

Maciek Tomczak

Birmingham, UK
maciek-tomczak.github.io

Research Interests:

Music information retrieval, rhythm analysis, deep learning, audio style transfer, audio synthesis, onset detection, beat and metre detection, drum transcription, digital audio effects, computational musicology, interactive music systems, music performance systems

Education:

- 2016–present** PhD in Music Informatics for Music Creation - [Birmingham City University](#)
Dissertation: Automated rhythmic transformation of drum recordings
Committee: Dr Jason Hockman (advisor), Dr Ryan Stables, Prof Cham Athwal
- 2012–15** BSc Hons in Sound Engineering and Production - [Birmingham City University](#)
Dissertation: The salience of MFCC semantic classification on electric guitar recordings
Advisor: Dr Ryan Stables
- 2008–12** International Baccalaureate Diploma - [International School of Düsseldorf](#)

Employment History:

- 2021–pres. Research Assistant**
School of Computing and Digital Technology, Birmingham City University, United Kingdom
Researcher working on [Augmented Reality Musical Ensemble \(ARME\)](#) project. The aim of the project is to understand how musicians synchronise during performance and to build computational models for reproducing musical behaviour.
- 2020 Research Intern**
National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan
Internship under [Dr Masahiro Hamasaki](#) and [Dr Masataka Goto](#) in Media Interaction Group to conduct research on automated rhythmic transformation of drum recordings using adversarial autoencoders
- 2019 Studio Manager**
School of Computing and Digital Technology, Birmingham City University, United Kingdom
Management of recording studio bookings and equipment maintenance
- 2015–21 Teaching Assistant**
School of Computing and Digital Technology, Birmingham City University, United Kingdom
Assistant instruction, grading, lab and individual tutoring for modules: digital signal processing, live sound engineering, acoustic fundamentals, music and sound for visual media, interactive music systems
- 2015 Research Associate**
Digital Media Technology (DMT) Lab, Birmingham City University, United Kingdom
Development of evaluation toolbox in Matlab under supervision of [Dr Ryan Stables](#) for mixing experiment performed with console [PRO2C](#) in partnership with [MIDAS Music Tribe](#)

2013 Studio Assistant
Teatr Polskiego Radia, Polish Radio S.A., Warsaw, Poland
Assistance to the production team under supervision of Dr Andrzej Brzoska on audiobook Lux Perpetua by A. Sapkowski and other chosen radio drama recording sessions, organisation of recordings and post-production, synchronisation of the radio's dramas

Academic Service:

2021–2022 PhD Hub Chair
Created and chaired a new initiative for PhD students at Digital Media Technology Lab (BCU).

2018–2020 Reviewer
International Society for Music Information Retrieval Conference (ISMIR)

2019 Organising Committee Member and Reviewer
International Workshop on Folk Music Analysis (FMA)

2019 Organising Committee Member and Reviewer
International Conference on Digital Audio Effects (DAFx)

2017 Organising Committee Member and Reviewer
Rhythm Production and Perception Workshop (RPPW)

2017 Reviewer
International Conference on Digital Audio Effects (DAFx)

Refereed Publications:

Cheshire M., J. Drysdale, S. Enderby, **M. Tomczak** and J. Hockman, Deep Audio FX for Snare Drum Recording Transformations. In Journal of the Audio Engineering Society (JAES), Special Issue: New Trends in Audio Effects, 2022.

Goodman, T., N. Jacoby, M. Lee, **M. Tomczak**, M. Witek, R. Stables, A. Wing, M. Di Luca, and M. Elliott. 2022. Assessing the feasibility of real-time analysis of timing and coordination between ensemble musicians. In IMA Maths in Music Conference.

Drysdale, J., **M. Tomczak** and J. Hockman. 2021. Style-based drum synthesis with GAN inversion. In Proceedings of the International Society of Music Information Retrieval Conference.

Tomczak, M., M. Goto and J. Hockman, Drum Synthesis and Rhythmic Transformation with Adversarial Autoencoders. 2020. In Proceedings of the ACM International Conference on Multimedia, Seattle, Washington, USA.

Drysdale, J., **M. Tomczak** and J. Hockman. 2020. Adversarial Drum Synthesis. In Proceedings of the International Conference on Digital Audio Effects, Vienna, Austria.

Tomczak, M., J. Drysdale and J. Hockman. 2019. Drum translation for timbral and rhythmic transformation. In Proceedings of the International Conference on Digital Audio Effects, Birmingham, United Kingdom.

Tomczak, M., C. Southall and J. Hockman. 2018. Audio style transfer with rhythmic constraints. In Proceedings of the International Conference on Digital Audio Effects, Aveiro, Portugal.

Ali-MacLachlan, I., C. Southall, **M. Tomczak** and J. Hockman. 2018. Player recognition for traditional Irish flute recordings. In Proceedings of the International Workshop on Folk Music Analysis, Thessaloniki, Greece.

Tomczak, M., C. Southall and J. Hockman. 2017. Rhythm modelling using convolutional neural networks. In Rhythm Production and Perception Workshop, Birmingham, United Kingdom.

Ali-MacLachlan, I., C. Southall, **M. Tomczak**, and J. Hockman. 2017. Improved onset detection for traditional Irish flute recordings using convolutional neural networks. In Proceedings of the International Workshop on Folk Music Analysis, Malaga, Spain.

Ali-MacLachlan, I., **M. Tomczak**, C. Southall, and J. Hockman. 2016. Note, cut and strike detection for traditional Irish flute recordings. In Proceedings of the International Workshop on Folk Music Analysis, Dublin, Ireland.

Language Fluency:

Polish – native proficiency

English – professional proficiency

Skills:

Programming languages – Python, Matlab, JavaScript

Machine learning packages – TensorFlow 1.2–2.x, PyTorch 1.4–1.x

Operating systems – OSX, Linux (server maintenance), Windows

Cloud Infrastructures – Distributed training on [AI Bridging Cloud Infrastructure \(ABCI\)](#) at AIST, Japan

Miscellaneous – Git version control, Docker (e.g., for TensorFlow installation)