

Concert 2 - July 5th, 12h00

wood, metal and tension - for violin and electronics

Cárthach Ó Nuanáin (Cork School of Music)

This piece continues a cycle of compositions known as *Materials* that explores the interaction between acoustic instruments and real-time analysis and intelligent organisation of timbres using concatenative synthesis. In a process that is antithesis and antagonistic of Big Data, I am fascinated by the seemingly endless sound shapes and sonic events that can be squeezed out of smaller, intimate collections of carefully-curated sounds through selection and myriad post transformations that render the original unintelligible.

The piece is built around the *Deacon* [<https://github.com/carthach/deacon>] instrument where collections of sound samples are loaded into a Max/MSP device that segment the samples by onset times then analyse their spectral, timbral and perceptual characteristics. The device can then listen to live input and select and play the closest matched samples using those timbral fingerprints.

The instrument was conceived for my acousmatic piece *Sem Cordas*, selected as a highlight work of the International Computer Music Conference in 2021 [<https://artes.uc.cl/noticias/concierto-presenta-las-mejores-obras-musicales-en-formato-acusmatico-y-audiovisual-de-la-icmc-2021/>]. I first experimented by recording long improvisations with a detuned Irish tenor banjo, exploiting the sharp attacks to create curious collisions of sounds with the computer. Hours of material was then edited down to form the cohesive piece I was satisfied with.

Since then I have elaborated instrument and technique to enable live performance with other instrumentalists. This brought with it significant challenges. The instrument needed to be refined to be less chaotic, more controlled and efficient in its role as automaton accompanist. A notation system was devised using MuseScore and Inkcape to engrave graphic scores to help human performers navigate a piece. This culminated in *metal and air* for flute and electronics - first performed in 2022 [<https://soundcloud.com/carthach/metal-and-air-flute-and-electronics>].

wood, metal and tension for solo violin and electronics renews a focus on mechanical and digital materiality. The corpus of sound curated is thematically related to the physical qualities of the violin, and includes recordings of wooden string-based instruments like the bouzouki and fiddle along with metallic impacts, scrapes and other electronic noises from sampled sources and synthesisers.

The piece is divided into 4 sections according to the electronic material that responds to the violin player's performance.

Section A is mostly percussive, noisy electronics with corresponding extended techniques for the violin. Section B contains more coherent pitched material for both electronics and violin. Section C combines material and approaches from A and. Section D concludes with dissipating harmonics coupled with bouzouki samples.

Sound spatialisation of the electronic sources is achieved using the E4L open-source tools for Ambisonics 3D panning [McArthur, Angela, et al. "A survey of 3D audio through the browser: practitioner perspectives." 2021 Immersive and 3D Audio: from Architecture to Automotive (I3DA). IEEE, 2021.]. This allows flexible deferral of final speaker configuration to the point of performance.

Vitor Vieira (ESMAE), violin

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