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# Digital Scores

## Investigating the technological transformation of the music score

### Online form contribution Participant Information Sheet

Dear Participant

We are inviting you to participate in a research project. An important aspect of this project is the reflection on the nature of digital score musicianship. In order to reflect on this experience, we invite you to complete an online questionnaire. This is part of a series of such activities across the planet. We will be concentrating on 4 key areas:

1. **Connections** with the digital score – for example, your connections to the materials that form the parts of the digital score (sounds, images, game-worlds). Also, how you formed relationships with the active materials such as pre-recorded melodies, machine intelligence, creative media, evoked music-worlds, or the other musicians.
2. The **flow** in the moment of performing – for example, what journeys were you taken on, how involved in the music you became.
3. Your digital **musicianship** - what skills, knowledge, and approaches did you use to facilitate a creative engagement with the piece.
4. Transformative experiences and **impact** – for example, did the score communicate innovative music ideas, new music experiences, novel compositional approaches, new performance opportunities, music-making engagements, or broader accessibility/ inclusivity for musicians. Has this experience changed your outlook on music-making in general? Will the impact of this experience carry over to other future projects?

#### What is your role?

Complete an online questionnaire.

#### Project Outline

The “Digital Scores” project comprises an ambitious programme of practice-based research interwoven with an innovative theoretical investigation into the transformation of the music score being wrought by new computational technologies. A core objective is to investigate the shifts in creativity and musicianship that digital scores have on musicians: composers, performers, makers, designers and coders. A parallel objective is to innovate the music score as an inclusive creative space for musicians of traditional and non-traditional backgrounds. The benefits of the research extend beyond music studies into computer science, new media research and performance practice. It is real “frontier research”, which sits at the intersections of art, technology, cultural studies and creative practice. It investigates new phenomenologies of the experience of digital creativity, and new creative processes in a digital and post-digital world. The PI will lead a collaborative research network across four continents, which will create a series of case studies each addressing new computational technologies such as *artificial intelligence, machine learning, virtual reality, gaming, telematic networks* and *robotics*. These are



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interwoven with a transdisciplinary theoretical study that aims to situate digital scores within the wider fields of digital humanities and media studies. It will engage professional and community musicians, music researchers and students in a longitudinal scientific study of digital musicianship. All aspects of the work will be created and stored in an interactive website which will be publicly accessible. The project will conclude with an academic conference and the publication of two books and numerous articles on digital scores.

### **What are the objectives of the Digital Scores project?**

The objectives of the Digital Score project are to:

- determine how new computational technologies, integrated as innovative music score systems, can lead to the communication of innovative music ideas, new music experiences, novel compositional approaches, new performance opportunities and music-making engagements, and broader accessibility for musicians of traditional and non-traditional backgrounds.
- develop a transdisciplinary theoretical framework that situates digital scores within the wider field of digital humanities and media studies, in order to understand the deep creative experiences of musicking (the act of music-making (Small 1989)) with digital scores built around *artificial intelligence, machine learning, internet networking, robotics, virtual and augmented reality, gaming and physical computing*.
- discover how digital scores stimulate new relationships between musicians and how these profoundly influence the nature of the digital musician.

### **Who is organising this research?**

The research for this study is being undertaken by Professor Craig Vear at University of Nottingham (UoN). This is part of a European Research Council funded research project in partnership with Professor Cat Hope at Monash University (AUS), Professor Sandeep Bhagwati at Concordia University (CAN), Professor Kenneth Fields at University of California Santa Barbara (US) and Professor Xiaobing at the Central Conservatory of Music, Beijing (China). University of Nottingham (UoN) Research Ethics Committee has reviewed and approved this research.

### **Who is funding the research?**

European Research Council, grant number ERC-2020-COG – 101002086 – DigiScore

### **What is being recorded?**

Your online responses

### **What is the lawful basis for using this data?**

This event is a public task that is carrying out a specific research project in the public interest which is laid down by law. The data collection is designed in a targeted and proportionate way in order to achieve the specific purpose of this research project.

### **Where will the data be stored?**

The audio recording and the full transcription, and the music performance (audio and video) will be stored in three places:

- in a secure section of the project website, which has password protection and is only accessible by the project team
- on an encrypted hard-drive, accessible by only the PI and UON team. This will not be connected to a network and will be stored in a locked office space.
- In UON cloud-based repository for open access data sharing

### **Who will it be shared with?**

Only the project team will have access to secure section of the project website. Only the UON project team will have access to the secure HD. The cloud-based repository will be open-access and therefore openly available to



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other researchers and the general public. The recorded music performance will be made public through the project website.

