

Research Concert: A Stark Mind & 11 Degrees of Dependence

Sunday 28 February 2016 | 15.00 | The House, Plymouth University

A Stark Mind



A Stark Mind is a new performance piece for a brain-computer music interface (BCMI), string instruments, and live visual projections.

A BCMI system provides a method of controlling music without any physical movement. The technology that has been developed here at ICCMR has significant implications for users with motor disabilities, such as paralysis and locked-in syndrome. *A Stark Mind* demonstrates the creative possibilities that such systems have, for users of all levels of physical abilities.

At the centre of this performance is a bespoke BCMI, designed to allow the brainwave performer to control a musical ensemble, with just their brain patterns. The brainwave performer has full control over a dynamic, visual score that is projected on-stage, which the string players read and play along to.

The brainwave performer controls their brain patterns to change the visual displays. Colours, lines and moving objects, all with their own associated musical attribute come to life. The piece has been composed so that each visual pattern has its own music that the musicians have already learnt.

The system also monitors the mood of the BCMI performer, and feelings such as joy, sadness, frustration and excitement all contribute to unpredictability in the visual score, and the resulting music.

Joel Eaton is a musician, developer and with a PhD in BCMI from the ICCMR, Plymouth University. Joel builds brain-computer music interface systems and has performed works at a range of events, festivals and conferences across the world. Recently, Joel's work has been featured by BBC News and on Channel 5's The Gadget Show. <http://www.joeleaton.co.uk>

PENINSULA ARTS CONTEMPORARY MUSIC FESTIVAL 2016

Frontiers: expanding musical imagination

11 Degrees of Dependence

Composed by Federico Visi.

Performers:

Katherine Williams: saxophone, motion sensors, live electronics.

Federico Visi: electric guitar, motion sensors, live electronics.

11 degrees of dependence is a piece for saxophone, electric guitar, motion sensors, and live electronics. The piece explores the relationship between the performers and their instruments, focusing on the constraints that instrumental practice imposes on body movement. The sensors capture movement and muscular activity data in real time and a machine learning algorithm compares it with gestures previously recorded by the performers. This way, live electronics are controlled through the body movements of the musicians in a way that blends with their playing style.

The piece is inspired by the studies of musical gestures and embodied music cognition and embraces the assumption that music is a multimodal medium. This implies that instrumental movements are not seen merely as a means to produce a certain sound, but rather as an expressive medium, working in conjunction to the aural features of the music. Movement is therefore an integral part of the score. This increases the awareness of the musicians' *kinespheres* (that is the portion of space the body is moving within and how the person pays attention and relates to it) and creates new challenges as well as new possibilities of expression and interplay.

Federico Visi

Interdisciplinary Centre for Computer Music Research (ICCMR) Plymouth University –

federico.visi@plymouth.ac.uk

Researcher, composer and performer. He is currently based in Plymouth (UK) where he is conducting his doctoral research at the Interdisciplinary Centre for Computer Music Research (ICCMR). His research focuses on body movement in performances with traditional musical instruments. He has composed music for films and installations, performed live in solo sets, with bands and in contemporary theatre and dance performances, and presented his research at several international conferences. He has worked and is currently working on collaborative interdisciplinary projects with researchers in Europe (Ghent University, University of Bologna), North America (NYU, UCLA) and South America (Universidade Federal do Rio Grande do Sul).

www.federicovisi.com

ICCMR
WITH
PLYMOUTH
UNIVERSITY

PENINSULA
ARTS
WITH
PLYMOUTH
UNIVERSITY

PENINSULA ARTS CONTEMPORARY MUSIC FESTIVAL 2016

Frontiers: expanding musical imagination

Katherine Williams is a musicologist and saxophonist based in the Music Department at Plymouth University. As well as lecturing in a traditional academic style, as Performance Coordinator she oversees all performance tuition, which includes both individual instrumental/vocal lessons and lecture-based ensemble work.

Katherine's research interests include jazz, popular music, music and gender, music and geography, and digital cultures. She has published in these areas (as detailed on her publications list), and maintains an active research presence nationally and internationally.

As a performer, Katherine is fluent in the idioms of classical, jazz and new music. While an undergraduate student at King's College London, Katherine studied classical saxophone at the Royal Academy of Music with Professor Richard Addison. She simultaneously trained in jazz saxophone with Pete Long. Katherine has performed with and coached a variety of ensembles, including the University of London Big Band, the National Youth Jazz Orchestra, and the University of Nottingham Philharmonia. More recently, she has performed with Plymouth University Orchestra, the University of Bristol's New Music Ensemble and Contemporary Music Venture, and the Bristol Metropolitan Orchestra. Katherine is currently commissioning works for and performing her own contemporary music and live electronics project, Venturing Out.

Her music can be heard here: <https://soundcloud.com/kwilliams1-2>

NEXT EVENTS in the Peninsula Arts Contemporary Music Festival 2016:

Sonification of Dark Matter

Sun 28 Feb 1600-1630 | IVT The Dome, Plymouth University FREE

Research Concert - Bat Wars: The Four Awaken

Sun 28 Feb 1800-1900 | Theatre 1, Levinsky Building FREE