

FRANCISCO BERNARDO • PhD • AFHEA • MA • MSc • ENG

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RESEARCH EXPERIENCE

Postdoctoral Research Associate in Digital Musical Instrument Design – Imperial College, UK Oct 2024–current

- Led design, engineering, and evaluation of ultra-low latency, embedded, mixed-signal systems for audio (STM32H750, Altera DE-10 FPGA, SystemVerilog, Quartus Prime, high-speed analog–digital conversion, DSP).
- Extended open-source software libraries for virtual analog modelling with Wave Digital Filters (Python, C++).
- Published technical papers, organised a conference, delivered talks and seminars.

Postdoctoral Research Fellow in project Interfaces ([H2020 ERC-ADG 787413](#)) 09/2021 – 07/2024

University College London, UK – Multi-Sensory Devices Lab – UCLIC

- Led prototyping and evaluation projects with industry partners (Meta Reality Labs, Sony R&D, Ultraleap).
- Prototyped ultrasonic phased arrays and acoustic metamaterials for mid-air haptic interfaces (CAD, COMSOL acoustics simulation, acoustic field measurement, Python, electronics, C++, Verilog).
- Authored a computational design framework for metamaterials with automation of geometric modelling, finite elements and wave scattering simulation (Python, Fortran90, SALOME, ElmerFEM, Paraview).
- Generated synthetic datasets and applied machine learning for generative design and optimisation of acoustic metamaterials (COMSOL, Java, scikit-learn, Pytorch).
- Attended conferences, leadership courses, developed academic research collaborations, supervised students.

Postdoctoral Research Fellow in project ‘Innovating Sema’ ([AH/V005154/1](#)) 01/2021 – 09/2021

University of Sussex, UK – Experimental Music Technology Lab

- Authored a middleware for browser-based real-time signal processing and domain-specific language design.
- Led full-stack software development, design, and systems administration for <https://sema.codes>, a web-based live coding playground for audio and end-to-end machine learning workflows (Tensorflow.js, Web Audio API, C++, Web Assembly, Javascript, CSS, HTML, Svelte, Rollup).
- Produced workflows, documentation, and video tutorials and conducted user-based research to refine them.
- Organised community-building actions (4 workshops, 2 performances) and mentored two research interns.

Postdoctoral Researcher in project MIMIC ([AH/R002657/1](#)) 01/2019 – 07/2020

University of Sussex, UK – Experimental Music Technology Lab

- Core collaborator in the UKRI/AHRC -funded MIMIC project (University of Arts London, Goldsmiths College, Durham University, Sussex University, Google Magenta).
- Co-authored a new method for client-side browser compilation of domain-specific languages (DSL) for music and audio signal processing (won a Best Paper Award, published in the Audio Engineering Society).
- Co-created a new live coding system for machine learning and user community (<https://sema.codes>).
- Conducted mixed methods research (ethnography, usability evaluation, 5 workshops, 3 large scale surveys) to inform and improve the design of instructional content, video tutorials and user experience.
- Led frontend software architecture and engineering with high-performance Web technologies (Web Audio API, C++, Emscripten, WebAssembly, Javascript, CSS, HTML, Svelte, Webpack, Tensorflow.js).
- Organised community-building interventions (3 performances, 4 public talks and 2 summer schools).
- Core contributor to the MIMIC platform (<https://mimicproject.com>) and the Maximilian DSP library.

Doctoral Researcher in project RAPID-MIX ([EU H2020 ICT ID 644862](#)) 02/2015 – 12/2018

Goldsmiths, University of London, UK – Computing Department

- Structured a user-centred design research system for the RAPID-MIX consortium—3 European research centres and 5 music technology start-ups—MTG/Universitat Pompeu Fabra (ES), IRCAM (FR), Goldsmiths College (UK), ROLI (UK), Reactable Systems (ES), PLUX (PT), ORBE (FR), AudioGaming (FR).
- Co-designed a user-friendly machine learning development toolkit (<https://rapidmixapi.com>) which accelerated the

adoption by creative software developers (C++, Emscripten, Javascript, HTML).

