FIELDS: Mobile Devices as a Medium for Sound Diffusion in Sound Art Performances

Tim Shaw

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STATEMENT

Fields was a research project exploring new forms of sound art performance and spatialised sound, using personal mobile technology (smartphones, tablets and laptops) as a medium for sound diffusion. The project was developed by artist and performer Tim Shaw in collaboration with web developer and audio engineer Sébastian Piquemal.

Fields provided an alternative method for sound diffusion and a new form of audience participation by using web-based software running on the mobile devices of audience members. In performance, *Fields* uses these mobile devices as a collective array of speakers, controlled live by Shaw. The *Fields* software enables a range of sonic diffusions to occur within a new sound composition, unique to each performance.
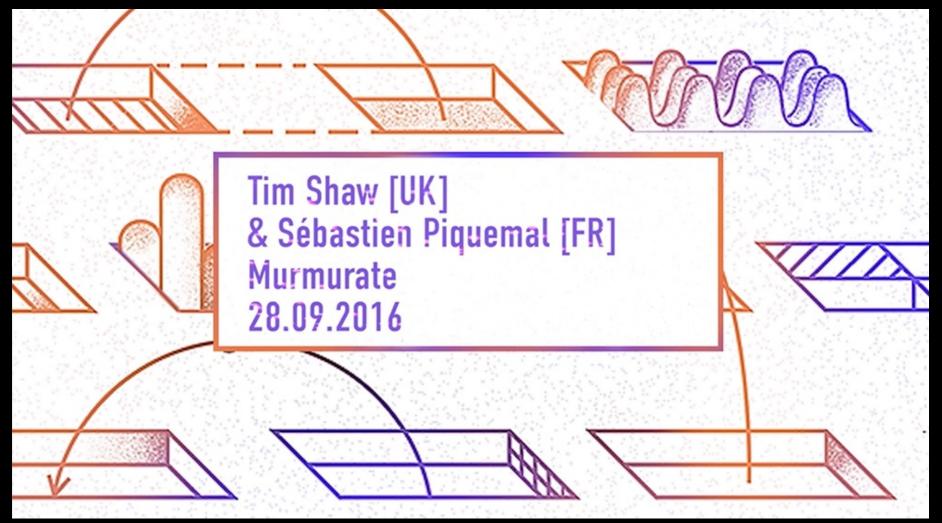
As a system, *Fields* is designed to be open to a variety of creative possibilities; this flexibility allowed Shaw to continually expand and explore different applications of *Fields* with different commissions, audiences and spaces. A key element in the research process was to allow the technical/software development and sound art composition components to directly inform one another – enabling Shaw to explore and exploit the technological potential of the system through the development of a specially-constructed composition.

Fields continued to develop through performances and presentations, and has been disseminated in 29 performances around the world between 2014 and 2017. *Fields* has had a wide impact beyond its performances; other performers have used its open-source software and researchers have cited its methodology.

The research findings were described in a conference paper presented at the 'New Interfaces for Musical Expression' conference in 2015. This paper is submitted alongside this project as supporting material.

Tim Shaw & Sébastien Piquemal
Fields [performance]. The Mining Institute, Newcastle, June 2016
Image by Ben Jeans Houghton

Tim Shaw [UK]
& Sébastien Piquemal [FR]
Murmurate
28.09.2016

Video: *Fields* performance at Sight & Sound Festival November 2016
Eastern Bloc, Montreal Canada

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BACKGROUND TO THE RESEARCH

Fields draws on Shaw's research as an artist working predominately with sound and new media. His work is concerned with the multiple ways people listen, specifically how listening environments can be explored and reconfigured using a diverse range of techniques and technologies. His work uses a variety of self-constructed technologies to play and manipulate recordings to create complex sonic environments. By appropriating communication technologies, Shaw explores how these devices change the way we experience the world.

Particularly interested in the relationships between site, sound and technologies, Shaw presents work through electro-acoustic audio performances, installations, walks and site-responsive interventions. His practice attempts to expose the mechanics of systems through sound to reveal the hidden aspects of environments and technologies.

Collaboration plays a central role in this approach. *Fields* was co-produced with Piquemal and its creation drew on prior collaborative experiences with Chris Watson, John Bowers, John Richards, Ryoko Akama and Phill Niblock.

