HUW WILLIAM CHESTON

Email | Webpage | GitHub | Google Scholar | @HuwCheston

EDUCATION

Ph.D., Centre for Music & Science, University of Cambridge *expected* October, 2024
Thesis: New Methods in Computational Analysis and Modeling of Musical Improvisation
Applied techniques from machine learning and data science to generate end-to-end performer identification model from commercial audio recordings

MSt., Music (Music Psychology), University of Oxford (*Distinction*) October, 2020
Final average of 85%, *graduated with the highest mark in the year*

BA., Music, University of Oxford (*First Class*) June, 2019
Final average of 76%, *graduated with the highest mark in the year*

EXPERIENCE

Music & Science Module Leader, Cambridge Summer School, Sutton Trust August 2023
Designed & delivered workshop on AI-assisted audio analysis for students (ages 16–17)

Supervisor & Guest Lecturer, University of Cambridge January 2022 –
- Delivered over 100 small-group supervisions for Undergraduate students (natural sciences & humanities courses) on: (*i*) analysing audio recordings, (*ii*) introduction to programming in Python and R, (*iii*) visualising and simulating data.
- Delivered yearly lecture on analysing audio recordings for Undergraduate *Music & Science* course, involving introduction and demonstration of Music Information Retrieval concepts.
- Supervised data-driven and analytical Undergraduate dissertation projects.
- Used Jupyter Book to build interactive web app for hosting teaching materials

Graduate Music Assistant, Kingswood School, Bath, UK September 2020 – June 2021
Duties involved: (*i*) planning & teaching classes, including virtually during the pandemic; (*ii*) managing school's recording studio; (*iii*) delivering extra-curricular music performance and audio production classes; (*iv*) producing promotional audio-visual material for the school.

Professional Musician & Sound Technician [Showreel link] September 2016 –

SELECTED PUBLICATIONS

Cheston, H., Cross, I., & Harrison, P. M. C. (2024, in press). Trade-offs in Coordination Strategies for Duet Jazz Performances Subject to Network Delay and Jitter. *Music Perception.*
- Built software platform with OpenCV to record multiple audio-video streams in real-time
- Used time series analysis to model performance strategies found in online music making
- Automated project documentation building and hosting with Sphinx and GitHub Pages

Cheston, H., Schlichting, J. S., Cross, I., & Harrison, P. M. C. (2024). Rhythmic Qualities of Jazz Improvisation Predict Performer Identity and Style in Source-Separated Audio Recordings.

PsyArXiv. [DOI: 10.31234/osf.io/txy2f]

- Built classification model for identifying performers featured on commercial audio recordings
- Performed hierarchical clustering to classify performers into genre based on model output
- Created interactive web application using jQuery and Plotly to visualise the model predictions
- Hosted model online to enable users to process their own recordings

Cheston, H., Schlichting, J. S., Cross, I., & Harrison, P. M. C. (2024). Cambridge Jazz Trio Database: Automated Timing Annotation of Jazz Piano Trio Recordings Processed Using Audio Source Separation. *PsyArXiv*. [DOI: 10.31234/osf.io/jyqp3].

- Developed an audio signal processing pipeline for extracting data from audio recordings
- Optimized pipeline performance using nonlinear optimization algorithms
- Developed interactive web application for exploring database using jQuery for UI

SELECTED AWARDS AND PRIZES

Project Incubation Award (*£2000*), Cambridge Digital Humanities — May, 2022
Awarded for development and testing of *Audio-Visual Manipulator* software [Project page]

Vice-Chancellor's Award (*£75,000*), Cambridge Trust — September, 2021
Full scholarship (fees & stipend) for Ph.D study

Music Prize (*£100*), University of Oxford — October, 2020
Awarded for highest average mark in 2020 MSt. cohort

Louis Curran Scholarship (*£25,000*), Linacre College, University of Oxford — August, 2019
Full scholarship (fees & stipend) for MSt. study

Gibbs Prize (*£500*), University of Oxford — June, 2019
Awarded for highest average mark in 2019 BA. cohort

Academic Scholarship (*£300* x2), Christ Church, University of Oxford — 2017; 2018

TECHNICAL SKILLS

- **Languages**: Python, R, JavaScript, HTML/CSS
- **Developer Tools**: git, LaTeX, Docker, Google Cloud Platform, PyCharm, Jupyter
- **Libraries**: pandas, NumPy, Matplotlib, Matplotlib, Scikit-learn, SciPy, Statsmodels, OpenCV

REFERENCES AVAILABLE ON REQUEST