- Led research interventions with machine learning researchers and creative developers (2 co-design workshops, 3 hackathons, 40+ interviews, ethnography, concurrent prototyping, cognitive walkthroughs, usability evaluation, mixed methods data analysis) which informed the development of 6 new products.
- Conducted systematic data collection, analysis and reporting for 12 official deliverables to the EU H2020 project officers, on findings, processes, design principles and recommendations for best practices, which contributed to the final official EU evaluation rating of “Excellent”.
- Produced 3 prototypes and middleware for visualisation, exploration, and musical interaction with millimetre-wave radar data as an individual contributor to the Google Soli Alpha Developers program.

Research Assistant in project VisualYzARt (ERDF–COMPETE, ID 23201)

05/2013 – 12/2014

Universidade Católica Portuguesa (UCP), Portugal

- Digital Arts research lead in the VisualYzARt consortium—YDreams, Universidade de Coimbra, UCP, Instituto Politécnico de Leiria, Instituto Politécnico de Santarém.
- Produced the state-of-the-art and market research and developed experimental prototypes for augmented reality and 3D natural user interfaces (Unity, C#, Vicon, Kinect, LeapMotion, PureData).

Research Assistant in project SituAction (POS-C/EIA/58832/2004)

05/2006 – 05/2007

University of Minho, Portugal – ALGORITMI Research Centre (Ubicomp group)

- Designed and developed middleware for sensor fusion, computer vision and video processing for context-aware applications for situated interaction with public screens.
- Conducted Human factors study, engaged a commercial partner, and published a paper.
- Contributed to the successful transfer of research products into a start-up product.

TEACHING EXPERIENCE

Teaching assistant – CS Department, University College London, UK

09/2020 – 02/2021

- Module: Algorithms and Data Structures for CS undergraduates.
- Delivery of seminars, evaluation and marking.
- Liaised with the module leader and other teaching assistants.

Visiting Lecturer and Module Leader – HCI Design Center, City, University of London

09/2020 – 02/2021

- Module: Information Architecture for MSc in Human-Computer Interaction Design.
- Development and delivery of lectures, seminars and teaching materials, evaluation and marking.
- Personal tutoring, supervision and pastoral care of students, and liaison with student representatives.
- Liaised with department head, coordinated teaching assistants, invited lecturers and industry practitioners.

Teaching assistant – School of Media, Film and Music, University of Sussex, UK

09/2019 – 01/2020

- Module: Interactive Music Systems – Music Technology undergraduate degree.
- Delivery of seminars, evaluation and marking, personal tutoring, and pastoral care of students.
- Liaised with the module leader and students’ representatives.

Summer course designer and facilitator – University of the Arts, London, UK

07/2019

- Course: Designing with Data and Interactive Machine Learning (5-day course) at the Creative Computing Institute.
- Engaged an external commercial partner (PLUX) to provide biosignals hardware toolkits for hands-on learning.
- Assembled a teaching toolkit for physical computing with Arduino and sensors and machine learning algorithms.
- Liaised with the institute manager and media teams for course promotion within the university.

Visiting Lecturer – Universidade Católica Portuguesa (UCP), Portugal

09/2014 – 12/2014

- Module: Interactive Sound Design and Dataflow Programming of the Digital Design postgraduation.
- Delivery of lectures, evaluation and marking.

Invited Lectures

- CS Department, University College London, UK – Creativity and Machine Learning, MSC in HCI 01/03/2025
- Technical University Berlin, Germany – Live coding with Sema (with Thor Magnusson) 01/07/2021
- Royal College of Art, UK – Masters in Product Design – Designing with Data and Machine Learning 12/02/2018
- UCP, Portugal – Master’s in Music Teaching – Research Strategy and Methodology Design 14/03/2014
- UCP, Portugal – Master’s in the Creative Industries – Research Strategy and Methodology Design 01/03/2014

INDUSTRY EXPERIENCE

Software Engineer – Cegid Primavera, Portugal 01/2011 – 03/2013

- Developed a modular software architecture and components for business analytics dashboards for OLAP and data warehousing in the Primavera Elevation SaaS (Silverlight, C#.NET, SQL Server, Analysis Services, WCF).
- Led the development for a mobile iOS app for ERP global sales indicators (Objective-C).

