

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	<i>Lecturer/Researcher</i> - MTU Cork School of Music
2021 - Present	<i>Freelance (Misc. Roles)</i> <ul style="list-style-type: none">• 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	<i>Head of Audio Analysis</i> - Andrson Music, Dublin <ul style="list-style-type: none">• Lead music and audio research effort for sound-based artist discovery app Andrson.
2017 - 2019	<i>Audio Programmer & Consultant</i> - Melodrive Inc., Berlin <ul style="list-style-type: none">• 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	<i>Audio Producer/Engineer</i> - Microsoft Ireland, Dublin <ul style="list-style-type: none">• 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
- Course Coordinator - MA/MSc in Music & Technology
 - Masters - Computer Music I&II for Music & Technology
 - Masters/Undergraduate - Interpreting Sound & Music
 - Supervising of 3 fully-funded PhDs through SFI and TU Rise (EU)
 - MTU CSM Research Committee Member
 - MTU Ethics Committee Member
- 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.

Selected 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 Musaicing, 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 & Exhibitions

- 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
Additional performances: Unit 44, Dublin (2025)
- 2023 *Molecular Melodies* - multimedia installation - @ Culture Night, University College Cork
- 2023 *Everything That Lies Beneath the Ice is Sacred* - Soundscape (for the Polar Sounds Project)
- 2022 *Think Room* - Sound Design for Graffiti Youth Theatre and Artist in Residence Al Dalton
- 2022 *Home or Thereabouts* - Sound Design/Mentoring for Site Specific Theatre w/Lightbulb Youth Theatre as part of Creative Ireland Cruinniú na nÓg @ Tip O'Neill Park, Mallow Cork
- 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 Artistic 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

2025 MTU Creative and Performing Arts & Media Research Forum - Co-Chair & Organiser
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

2025 New Interfaces for Musical Expression - Music Reviewer
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 Recognition

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

2025	Research to Impact (MTU, Cork) - Interview
2025	EmpleARTE 2025 (Reina Sofía School of Music, Madrid) - Keynote Speaker
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

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