orchestra (Irish Chamber Orchestra).

From its early incarnation as a National Institute for Higher Education, it developed from a strong technology base and is now engaged in developing an arts dimension. It sees this development as a logical flow from technology, and is entirely supportive of the cross-over between art and science. Music technology was the first area to be developed, followed by interactive media. Educational provision include two masters programmes: MA/MSc in Music Technology initiated in 1997, with MA/MSc in Interactive Media developed in 2000. The University of Limerick was the first Irish university to provide masters level music technology education. Development continues with a Digital Media stream in the undergraduate BSc in Computer Systems due in 2002.

Pedagogy

Music technology pedagogy is primarily centred around the Master in Music Technology degree. This programme was developed to meet the increasing demand for so-called cross-over specialists in arts and sciences within the Irish music, media, and software industries. In addition to meeting this need, it also functions as an outlet for faculty research, with each module roughly corresponding to a faculty research interest. First offered in 1997, the MA/MSc in Music Technology is maturing into a world-class educational programme. It is a 12-month intensive course, with a 9-month taught component and a 3-month research project, and admits 15-20 postgraduates annually.

All modules, wherever possible, are music-focussed (assignments have a musical outcome and/or musical application). The designation (MA or MSc) is dependant on the 3 month project, taken over the Summer semester. An MA is awarded for composition and MSc for technology and/or science orientation (the department is quite possibly the only computer science department in world to award an MA with a composition major).

Compulsory modules include: Acoustics, Psychoacoustics, Programming (C++), Computational Models in Music, Electronic Arts I (philosophy, analysis, repertoire), Electronic Arts II (composition and performance), Programming Music Systems, Sound Synthesis/Manipulation, and Recording/Post-Production.

Elective modules include Operating Systems, Human Computer Interaction, and Music in 20th Century.

The music technology programme continues to develop close inter-departmental links within the university, and with local, national and international bodies. It has a close working relationship with the Irish World Music Centre (led by Professor Micheál Ó Súilleabháin), an internationally renowned research centre for the study of Irish Traditional Music.

The music technology students record all lunchtime concerts, and engage in cross-disciplinary projects (such as collaborations with the MA in Contemporary Dance (interactive dance composition), MA in Classical String Performance (showreel CD), and so on.). The Irish national ‘classical music’ broadcasting station, Lyric FM, is based in Limerick, with the UL music technology graduates assisting in a variety of capacities.
Resources

Newly opened in 2001, music technology is situated within a purpose-built state-of-the-art studios and labs complex. Spaces include control room, recording studio (live room), large isolation room, post-production room, 20-seater music technology lab, and 223-seater lecture/performance theatre. It is fully air-conditioned, with 24hr/7-day swipe-card access. Briefly it consists of top-flight Focusrite, Neve, Amek, Digidesign, Neumann, Lawson, Soundfield, ATC, Yamaha, Tascam, and so on. This includes 2 x ProTools expanded MixPLUS (250GB HD), ProControl surface, 2 x expanded Kyma/Capybara systems, and Yamaha Disklavier Grand Piano (more details at: www.ul.ie/~ccmcm/resources.html)

A key element is the IAPA proposal for a full department of music technology, in which we expect to fully participate.

Research

There is an active and broad research environment at the University of Limerick. In music technology, related interests range from: interactive dance systems (Litefoot, Z-Tiles), Ontology and Phenomenology of Computer Music, Sonic Browsing, Music Representation, NN/AI and Music, and surround sound algorithms. There is particular emphasis on computational musicology, cognitive musicology, interactive media, interactive inter-disciplinary composition and performance, philosophy of computer music, and music production (recording and post-production).

Personnel

Paschall de Paor (Course and Technical Director, MA/MSc in Music Technology): ontology and phenomenology of computer music, interactive composition, music production
Mikael Fernstroem (Course and Technical Director, MA/MSc in Interactive Media): sonic browsing, interactive dance floors, audio manipulation
Niall Griffith (Course Director, BSc Computer Systems): cognitive models in music, NN/AI in music
Donncha O Maidin (Head of Department, CSIS): score representation and analysis
Margaret Cahill (Music Technology): MIR through XML score/music representation
Dave Carugo (Music Technology): surround sound algorithms, live and studio recording production

Future

Music technology and interactive media at the University of Limerick continues to grow and develop, and is rapidly reaching a ‘critical mass’ of students, researchers, and faculty. The Irish Government has initiated the development of a new national centre for the development of performing arts, the Irish Academy of Performing Arts (IAPA, www.irlgov.ie/ealga/). IAPA proposes to have its postgraduate arm at the University of Limerick. The University has submitted plans for supporting this development, through a new IEP £24 million building complex (featuring such creative dimensions as spanning two bridges, with glass-floored rehearsal facilities over the river Shannon!).