#### **How will it be shared securely?**

University of Nottingham (UoN) is the central hub for this project. Data collection from a partner's territory will be encrypted and sent securely using an online file transfer service such as ZendTo. The original data will then be securely stored according to the original country's legal protocols, or deleted.

#### **Will/can it be anonymised or pseudonymised?**

No – we need your contact details for the lucky dip competition. Following this, we will delete all your personal details.

#### **How will the data be used?**

Your responses will inform the development of the theoretical framework of this project. This framework will be used to build an understanding of digital musicianship. To this end, the project team will use these recordings as reference, and may include quotes in the academic output from the project.

#### **You can withdraw at any point.**

At any time you can choose to withdraw. You can also withdraw your data at any point after the collection, without giving any reason. If you withdraw, your data will be removed from the study and will be destroyed, or your participation from a recorded event will be edited out.

#### **Who owns the IP of the Digital Score?**

The musician will hold the Intellectual Property of the created work and all its materials, including the relevant mechanical, publishing and compositional rights. The performers will retain rights to the recording. However, as part of the commissioning contract the performers will grant the University the right to share these materials on the project website (in whole or in part, transcribed or otherwise) in perpetuity throughout the world for educational, research, commercial and promotional purposes at the University. The performer can request these materials to be anonymised or pseudonymised at any point in time.

### **PERSONAL DATA - Full Privacy Notice for Research Participants**

#### **How the University of Nottingham processes your personal data**

The University of Nottingham, University Park, Nottingham, NG7 2RD (0115 951 5151), is committed to protecting your personal data and informing you of your rights in relation to that data.

The University of Nottingham is registered as a Data Controller under the Data Protection Act 1998 (registration No. Z5654762 – <https://ico.org.uk/ESDWebPages/Entry/Z5654762>).

One of our responsibilities as a data controller is to be transparent in our processing of your personal data and to tell you about the different ways in which we collect and use your personal data. The University will process your personal data in accordance with the General Data Protection Regulation (GDPR) and the Data Protection Act 2018 and this privacy notice is issued in accordance with the GDPR Articles 13 and 14.

We may update our Privacy Notices at any time. The current version of all of our Privacy Notices can be found at <https://www.nottingham.ac.uk/utilities/privacy.aspx> and we encourage you to check back regularly to review any changes.

The Data Protection Officer

The University has appointed a Data Protection Officer. Their postal address is:



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Data Protection Officer,  
Legal services  
A5, Trent Building,  
University of Nottingham,  
University Park,  
Nottingham  
NG7 2RD

They can be emailed at [dpo@nottingham.ac.uk](mailto:dpo@nottingham.ac.uk).

### **Your personal data and its processing**

We define personal data as information relating to a living, identifiable individual. It can also include "special categories of data", which is information about your racial or ethnic origin, religious or other beliefs, and physical or mental health, the processing of which is subject to strict requirements. Similarly, information about criminal convictions and offences is also subject to strict requirements. "Processing" means any operation which we carry out using your personal data e.g. obtaining, storing, transferring and deleting.

We only process data for specified purposes and if it is justified in accordance with data protection law. Detail of each processing purpose and its legal basis is given in each privacy notice listed below, please select the one most relevant to your relationship to the University.

### **Why we collect your personal data**

We collect personal data under the terms of the University's Royal Charter in our capacity as a teaching and research body to advance education and learning. Specific purposes for data collection on this occasion are build a body of knowledge across multiple participants to gain insights into meaning-making in music through creative engagement with digital score.

### **Legal basis for processing your personal data under GDPR**

The legal basis for processing your personal data on this occasion is Article 6(1e) processing is necessary for the performance of a task carried out in the public interest.

### **How long we keep your data**

The University may store your data for up to 25 years and for a period of no less than 7 years after the research project finishes. The researchers who gathered or processed the data may also store the data indefinitely and reuse it in future research. Measures to safeguard your stored data include: the audio recording and the full transcription, and the music performance (audio and video) will be stored in three places a) in a secure section of the project website, which has password protection and is only accessible by the project team; on an encrypted hard-drive, accessible by only the PI and UON team. This will not be connected to a network and will be stored in a locked office space; in UON cloud-based repository for open access data sharing. If requested we will anonymise in the following ways: a) digiscore\_wp2\_task2\_X228\_20201215\_1500.format (where X128 refers to WP(2), task(2) and 8th person to participate; b) generated code by the recording software.

### **Who we share your data with**

Extracts of your data may be disclosed in published works that are posted online for use by the scientific community. Your data may also be stored indefinitely on external data repositories (e.g., the UK Data Archive) and be further processed for archiving purposes in the public interest, or for historical, scientific or statistical purposes. It may also move with the researcher who collected your data to another institution in the future.

