

# Cárthach Ó Nuanáin

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Born: January 13, 1985 – Cork, Ireland

## Education

2018 PH.D. in Computer Music, Universitat Pompeu Fabra  
2009 M.PHIL. in Music & Media Technologies (First Class Honours), Trinity College Dublin  
2007 B.Sc. in Computer Science (First Class Honours), University College Cork

## Languages (in order of competence)

English, Irish, Spanish

## Professional Experience

2020 - Present *Lecturer/Researcher* - MTU Cork School of Music

2021 - Present *Freelance (Misc. Roles)*

- Audio development and project management w/ companies like LoopMasters, Massive Music, Infinite Album
- Sound design and studio work with Graffiti Theatre, Lightbulb Theatre and Flashpoint (with support from The Arts Council and Cork County Council Arts Office)

2019 - 2021 *Head of Audio Analysis* - Andrson Music, Dublin

- Lead music and audio research effort for sound-based artist discovery app Andrson.

2017 - 2019 *Audio Programmer & Consultant* - Melodrive Inc., Berlin

- Co-developed the Melodrive Audio Engine - a real-time composer for interactive media
- Lead developer of "The Sauce", a custom audio effects plugin built for Grammy-award winning producer/engineer DJ Swivel

2010-2013 *Audio Producer/Engineer* - Microsoft Ireland, Dublin

- Managed audio localisation on games like Halo, Forza and Gears of War
- Engineer on car recording sessions at Ferrari and Bugatti factories.
- Sound design and effects processing for Xbox Live Arcade

## Teaching Experience

- 2020-Present *Lecturer* - Cork School of Music / Munster Technological University
- Masters - Computer Music I&II for Music & Technology
  - Masters/Undergraduate - Interpreting Sound & Music
  - Misc. research, supervision and collaboration
- 2016-017 *Assistant Lecturer* - Universitat Pompeu Fabra
- Undergraduate - Digital Synthesis and Real-time Audio Programming in Pd (Spanish/English)
  - Masters - Digital Synthesis, Effects and Musical Instruments
- 2016 *Teaching Assistant* - Universitat Pompeu Fabra
- Undergraduate classes in C programming fundamentals (in Spanish)
- 2009-2014 *Lecturer* - Pulse Recording College, Dublin
- Courses and workshops in Interactive Programming, Multimedia and Web Design
- 2005 *Lab Tutor* - University College Cork
- Supervised lab sessions for 1st years in Internet Computing.

## Publications

### BOOK CHAPTERS CO-AUTHORED

- 2018 Ó Nuanáin, C., Herrera, P. & Jordà, S. (2018) *k*-Best Unit Selection Strategies for Musical Concatenative Synthesis, *Lecture Notes in Computer Science Series*, Springer.

### JOURNAL ARTICLES

- 2024 Ronan, I., Mi, Y., Vamsi Bharadwaj Yallapragada, V., Ó Nuanain, C., Tabirca, S. (2024). A Machine Learning Approach to 3D Protein Structure Sonification. *IJMSTA*. 2024 January 01; 6 (1): 9-18.
- 2017 Ó Nuanáin, C., Herrera, P. & Jordà, S. (2017) Rhythmic Concatenative Synthesis for Electronic Music: Techniques, Implementation, and Evaluation *Computer Music Journal*
- 2014 Vogl, R., Leimeister, M., Ó Nuanáin, C., Jordà S., Hlatky M., Knees P. (2016) "An Intelligent Interface for Drum Pattern Variation and Comparative Evaluation of Algorithms", *Journal of the Audio Engineering Society: Special Issue on Intelligent Audio Processing, Semantics and Interaction*

### PEER-REVIEWED PAPERS, POSTERS & PRESENTATIONS

- 2025 Ó Nuanáin, C., Giltinan, A. (2024) Ableson: Towards Cheap and Cheerful Sonification of Time Series Data. *Irish Human Computer Interaction Symposium (iHCI 24)*. Cork, Ireland.
- 2024 Ó Nuanáin, C., Viñuela E., Steinbach K., Corbat, Y., Sulamanidze S., López R. & O'Connor M. A Quantitative Survey of Digital Competencies of Music Teachers in the European Union. *Computer Supported Music Education (CSME24)*. Angers, France.
- 2024 Ó Nuanáin, C., Viñuela E., Steinbach K., Corbat, Y., Sulamanidze S., López R. & O'Connor M. Digital Skills for Music Teachers (DISK) - an Erasmus+ initiative for the digitisation of music education in Europe. *Open Education Conference 2024 (OER24)*. Cork, Ireland.