By making use of technologies brought by its audiences, *Fields* builds on Shaw's previous research by drawing together modes of composition, new performance possibilities, audience engagement, and physical and computer mediated spatial design, generating new sound art and new experiences.

Fields [Performance] *A Gap in the Air Festival,* Talbot Rice Gallery, Edinburgh, UK, 24th January 2015
Image by Chris Scott

RESEARCH CONTEXT

Fields explores new possibilities enabled by smartphone technology. The work draws on an emerging tradition of artists using mobile devices to explore audience participation and spatialised sound compositions, for example:

Composition for audience members' mobile devices

Golan Levin, *Dialtones: A Telesymphony* (2001) was a key reference point for *Fields*. Using a specially made system, Levin telephoned blocks of audience members at different times, the ringtones resulting in a spatialised sound performance across the venue.

Fields (2014-2018) built on this concept by creating a composition not limited by specific ringtones on audience members' devices, but instead making each mobile phone into a channel during the *Fields* performance, with each channel playing a unique element of the composition.

Reconfiguring mobile design for collective listening experiences

Artistic applications developed for mobile devices have included: Michon's *BladeAxe* (2017), Tanaka and Parkinson's *4 Hands iPhone* (2009) and Wang's *Magic Piano* (2016). Tanaka's early (2004) work on mobile device music-making extended smartphones with sensors, adapting them as instruments. Wang further develops this idea, appropriating mobile phones as musical instruments, but does not consider the social dynamics that surround the device.

Fields shifts the focus onto the audience and their behavior. By designing a very simple interaction (listening) between audience members and their phones, a common space is created, appropriating the mobile device. *Fields* thereby promotes thinking around the social situation where the work is performed and the collective act of listening. How the audience engages together around their devices is central to how they interact with the performance, contributing to the overall composition.

Documentation of *Fields* performance at Zé Dos Bois, Lisbon, Portugal. November 2014.

METHODOLOGY

Fields addressed the following research questions:

• How can handheld technology be explored in a distributed sound performance?

• How does this enable audience members to experience live spatialised sound performance differently?

The project aimed to: collaborate with a sound and media technologist to develop a web application using Pure Data, Javascript, Web Audio API and Socket.io, and to use this new software as a tool for a new site-specific audio composition and performance. In doing so, it achieved its objectives of a) reaching multiple audiences worldwide and b) creating a web application, now freely available on open source repositories.

The work was developed through a series of public performances, which involved:

1. Developing a composition that capitalised on system limitations. For example, the improvised performance incorporated network latencies, which became generative and productive components of the creative process.

2. Considerations around how to configure each performance space became a continual part of the making process, which explored how audiences arrange and configure themselves in sound art and new media performances. (i.e. not facing a designated stage area where they are separated from the 'performer').

3. Using a *thinking through making* approach, the sound design and software were developed iteratively through frequent performances. Working with the character and limitations of the materials (i.e. the software) allowed technological aspects to become artistic materials, while the ongoing reciprocal process between artist and audience members further informed the composition.

4. Building the system concurrently with the composition allowed each to inform the other.

Fields [Performance] *A Gap in the Air Festival,* Talbot Rice Gallery, Edinburgh, UK. 24th January 2015
Image by Chris Scott

COMPOSITION AND PERFORMANCE DETAILS

The composition by Shaw comprised a mixture of field recordings and synthesised sounds, and is loosely structured with sections of improvisation. Wherever possible, Piquemal and Shaw performed from within or around the audience. This configuration encouraged audience members to cluster around the performers, creating an intimate and intensified environment for collective listening.

Fields is a versatile system that can be used in many different configurations and contexts. It has mostly been performed using a quadrophonic sound system alongside the audience's devices. This creates an interplay between the quadrophonic system and multi-locational sonic outputs. Mobile device speakers tend to be unable to transmit low frequencies, so the low-end of the composition is delivered by the supporting quadrophonic system.

The sound design was developed in stages, adapting as it progressed through numerous different performances. Considerations within the sound design incorporate the qualities of the phone speakers and degrees of latency in the moment of the performance, creating the particular spatial characteristics of the piece. Though live presentations retain a degree of performative flexibility, a typical presentation of the work lasts approximately 20 minutes.