Software Engineer and Project Manager – Ubisign, Digital Signage, Portugal 05/2007 – 01/2011

- Advocated and accelerated the transition of a desktop software product to a cloud-based software-as-a-service, contributing to the company’s acquisition by a larger market player.
- Led architecture design and implementation of progressive Web applications for content orchestration and network and channel management for a digital signage SaaS (Silverlight, XAML, Prism, C#.NET, WCF, SQLServer).
- Developed a high-performance desktop multimedia system and video plugins (C#.NET, WPF and DirectShow).
- Created new products including a gesture-based interactive catalogue for multimedia kiosks with audience analytics for intelligent content segmentation (WPF, C#.NET, Kinect, Intel AIM, C++, DirectShow, OpenCV).
- Instituted best practices for architecture and engineering of complex Web user interfaces.

INDEPENDENT EXPERT EXPERIENCE

Independent expert evaluator for the European Research Executive Agency HORIZON Cluster 2 HERITAGE-04 program topic “Leveraging Artificial Intelligence for Creativity-Driven Innovation” 11/2025

EDUCATION

PhD in Computer Science – Goldsmiths, University of London 01/2020

- Thesis *Interactive Machine Learning for End-User Innovation: An Action Design Research approach*
- Supervisors: Rebecca Fiebrink, Mick Grierson

MA Management in Creative Industries – Universidade Católica Portuguesa 10/2013

- Dissertation *The Impact of Disintermediation in Independent Music Business Models* (Summa Cum Laude)
- Supervisors: Luís Gustavo Martins, Ricardo Morais

MSc Mobile Systems – University of Minho 09/2009

- Dissertation *Bluetooth Naming for Situated Interaction in Ubiquitous Environments*
- Supervisor: Rui José

BSc Computer Science and Systems Engineering (5-year degree, 300 ECTS) – University of Minho 09/2006

PUBLICATIONS

My publications are reported with their number of citations as available in my [Google Scholar profile](#)

(total citations: **304**, h-index: **10**, i10-index: **10** on January 30th, 2026):

- Bernardo, F., Davison, M., McPherson, A. (2025). Impedance Synthesis for Hybrid Analog-Digital Audio Effects. *Proceedings of the 28th International Conference on Digital Audio Effects (DAFx25)*, Ancona, Italy, 2–5 September 2025.

