CHRISTOS PLACHOURAS

Machine learning researcher, focused on audio and music informatics

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EDUCATION

Queen Mary University of London, Centre for Digital Music (C4DM) — **London, UK**
PhD in Artificial Intelligence and Music – Full-ride scholarship by UKRI — **09/2023 - Present**
Thesis: Data-limited audio deep learning – Advisors: Emmanouil Benetos, Johan Pauwels

Universitat Pompeu Fabra, Music Technology Group (MTG) — **Barcelona, Spain**
Master's in Sound and Music Computing (M.Sc.) – GPA: 9.37/10.00 — **09/2021 - 08/2023**
Thesis: mir_ref: A Music Audio Representation Evaluation Framework – Advisors: Dmitry Bogdanov, Pablo Alonso

New York University — **Global Program**
Bachelor's in Computer Science (B.Sc.), Music (double major), and — **08/2017 - 05/2021**
Sound and Music Computing (minor) – Full-ride scholarship – GPA: 3.61/4.00
Thesis: Audio-based hierarchical music structure analysis – Advisors: Carlos Guedes, Yasir Zaki

EXPERIENCE

Utopia Music — **Berlin, Germany (remote)**
Data Scientist (R&D) — **10/2022 - 07/2023**

- Led the formation of an R&D team for massive-scale broadcast monitoring
- Developed efficient deep learning models for granular, large-scale music and sample fingerprinting
- Built tools for generating synthetic broadcasts and evaluating audio fingerprinting systems

Audiostack — **Barcelona, Spain**
R&D Engineer — **01/2022 - 07/2022**

- Developed a system for remixing music recordings to any duration by utilizing their hierarchical structure
- Built an automatic mixing system and plugins for real-time programmatic sound design
- Devised a Speech Synthesis Markup Language (SSML) unification system for cross-provider speech synthesis

Music and Sound Cultures Research Lab, NYU Abu Dhabi — **Abu Dhabi, UAE**
Research Assistant – Advisors: Carlos Guedes, Kaustuv Kanti Ganguli — **05/2018 - 07/2021**

- Created visualizations, content-based indexing, searching, and thumbnailing for large music collections
- Worked on music transcription from audio for mode and tuning identification

Center for Data Science, NYU — **New York, USA**
Research Student – Advisor: Brian McFee — **09/2019 - 05/2020**

- Built methods for hierarchically decomposing music structure from audio
- Developed structure similarity metrics for cover song identification and sound event detection

SKILLS

Data Science

- **Advanced**: Python (incl. PyTorch, TensorFlow), C/C++ (incl. JUCE), MATLAB (incl. Simulink)
- **Intermediate**: AWS, GCP, Linux System Admin, JavaScript, HTML, CSS, SQL, x86 Assembly, Stata

Music and Media

- **Programming**: Max, SuperCollider, Pure Data, Logic Pro, Ableton Live (incl. Max for Live), Pro Tools, p5.js, Processing, D3.js, Lilypond, Adobe Premiere Pro/After Effects/Illustrator/Photoshop
- **Performance**: Experienced concert pianist and composer (contemporary western classical and electronics)

Languages

- English (fluent), Greek (native), French (conversational)

PUBLICATIONS

- **Foundation Models for Music: A Review**
  Y. Ma et al – [Under review at TASLP] arXiv *[Link]*
- **mir_ref: A Representation Evaluation Framework for Music Information Retrieval Tasks**
  C. Plachouras, P. Alonso, D. Bogdanov – ML for Audio Workshop, NeurIPS 2023 *[Link]*
- **Music Rearrangement Using Hierarchical Segmentation**
  C. Plachouras, M. Miron – ICASSP 2023 *[Link]*
- **Utilizing Hierarchical Structure for Audio-Based Music Similarity**
  C. Plachouras – LBD, ISMIR 2021 *[Link]*
- **Mapping Timbre Space in Regional Music Collections using Harmonic-Percussive Source Separation (HPSS) Decomposition**
  K. Ganguli, C. Plachouras, S. Şentürk, A. Eisenberg, C. Guedes – Timbre 2020 *[Link]*
- **Mapping the Sounds of the Swahili Coast and the Arab Mashriq: Music research at the intersection of computational analysis and cultural heritage preservation**
  K. Trochidis, B. Russell, A. Eisenberg, K. Ganguli, O. Gomez, C. Plachouras, C. Guedes, V. Danielson – DLfM 2019 *[Link]*