During performances, phones can go to sleep and stop receiving commands from the server, often resulting in phones continuing after the last compositional cadence. This creates interesting and relatively unpredictable results, contrasting with the gestural sounds that give a clear sense of an ending. In this final moment, audience members with unresponsive phones tend to either fade out the sound or turn off their device, bringing the piece to a definitive close.

Fields, Sight and Sound Festival, Eastern Bloc, Montreal, Canada. 28th September 2016
Image by Justin Desforges

RESEARCH FINDINGS

Four main findings emerged from the *Fields* performances:

Thinking through making – embracing discrepancies

Retaining a sense of flexibility throughout the *Fields* performances enabled Shaw to exploit and embellish aspects such as latency, sound design and audience configuration, and to integrate these variables productively into the design space of the project, allowing them to become part of the artistic material from which *Fields* was crafted.

The aesthetics of *Fields*

Fields was co-developed as both a composition and a technical system. Arranging audiences in particular ways created arenas for attentiveness, allowing latitude for audience members to co-create a subtly complex and layered listening environment alongside the performers. The arena of attentiveness thereby becomes an arena for experimentation, in which multiple features are configured and reconfigured to generate the *Fields* aesthetic experience.

New approaches to using mobile devices in performance art

Rather than assigning exclusive focus to *what is inside the device,* Shaw was concerned with *what the device is within*. This includes how audiences engage together around their devices in performances, how they share a sonic social experience and how they interact with their device while contributing to the overall composition.

The public and the personal

Fields temporarily changes the role of the mobile phone – typically thought of as a very personal device, holding private information – using it to create a collective, public, temporal performance.

With these observations in mind, *Fields* creates multiple forms of engagement in the context of a sound art performance. By using handheld devices to diffuse sound, each member of the audience holds an individual part of the composition but contributes to the overall collective experience, enriching *the social through the sonic.*

Fields, Sight and Sound Festival, Eastern Bloc, Montreal, Canada. 28th September 2016
Image by Justin Desforges

OUTPUTS: Performances of *Fields*

Fields was performed at multiple venues around the world between 2014 and 2017.
Some performances were recorded and are available online (see links below).

Glasgow Film Festival (Glasgow, UK, 2017)
Wagga Wagga Art Gallery (New South Wales, Australia, 2016)
Edinburgh Entertainment Festival (Edinburgh, UK, 2016)
MIT Media Lab (Cambridge, USA, 2016)
Eastern Bloc (Montreal, Canada, 2016)
https://vimeo.com/229568928
Piksel Festival (Bergen, Norway, 2016)
Stereolux (Nantes, France, 2016)
FACT (Liverpool, UK, 2016)
Connect the Dots (Sheffield, UK, 2016)
https://vimeo.com/144312243
Sanctuary Festival (Dumfries, UK, 2016)
Cafe OTO (London, UK, 2015)
Islington Mill (Manchester, UK, 2015)
Music Hackspace (London, UK, 2015)
Talbot Rice Gallery (Edinburgh, UK, 2015)
Grundy Art Gallery (Blackpool, UK, 2015)
Web Audio Conference (Paris, France, 2015)

New Interfaces for Musical Expression
(Baton Rouge, USA, 2015)
Goldsmiths (London, UK, 2015)
Durham Castle (Durham, UK, 2015)
Sussex University (Sussex, UK, 2015)
Green Door Store (Brighton, UK, 2015)
The Louisiana (Bristol, UK, 2015)
NK Projekt (Berlin, Germany, 2014)
https://www.youtube.com/watch?v=KyNdK5RSN_c&t=3s
Zé Dos Bois (Lisbon, Portugal, 2014)
https://www.youtube.com/watch?v=P1aj6vwFITI
Third Space (Helsinki, Finland, 2014)
Fort Process (Newhaven, UK, 2014)
Culture Lab (Newcastle, UK, 2014)
The Mining Institute (Newcastle, UK, 2014)
https://vimeo.com/100485487
International Computer Music Conference (Athens, Greece, 2014)
HAU2 (Berlin, Germany, 2014)

OUTPUTS: Other

Published Conference Proceedings

Shaw, T., Piquemal, J. and Bowers, J. 'Fields: an Exploration into the Use of Mobile Devices as a Medium for Sound Diffusion*', The International Conference on New Interfaces for Musical Expression (NIME)*, Baton Rouge, LA, USA. May 31-June 3, 2015.