- Cornelio, P., Dawes, C., Maggioni, E., Bernardo, F., Schwalk, M., Mai, M., Pawlizak, S., Zhang, J., Nelles, G., Krasteva, N., & Obrist, M. (2022). Virtually tasty: An investigation of the effect of ambient lighting and 3D-shaped taste stimuli on taste perception in virtual reality. *International Journal of Gastronomy and Food Science*, 30, 100626. <https://doi.org/10.1016/j.ijgfs.2022.100626>
- Bernardo, F., Kiefer, C., & Magnusson, T. (2021). Assessing the Support for Creativity of a Playground for Live Coding Machine Learning. *Entertainment Computing–ICEC 2021: 20th IFIP TC 14 International Conference*.
- Bernardo, F., Kiefer, C., & Magnusson, T. (2020). A Signal Engine for a Live Code Language Ecosystem. *Journal of Audio Engineering Society*, 68(10), October Special Issue on Web Audio.
- Bernardo, F., Zbyszyński, M., Grierson, M., & Fiebrink, R. (2020). Designing and Evaluating the Usability of a Machine Learning API for Rapid Prototyping Music Technology. *Frontiers in Artificial Intelligence – Machine Learning and Artificial Intelligence*, 3. DOI:10.3389/frai.2020.00013
- Bernardo, F. (2020). Interactive Machine Learning for User-Innovation Toolkits: An Action Design Research approach. Doctoral thesis. London: Goldsmiths, University of London.
- Bernardo, F., Kiefer, C., & Magnusson, T. (2020). Designing for a Pluralist and User-Friendly Live Code Language Ecosystem with Sema. *5th International Conference on Live Coding, University of Limerick, Limerick, Ireland*.
- Bernardo, F., Kiefer, C., & Magnusson, T. (2019). An AudioWorklet-based Signal Engine for a Live Coding Language Ecosystem. In *Proceedings of Web Audio Conference 2019*, Norwegian University of Science and Technology (NTNU), Trondheim, Norway (Best Paper Award at Web Audio Conference 2019).
- Bernardo, F., Grierson, M., & Fiebrink, R. (2018). User-Centred Design Actions for Lightweight Evaluation of an Interactive Machine Learning Toolkit. *Journal of Science and Technology of the Arts (CITARj)*, 10(2), 25-38. DOI: <http://dx.doi.org/10.7559/citarj.v10i2.509>
- Bernardo, F., Zbyszyński, M., Fiebrink, R., & Grierson, M. (2017). Interactive Machine Learning for End-User Innovation. *Designing the User Experience of Machine Learning Systems. In Proceedings of Association for the Advancement of Artificial Intelligence (AAAI) Spring Symposium*, Stanford University, Palo Alto, CA.
- Bernardo, F., Arner, N., & Batchelor, P. (2017). O Soli Mio: Exploring Millimetre Wave Radar for Musical Interaction. *Proceedings of New Interfaces for Musical Expression 2017*, Aalborg University, Copenhagen, Denmark.
- Tilmanne, J., d’Alessandro, N., Barborka, P., Bayansar, F., Bernardo, F., Fiebrink, R., Heloir, A., Hemery, E., Laraba, S., Moinet, A., Nunnari, F., Ravet, T., Reboursière, L., Sarasua, A., Tits, M., Tits, N., & Zajéga, F. (2018). Prototyping a New Audio-Visual Instrument Based on Extraction of High-Level Features on Full-Body Motion. Technical Report, in *Proceedings of eNTERFACE 2015 Workshop on Intelligent Interfaces*, Mons, Belgium.
- Parkinson, A., Zbyszyński, M., & Bernardo, F. (2017). Demonstrating Interactive Machine Learning Tools for Rapid Prototyping of Gestural Instruments in the Browser. *Proceedings of Web Audio Conference 2017*, Queen Mary University of London, London, UK.
- Ward, N., Ortiz, M., Bernardo, F., & Tanaka, A. (2016). Designing and measuring gesture using Laban Movement Analysis and Electromyogram. *3rd Workshop on Full-Body and Multisensory Experience (BodySenseUX@UbiComp'16)*, Heidelberg, Germany.
- Bernardo, F., Pestana, P., & Martins, L. (2015). The Smart Stage: Designing 3D Interaction Metaphors for Immersive and Ubiquitous Music Systems. *International Conference on New Music Concepts (ICNMC 2015)*, Treviso, Italy - ISBN: 978-88-6551-188-6.
- Bernardo, F., & Martins, L. (2014). Disintermediation Effects on Independent Approaches to Music Business. *International Journal of Music Business Research (IJMBR) – issn 2227-5789* (Best paper award at Music Business Research Days 2013, Vienna, Austria).
- José, R., & Bernardo, F. (2009). Extended Bluetooth naming for empowered presence and situated interaction with public displays. *3rd Symposium of Ubiquitous Computing and Ambient Intelligence 2008*.