### **Transfers of your data outside Europe**

If data is transferred out of the European Union state whether the country the data is being transferred to is on the EU list of adequate countries ([this can be found here](#)) or the safeguards that apply, i.e., transfer by consent or



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contractual necessity, transfer subject to standard contractual clauses approved by the ICO, US's privacy shield, etc.

Your data may (if requested) be transferred to one of the international partners for processing: Monash University (Australia), Concordia University (Canada), University of California Santa Barbara (US) or the Central Conservatory of Music, Beijing (China). This will be safely conducted using the DigiScore Data Management plan (available upon request), that highlights the safeguarding and secure protocols that will be put in place.

### **Your rights as a data subject**

You have the following rights in relation to your personal data processed by us:

#### **Right to be informed**

The University will ensure you have sufficient information to ensure that you're happy about how and why we're handling your personal data, and that you know how to enforce your rights.

The University provides information in the form of privacy notices. Our Privacy Notices pages can be found at <https://www.nottingham.ac.uk/utilities/privacy/privacy.aspx>.

#### **Right of access / right to data portability**

You have a right to see all the information the University holds about you. Where data is held electronically in a structured form, such as in a database, you have a right to receive that data in a common electronic format that allows you to supply that data to a third party - this is called "data portability".

To make a request for your own information please see the link here:

<https://www.nottingham.ac.uk/governance/records-and-information-management/data-protection/data-protection.aspx>

To receive your information in a portable form, send an email your request to [data-protection@nottingham.ac.uk](mailto:data-protection@nottingham.ac.uk)

#### **Right of rectification**

If we're holding data about you that is incorrect, you have the right to have it corrected.

Please email any related request to [data-protection@nottingham.ac.uk](mailto:data-protection@nottingham.ac.uk).

#### **Right to erasure**

You can ask that we delete your data and where this is appropriate we will take reasonable steps to do so.

Please email any related request to [data-protection@nottingham.ac.uk](mailto:data-protection@nottingham.ac.uk).

#### **Right to restrict processing**

If you think there's a problem with the accuracy of the data we hold about you, or we're using data about you unlawfully, you can request that any current processing is suspended until a resolution is agreed.

Please email any related request to [data-protection@nottingham.ac.uk](mailto:data-protection@nottingham.ac.uk).

#### **Right to object**

You have a right to opt out of direct marketing.

You have a right to object to how we use your data if we do so on the basis of "legitimate interests" or "in the performance of a task in the public interest" or "exercise of official authority" (a privacy notice will clearly state to you if this is the case). Unless we can show a compelling case why our use of data is justified, we have to stop using your data in the way that you've objected to.

For direct marketing, there will be an opt-out provided at the point of receipt. To object to how we use your data, email your request to [data-protection@nottingham.ac.uk](mailto:data-protection@nottingham.ac.uk).

#### **Rights related to automated decision-making including profiling**



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We may use a computer program, system or neural network to make decisions about you (for example, everyone that is on a particular course gets sent a particular letter) or to profile you. You have the right to ask for a human being to intervene on your behalf or to check a decision.

Please email any related request to [data-protection@nottingham.ac.uk](mailto:data-protection@nottingham.ac.uk).

### **Withdrawing consent**

If we are relying on your consent to process your data, you may withdraw your consent at any time.

### **Exercising your rights, queries and complaints**

For more information on your rights, if you wish to exercise any right, for any queries you may have or if you wish to make a complaint, please [contact our Data Protection Officer](#).

### **Complaint to the Information Commissioner**

You have a right to complain to the Information Commissioner's Office (ICO) about the way in which we process your personal data. You can make a complaint on [the ICO's website](#).

### **Privacy notices**

Please consult the privacy notice that best fits your relationship with the University.

Yours sincerely

Professor Craig Vear

University of Nottingham - School of Humanities  
Arts Centre  
Department of Music  
University Park,  
Nottingham

### **By submitting this online form I give consent to the following:**

<b>Issue</b>
I have read the information presented in the information letter about the study "Digital Scores - Investigating the technological transformation of the music score"
I have had the opportunity to ask any questions related to this study, and received satisfactory answers to my questions, and any additional details I wanted.
I am also aware that excerpts from the interview may be included in publications to come from this research.
I understand that my participation is voluntary and that at any time, I am free to withdraw without giving any reason. If I withdraw, my data will be removed from the study and will be destroyed
I give permission for the study to be recorded in the manner described by the information sheet.



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I understand that relevant sections of the data collected during the study may be looked at by individuals from University of Nottingham or Monash University (Australia), Concordia University (Canada), University of California Santa Barbara (US) or the Central Conservatory of Music, Beijing (China), where it is relevant to my taking part in this research. I give permission for these individuals to have access to my responses.

With full knowledge of all foregoing, I agree to participate in this study.