- 2020 Ó Nuanáin, C., O'Mahony, K., Maye, K., De Juan, A., Clarke, J., McCarthy, H. & Tucker, S. M. *Réaltacht: Creating Immersive and Accessible Experiences of Irish Traditional Music in Virtual Reality. International Symposium on the Internet of Sounds*, Pisa, Italy
- 2019 Ó Nuanáin, C., (2020) Infinite Theft: Reflections on the State of the Art in Musicing, Plunderphonics and Concatenative Sound Synthesis *Irish Sound, Science and Technology Association*, Cork, Ireland.
- 2017 Ó Nuanáin, C., Jordà, S., & Herrera, P. (2016) k-Best Hidden Markov Model Decoding for Unit Selection in Concatenative Synthesis *International Symposium on Computer Music Multidisciplinary Research*, Porto, Portugal.
- 2016 Ó Nuanáin, C., Jordà, S., & Herrera, P. (2016) An Interactive Software Instrument for Real-time Rhythmic Concatenative Synthesis. *Proceedings of the International Conference on New Interfaces for Musical Expression*, Brisbane, Australia.
- 2016 Ó Nuanáin, C., Herrera, P. & Jordà, S. (2016) An Evaluation Framework and Case Study for Rhythmic Concatenative Synthesis *Proceedings of the International Symposium on Music Information Retrieval*, New York, USA.
- 2016 Ó Nuanáin, C., Jordà, S., & Herrera, P. (2016) Towards User-Tailored Creative Applications of Concatenative Synthesis in Electronic Dance Music *4th International Workshop on Musical Metacreation*
- 2015 Ó Nuanáin, C., Herrera, P., & Jordà, S. (2015). Target-based rhythmic pattern generation and variation with genetic algorithms. *Proceedings of the 12th Sound and Music Computing Conference*.
- 2014 Ó Nuanáin, C, O'Sullivan, L (2014), "Real-time algorithmic composition with a tabletop musical interface: a first prototype and performance", *Proceedings of the 7th Audio Mostly Conference*

## Selected Works & Performances

- 2024 *Wood, Metal & Tension* - violin and spatialised electronics - @ SMC24, ESMAE, Porto, Portugal
- 2024 *This Ordered Life Pt.1* - Short Film and Live Electronics - @ Radical Humanities, Granary Theatre, Cork
- 2023 *Everything That Lies Beneath the Ice is Sacred* - Soundscape (for the Polar Sounds Project)
- 2022 *Metal & Air* - Flute and electronics - Cork School of Music, Ireland.
- 2021 *Sem Cordas* - Electroacoustic/Fixed Media - International Computer Music Conference, Santiago, Chile
- Additional performances: Concierto Resumen ICMC, Santiago, Chile (2022).
- 2017 *Grief Mechanics* - String quartet and electronics - w/ Matosinhos String Quartet @ CMMR 2017, Porto, Portugal
- 2016 *Untitled* - Three or more synthesiser - w/ Barcelona Laptop Orchestra @ NIU: Espai Artístic Contemporani, Barcelona, Spain.
- Additional performances: Phonos Foundation, Barcelona (2017)
- 2014 *Dissolve* - Fixed media - Radiophrenia 2016, United Kingdom (Scotland)
- 2016 *Cúige (Province)* - Multichannel soundscape - Sonic Environments, Brisbane, Australia
- Additional performances: Radiophrenia Festival Glasgow, UK (2019)
- 2015 *The Collapse of Histrionics* - Fiddle and electronics - Sound and Music Conference, Ireland
- 2013 *Codes 2.0* - Mapping & Interaction Design w/ Midas Spaces, Hong Kong
- 2009 *ReactAct* - Live Real-time Composition - Darklight Film Festival, Dublin
- 2009 *Bitstream Tornado* - Fixed Media - Dublin Electronic Arts Festival Artist Compilation
- 2009 *Fresh Intelligence* - Live Real-time Composition - Samuel Beckett Theatre, Dublin, Ireland

## Thesis Supervision

2021 - Present MA/MSc in Music and Technology. Cork School of Music, Cork. - Thesis Advisor and Examiner  
2017 Troes, T. (2017). *Measuring groove: A Computational Analysis of Timing and Dynamics in Drum Recordings. Master's Thesis.* Universitat Pompeu Fabra, Barcelona. - w/ Daniel Gómez

## Academic Service

2024 Dundalk Institute of Technology - Programme Validation (Paid)  
2022 New Interfaces for Musical Expression - Conference Papers  
2018 Workshop on Intelligent Music Interfaces for Listening and Creation - Workshop Papers  
2017 International Conference of Students of Systematic Musicology - Conference Papers  
2017 New Interfaces for Musical Expression - Conference Papers & Demos  
2016 New Interfaces for Musical Expression - Conference Papers & Demos  
2016 International Society for Music Information Retrieval - Conference Papers  
2015 International Society for Music Information Retrieval - Conference Papers  
2014 International Society for Music Information Retrieval - Conference Papers

## Artistic Service

2024 ACM International Conference on Tangible and Embodied Interaction - Arts Co-Chair  
2024 New Interfaces for Musical Expression - Concerts & Installations  
2024 European Commission - Creative Europe Expert Reviewer (Paid)  
2017 New Interfaces for Musical Expression - Concerts & Installations  
2016 New Interfaces for Musical Expression - Installations

## Awards & Scholarships

2021 Music highlight selection for ICMC Summary Concert 2022  
2017 Best Poster Award at International Symposium on Computer Music Multidisciplinary Research  
2016 Best Paper Award at New Interfaces for Musical Expression  
2015 Best Hack Award at Sónar Music Hackday  
2013 DTIC Ph.D. Fellowship, Universitat Pompeu Fabra  
2007 Title of College Scholar, University College Cork  
2004 Title of College Scholar, University College Cork

## Invited talks and panels

2023 MUSense Conference (Corfu, Greece) - Keynote Speaker  
2023 The Sound of AI Accelerator - Interview and Mentorship  
2020 How AI can help artists get their music discovered. Dublin Tech Talks. - Invited speaker  
2019 AI's Impact on Society: Utopia or Dystopia? Exploring AI's impact on future society. Blueyard, Berlin. - Panel member

## References

**Dr Sergi Jordà**

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**Dr Perfecto Herrera**

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