CONFERENCE PRESENTATIONS AND INVITED ACADEMIC TALKS

Invited academic talks

- “Impedance Synthesis for Hybrid Digital-Analog Audio Effects”, Design Engineering Research Symposium, Dyson School of Design Engineering, Imperial College London 15.11.2025
- “Reframing Interactive Machine Learning Toolkits: from Human-Centred Design to a New Materialist perspective”

- Design Engineering Seminar, Dyson School of Design Engineering, Imperial College London, UK 06.03.2024
- “Reflecting on current challenges of designing digital audio-visual composition tools to support creative practices”
Ubimus 2023, the International Symposium and Workshop on Ubiquitous Music, Ulster, Ireland 15.11.2023
- “The EU H2020 project RAPID-MIX” eNTERFACE'17 – 13th International Summer Workshop on Multimodal Interfaces, UCP, Porto, Portugal 03.07.2017
- “The Smart Stage: Designing interaction for immersive and ubiquitous music systems” – Encontro Nacional de Investigação em Música (ENIM), Lisbon, Portugal 22.11.2014
- “Disintermediation effects in the music business” – Vienna Music Business Research Days, University of Music and Performing Arts, Vienna, Austria 21.06.2013

AWARDS AND HONOURS

- European Commission w/o Seal of Excellence on H2020 Marie Skłodowska-Curie grant proposal (94.4%) 2024
- European Commission w/o Seal of Excellence on H2020 Marie Skłodowska-Curie grant proposal (93.0%) 2023
- European Commission Seal of Excellence on H2020 Marie Skłodowska-Curie grant proposal (91.2%) 2021
- Best Paper award at Web Audio Conference, Trondheim, Norway 2019
- Spotify Award at the Anvil Hack III at Goldsmiths’ Hacksmiths Tech society, London, UK 2017
- Best-in-Show award at the Sex Tech Hackathon, Goldsmiths, London, UK 2016
- Google ATAP Soli Alpha Developer prototypes selected (10/80) and featured at the Google I/O 2016
- PhD scholarship funded by the EU H2020 project RAPID-MIX 2015
- Best Paper award at Vienna Music Business Research Days, Vienna, Austria 2013
- Research grant awarded by Fundação da Ciência e Tecnologia (FCT), Portugal 2013
- The People’s Music Award in the *Off-the-Beaten* Music Category, London, with :papercutz band 2009
- Research grant awarded by Fundação da Ciência e Tecnologia (FCT), Portugal 2007
- Research grant awarded by Fundação da Ciência e Tecnologia (FCT), Portugal 2006

PUBLIC ENGAGEMENT

Workshop Leadership and Facilitation

- *Sema: Live Coding Music with Machine Learning in the Browser*, online workshop at the International Conference on Computational Creativity (ICCC’21) 09.2021
- *Sema: Live Coding Music with Machine Learning in the Browser*, online workshop at the 2nd Conference on AI Music Creativity (MuMe + CSMC) 07.2021
- *Sema: Live Coding Music with Machine Learning in the Browser*, workshop at Immensiva Artistic Residences, Barcelona, Spain 05.2021
- *Sema: Live Coding for Machine Learning* (2-week workshop), University of Sussex, UK 07.2020
- *Live Coding Machine Learning with Sema* – workshop at the International Conference for Live Coding, University of Limerick, Ireland 2020
- *Designing and Performing with Live Coding Languages for Signal Processing and Machine Intelligence on the Web* workshop at Web Audio Conference 2019, Norwegian University of Science and Technology (NTNU), Trondheim, Norway 2019
- *MIMIC Artist Summer Workshop* – 2-week workshop organiser and facilitator, Sussex Humanities Lab – University of Sussex, Brighton, UK 2019
- *Live Coding Machine Learning* – workshop at the 4th International Conference on Live Coding, MediaLab Prado, Madrid, Spain 2019
- *The RAPID-MIX API toolkit* (2-week long summer workshop) – workshop leader eNTERFACE'17 – 13th International Summer Workshop on Multimodal Interfaces, Porto, Portugal 2017
- *Sound Design in the Cloud* – Workshop facilitator. AudioMostly 2017: Augmented and Participatory Sound and Music Experiences, Queen Mary University of London, UK 2017
- *SoliDSPFeatures2OSC: Feature Selection Tool for Prototyping Creative Audiovisuals* with Soli – Presenter - Soli Alpha Developers Workshop, Google, Mountain View, US 2016
- *Interactive Applications in Machine Learning* – Workshop co-presenter with Atau Tanaka, International Conference

