Emmanouil Theofanis **Chourdakis**

Doctoral Candidate of Computer Science · AI / ML + Audio

✉ e.t.chourdakis@qmul.ac.uk | 🏠 mmxgn.github.io | 🐙 mmxgn | 💼 echourdakis | 🎓 Emmanouil Theofanis Chourdakis

Summary

A PhD Candidate at Queen Mary University of London who successfully defended on April 1st and will be awarded a Doctor's degree once requested amendments are submitted and accepted. Interested in everything that combines AI and Audio but especially when used to assist in the human creative process.

Skills

Computer Languages	Python, Matlab, C, C++, Faust, Javascript.
Libraries	NumPy, Pandas, Scikit-Learn, Keras, Pytorch, XGBoost, Essentia, Juce, NLTK.
Misc	Linux, Docker, Anaconda, The Web Audio Evaluation Tool, DAWs, Sonic-Visualiser, Praat, LaTeX, Godot.
Human Languages	English (TOEFL, 6+ years in London), Greek (native language), French (elementary).

Honors & Awards

2014	**Michael Clark Prize for Best Electronic Engineering Project**, Queen Mary University of London	*London, UK*

Industry Experience

BBC Audio R&D — *London, UK*
Intern — *Dec. 2019 - Apr. 2020*

- Developed adaptive audio effects as Web Audio Worklets using Javascript and the Web Audio API for use in an internally developed storyboard system. Developed a variety of scripts that allows rapid prototyping of such effects.
- Developed a Flask-based API for Music Information Retrieval (MIR) using Docker and the Essentia MIR library that did audio content analysis to control the aforementioned effects.
- Implemented an object mixing method for hard of hearing listeners as a plugin for VST hosts, as well as Avid Pro Tools.
- Published a peer-reviewed paper on using probabilistic programming and machine learning to automate the mixing process of the above object-based effect.
- Wrote extensive internal guides for building audio effects for the web as well as VST and AAX plugins.

Academic Experience

Queen Mary University of London — *London, UK*
PhD Candidate — *Apr. 2015 -*

- Program Committee (PC) Member for the Sound And Music Computing 2019 and 2020 Technical Programs (SMC 2019/2020).
- PC Member for the China Conference on Sound and Music Technology 2018 Technical Program (CSMT 2018).
- Sub-reviewer for the 2018 International Conference on Digital Audio Effects (DAFx 2018).
- Teaching Assistant for supporting Matlab-based MSc final projects.
- Teaching Assistant for the Music and Speech processing postgraduate module.
- Teaching Assistant for the Advanced Transform Methods postgraduate module.
- Script marking for the Digital Signal Processing module.

Organizing & Volunteering

AES 146th Pro Audio Convention — *Dublin, Ireland*
Paper Session Chair — *March 2019*

2nd Workshop on Intelligent Music Production — *London, UK*
Poster Session Chair — *September 2016*

#AudioMusicHackathon — *London, UK*
Staff Volunteer — *July 2015*

Education

Queen Mary University of London   *London, UK*
PhD in Computer Science
- Thesis titled "Computational Methods for Assisting Radio Drama Production"
- Use of artificial intelligence to assist an aspiring radio drama team in producing radio drama.

Queen Mary University of London   *London, UK*
MSc in Digital Music Processing   *September 2014*
- Grade: 80% (Distinction)
- Thesis titled "Intelligent Application of Artificial Reverberation to Multi-track Mixes". Presented during the 60th AES Conference.

Technical University of Crete   *Chania, Greece*
Electronic and Computer Engineering Diploma   *July 2011*
- "Grade: 7.46 out of 10 (Very Good)"
- Thesis titled "Computer-aided Music Composition Using Inductive Logic Programming". Graded 10 out of 10.

Notable MSC Projects

Digital Audio Effects   Implementation of a 4-band dynamic range compressor as a VST using C++ and Juce.
Implementation of a subtractive synthesizer as a VSTi using C++ and Juce.
Real Time DSP   Implementation of a phase vocoter for MIDI-controlled voice robotisation using C for the BeagleBoneBlack.

Notable Dipl.-Eng Projects

Diploma Thesis   A system for learning music composition rules from examples using Inductive Logic Programming.
Audio and Music Processing   Chord Recognition on "The Beatles" discography using Hidden Markov Models.
Autonomous Agents   A probabilistic model for music cognition in real time.

Opensource Software

Genre-Classification   A Music Genre Classifier using transfer learning developed with MusiCNN, XGBoost, and Docker.
Speech-Music-SFX   Classification of raw audio to Speech, Music, or Sound Effects using Keras.
ClausiePY   Implementation of Del Corro and Gemmula's ClausIE system in python with bindings for Problog.
MinIePY   Python bindings for Gashteovski, Gemmula, and Del Corro's MinIE information extraction system.
SpRL-SpaCy   A library for Spatial Role Labelling using SpaCy.
PyopenAL-HRTF   HRTF extensions for the Python OpenAL bindings.
SimScene.py   Python library and tool for hierarchical construction of acoustical scenes.
Smooth-Convex-KL-NMF   Python library for minibatched NMF with sparsity and smoothness constraints.
Keras-LSTM-Char-CNN   A tutorial for step-by-step implementation of Char-LSTM-CNNs in Keras.

Notable Publications

- E. T. Chourdakis et al. "Modelling Experts' decisions on assigning narrative importances of objects in a radio drama mix". In: *22nd International Conference on Digital Audio Effects*. UK, Sept. 2019
- E. T. Chourdakis and J. D. Reiss. "Tagging and Retrieval of Room Impulse Responses Using Semantic Word Vectors and Perceptual Measures of Reverberation". In: *146th Audio Engineering Society Convention*. Ireland, Mar. 2019
- B. Shirley, L. A. Ward, and E. T. Chourdakis. "Personalization of Object-based Audio for Accessibility usingNarrative Importance." In: *ACM International Conference on Interactive Experiences for Television and Online Video, Workshop on In-Programme Personalisation*. UK, June 2019
- E.T. Chourdakis and J.D. Reiss. "Grammar Informed Sound Effect Retrieval for Soundscape Generation". In: *DMRN+ 13: Digital Music Research Network*. UK, Dec. 2018
- E. Chourdakis and J.D. Reiss. "From my pen to your ears: automatic production of radio plays from unstructured story text". In: *15th Sound and Music Computing Conference*. July 2018
- E. T. Chourdakis and J. D. Reiss. "Constructing narrative using a generative model and continuous action policies". In: *10th INLG Workshop on Computational Creativity in Natural Language Generation*. Sept. 2017
- E. T. Chourdakis and J. D. Reiss. "A Machine-Learning Approach to Application of Intelligent Artificial Reverberation". In: *Journal of the Audio Engineering Society* 1/2 (Feb. 2017), pp. 56–65
- E. T. Chourdakis and J. D. Reiss. "Automatic Control of a Digital Reverberation Effect using Hybrid Models". In: *60th Audio Engineering Society Conference on Dereverberation and Reverberation of Audio, Music, and Speech*. Jan. 2016