This paper outlined the foundations for the research, communicating our work and initial findings to the NIME community. The performances allowed different audiences to experience the work and engaged people with the piece in a non-academic setting.

Fields as Open-Source Software

The technical system for Fields is available as a piece of open-source software for other artists and researchers to use: https://github.com/sebpiq/fields

Some other artists and researchers using the Fields system:

https://github.com/sebpiq/rhizome/wiki/Gallery

Fields performance at Zé Dos Bois, Lisbon, Portugal. November, 2014
Image: Ana Gutieszca

DISSEMINATION: Contributions to the field

- *Fields* was featured in the Ben Taylor's article 'A History of the Audience as a Speaker Array' https://pdfs.semanticscholar.org/a887/775f6daa47d34a3621a450f5a131d8626ba2.pdf

- *Fields* is included in Visser, J. and Vogtenhuber, R. 'Cloudspeakers – a mobile performance network', conference proceedings for Web Audio Conference 2017 at Centre for Digital Music, Queen Mary University of London.

- On the basis of *Fields*, Shaw was selected for *SHAPE* (a platform for Innovative Music and Audiovisual Art) in 2019. *SHAPE* was formed by members of 'International Cities of Advanced Sound', a global network of independent non-profit organizations dedicated to advancing sound cultures, music and related arts. Each year, 48 creatively strong artists and musicians are selected to participate in live performances, residencies, workshops and talks across festivals and special events.

- *Fields* has been included as reference material for students taking the 'Sound as Art and Research' module at McMaster University, Canada.

- In September 2016, Shaw was invited by New Media Scotland to use the *Fields* system to creatively re-imagine the soundtrack to Chris Marker's film *La Jetée*. This version of *Fields* was presented as a live cinema event with a live narrator in the Assembly Rooms Edinburgh as part of the Digital Entertainment Festival in August 2016, and the Glasgow Film Festival in February 2017.

Rescoring of *La Jetée* by Chris Marker using the *Fields* system. Commissioned by New Media Scotland and presented at the Glasgow International Film Festival (2016) and The Edinburgh Entertainment Festival (2017)

DISSEMINATION: Press and media

Fields was featured on 'Arte Tracks', a French TV program about art and culture
https://www.arte.tv/fr/videos/102788-000-A/les-sons-que-vous-n-avez-jamais-entendus-sont-dans-tracks-arte/

Fields was featured in Neural Magazine
http://neural.it/issues/neural-65-redirecting-networks/

Fields was featured in Impakter Magazine
https://impakter.com/sound-tech-intersect-interview-tim-shaw/

Event at Music Hackspace, London
http://musichackspace.org/tim-shaw-and-sebastien-piquemal-fields-april-16/

Event at Café OTO, London
https://www.cafeoto.co.uk/events/tetsuya-umeda/

Feature in NARC Magazine
http://narcmagazine.com/news-fields-durham-castle/

Interview – SHAPE Platform
https://shapeplatform.eu/2019/tim-shaw-on-field-recording-esoteric-listening-devices-and-working-in-sarajevo/

Rescoring of *La Jetée* by Chris Marker using the *Fields* system. Commissioned by New Media Scotland and presented at the Glasgow International Film Festival (2016) and The Edinburgh Entertainment Festival (2017)

SUPPORTING PROJECT PARTNERS

National Lottery and Arts Council England provided funding for the development of *Fields*, including in the international context.

New Media Scotland supported multiple performances of *Fields* and assisted in its development to be performed with the Chris Marker film, *La Jetée*

Sound and Music supported a UK tour of *Fields* through their 'Audience Development Incubator'

Les Fabriques, Nantes, France, supported the development of *Fields* though an artist residency at Stereolux

Supported by Newcastle University Institute for Creative Arts Practice

Tim Shaw: *Fields*