- on Musical Gesture as a Creative Interface, Portugal 2016
- *Design de Tecnologias Wearable para Performance Expressiva e Musical* – (workshop) facilitator with Michael Zbyszyński. MakerFaire Lisbon 2015, Lisbon, Portugal 2015

Invited talks (general audience)

- “Driving Chaos: Virtual Analog Modelling of a Chaotic Circuit with Wave Digital Filters”, Audio Developer Conference 2025, Bristol, UK 03.11.2025
- “AI Innovation and Media Education: Trends and Adaptive Strategies” EPI/ETIC Technical School of Image and Communication, 30th anniversary, Lisbon, Portugal 26.09.2023
- “Art+AI+Activism”, Immensiva Artistic Residences, S+T+ARTS, Barcelona, Spain 16.06.2021
- “AI in the Creative Industries”, AAAS Annual Convention, UKRI Live Arena, Seattle, US 15.02.2020
- “Making Music and Art with Machine Intelligence”, AI+JS, Meetup London, UK 25.02.2020
- Human Data Interaction Music Workshop, Somerset house, London, UK 20.09.2019
- “Fostering synergies between Art and Innovation”, ACT Utopia, ETSIDI-UPM, Madrid 19.04.2018

STUDENT SUPERVISION

PhD students

- Andrea Achilleos (PhD in CS, co-supervised initial stage) 2023 – 2024

Master’s students

- Chongkai Wang (MSc in Data Science and Machine Learning) 09/2023
- Andrea Achilleos (MSc in Machine Learning) 09/2022

ACADEMIC SERVICE

Peer Reviews

- ACM Audio Mostly (AM) 2023
- ACM Human Factors in Computing Systems (CHI) 2023
- Computer Music Journal (CMJ) 2023
- 12th Workshop on Ubiquitous Music (UbiMus) 2023
- 1st International Conference on Sound and Image in Art & Design (MULTIMODUS) 2022
- Transactions of the International Society for Music Information Retrieval (TISMIR) 2021
- International Conference on Entertainment Computing (IFIP-ICEC) 2021
- ACM Audio Mostly (AM) 2021
- 10th Workshop on Ubiquitous Music (UbiMus) 2021
- International Conference on Live Interfaces (ICLI) 2020
- ACM Human Factors in Computing Systems (CHI) 2019
- ACM Human Factors in Computing Systems (CHI) 2018
- UbiMus 7th Workshop on Ubiquitous Music (UbiMus) 2016
- International Conference on Tangible Embedded and Embodied Interaction (TEI) 2016

Organisation

- New Interfaces for Musical Expression 2026 – Web chair and organising committee member, London, UK 06.2026
- Sema: Live Coding with Machine Learning (2-weeks workshop) Sussex University, UK, 07.2020
- MIMIC Artist Summer Workshop (2-weeks workshop), Sussex University, UK 07.2019
- The RAPID-MIX API toolkit – eINTERFACE'17, 13th International Summer Workshop on Multimodal Interfaces, UCP, Portugal 07.2017

- Doctoral Summer School for Developing Media, Culture and Social Innovation for Creative Cities” in partnership with Hanover University, UCP, Porto, Portugal 09.2014
- CMUS 2006 – Conference on Mobile and Ubiquitous Systems, University of Minho, Portugal 07.2006

PROFESSIONAL DEVELOPMENT / CERTIFICATIONS

- CybSafe – Cyber security and awareness (refresher) 2024
- UCL Inclusive Leaders Programme, 2022
- Doctoral research supervision 2022
- CybSafe – Cyber security and awareness training 2022
- Mathematics for Machine Learning: Linear Algebra – Imperial College of London 2022
- UCL Innovation and Entrepreneurship CS I/O Lab 2022
- Staff online diversity training 2021
- Unconscious bias training 2021
- Change possible: Sustainable UCL 2021
- Disclosing and Managing Conflict of Interest 2021
- Prevent duty training 2021
- Data Protection and Freedom of Information 2021
- Information Security Training 2021
- UCL Safety Induction 2021
- UCL Basic Fire Safety 2021
- Associate Fellow of the Higher Education Academy, Level 7 on FHEQ UK, 15 credits 2020
- GDPR – University of Sussex 2019
- Science Communication – SciConnect 2017
- Designing, Running and Analysing Experiments – University of California San Diego 2016
- Information Design – University of California San Diego 2016
- User Experience: Research & Prototyping – University of California San Diego 2016
- Social Computing – University of California San Diego 2016
- Input and Interaction – University of California San Diego 2015
- Design Principles: An Introduction – University of California San Diego 2015
- Human-Centred Design: An Introduction – University of California San Diego 2015
- Critical Thinking: Processes and tools – Catholic University of Portugal 2014
- Introduction to Digital Sound Design – Emory University 2013
- Certificate of Proficiency in English – Cambridge ESOL 2012
- Microsoft Certified Professional in .NET Application Development Foundation 2011
- Leadership Course – Portuguese Military Academy 2005
- Certificate in Advanced English – Cambridge ESOL 1997
- First Certificate in English – Cambridge ESOL 1995

PERFORMANCES

- Dench – experimental music trio with strings and feedback loops – Augmented Instruments Lab (AIL) showcase 2025
- MNISTREL – classical guitar with extended technique and effects – AIL showcase 2025
- MNISTREL – classical guitar and live coding at Sussex Festival of Ideas, ACCA, Brighton 2021
- “AIfgots” – live coding with T. Magnusson and C. Kiefer at WAC 2021, Barcelona, Spain 2021
- “Three Ravens” – live coding with T. Magnusson and C. Kiefer at 5th ICLC, Limerick, Ireland 2020
- “Three Pidgins” – live coding with T. Magnusson and C. Kiefer at WAC 2019, NTNU, Norway 2019
- Live coding as MNISTREL at Algo/Mesh, ALGOMECH Festival, Sheffield, UK 2019
- Live coding as MNISTREL at MIMIC Artist, Rose Hill, Brighton, UK 2019
- Concert tour (+20 concerts) with :papercutz band to promote debut album “Lylac”, Portugal, UK 2009

TECHNICAL SKILLS

- Front-end architecture and engineering of desktop, web, mobile and AR applications.
- Programming Languages: Python, Rust, C#, C/C++, Obj-C, Java, Javascript, HTML, CSS, Haskell, SQL, Fortran.
- Electronic circuit and systems prototyping, breadboarding, microcontroller programming, debugging, probing, logic analyser and oscilloscope.
- Modelling and prototyping: COMSOL Multiphysics, Salome, Elmer FEM, OmniGraffle, Balsamic Mockups.
- Mobile development in iOS, WP7, Windows Mobile 6.5, J2ME, Bluetooth protocol development.
- Agile, eXtreme Programming, SCRUM methodologies, design patterns and test-driven development.
- Development frameworks: Svelte, React, Webpack, Rollup, WPF, Silverlight, DirectShow, Prism, Tensorflow.js, Fiddler, Graphedit, SourceSafe, Openframeworks, OpenCV.
- Development environments: VSCode, Visual Studio, XCode, Unity3D, PureData, Git, CI/CD, Travis, Github Actions, NUnit, FxCop, CruiseControl, Team Foundation Server.
- Backend: Node, MySQL, MongoDB, MS SQL Server, MS Analysis Server, Apache Web Server, Nginx, Express, AWS, RIA Services, WCF, ADO.NET,
- Other: NVivo, RStudio, LaTeX, Mendeley, MS Office Suite, Project and Visio, Adobe Premier, After Effects

ADDITIONAL INFO

- Languages: Portuguese (native), English (proficient), Spanish (intermediate), French (basic).
- Canadian – Portuguese – British (triple) citizenship
- Multi-instrumentalist experienced in guitar (20+ years), piano (6 years), live coding, electronics, audiovisuals.