

MAKING IMPROVISED MUSIC FOR IPAD AND PERCUSSION WITH ENSEMBLE METATONE

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Figure 1. *Ensemble Metatone* in rehearsal.

ABSTRACT

Ensemble Metatone was founded by Charles Martin in 2013 to create a collaborative performance practice using custom iPad apps and percussion. This group combined aspects of established traditions of improvising contemporary percussion groups and laptop orchestras with the new affordances of mobile touch-screen devices. This paper outlines our strategies for assimilating iPads into the group, developing new musical works, and staging performances.

1. INTRODUCTION

*Ensemble Metatone*¹ is a group dedicated to making improvised and experimental music with custom iPad apps and percussion. The group of professional percussionists (Charles Martin, Christina Hopgood, Jonathan Griffiths, Yvonne Lam) was founded in 2013 by Charles Martin as part of research into collaborative musical performance on iPads. Beginning with a series of free-improvised studio rehearsals the group has performed several concerts including a live recording that was released in March 2014.

As *Ensemble Metatone* was formed to help fulfil the goals of a research project, the group's initial rehearsals and performances were consciously designed. Percussion groups have an established tradition of free

improvisation and exploration of new and unusual instruments. The pioneering percussion group, Nexus, has had a long history of free improvised performance since their earliest concert (Cahn 2005), a practice emulated by ensembles around the world. Celebrated percussion works by composers such as Xenakis, Cage, and Harrison include rough descriptions of invented instruments (e.g. the amplified wire coil in Cage's *Imaginary Landscape No. 2*) with construction left to the performer (Schick 2006). As experts in percussion performance, the members of *Metatone* were able to leverage these traditions for creating new music with the unfamiliar iPad apps that they were using.

Other aspects of the group were borrowed from the more recent tradition of the laptop orchestra. Laptop orchestras, such as Princeton's *PLOrk*, feature a large group of performers using identical hardware and software configurations and separate sound sources for each performer (Trueman 2007). This arrangement allows a natural diffusion of the ensemble's sound through the multiple loudspeakers and the development of a repertoire of works composed for the orchestra's laptop configuration. This arrangement was extended by Ge Wang's *MoPho* (Wang et al. 2008) who performed ensemble works with mobile phones and, later, iPads.

1.1. Setup

Four iPad 4s were used for *Ensemble Metatone*, loaded with prototype apps and loaned to the performers to practice. The group's rehearsal space (see **Figure 1**) featured four large monitor speakers in a quadraphonic

¹ <http://metatone.net>

configuration. Sound from the headphone output (mixed down to mono) from each iPad was routed to the monitor speaker directly behind each player and also to an audio interface for recording.



Figure 2. Performance setup at the ANU School of Music.

In live performances (see **Figure 2**), the group used four Mackie SRM450 loudspeakers on stands. The iPads are either directly connected to the loudspeakers or routed through an audio interface for multitrack recording. In smaller venues, we have experimented with using loudspeakers on the floor and with using much smaller speakers such as KRK Rokit 5 studio monitors or Behringer B205D loudspeakers.

1.2. Apps

The iPad apps used by *Ensemble Metatone* are all designed by Charles Martin and strongly informed by his experiences performing and rehearsing with the group. The published apps, *MetaLonsdale*¹, *BirdsNest*², and the unpublished prototypes *MetaTravels* and *Singing Bowls* all feature a percussion inspired interface. The majority of the iPad screen is a performance surface with few graphical UI elements. Tapping the screen produces short sounds, either field recordings or percussion samples, with pitch determined by the location of the tap. Swiping creates continuous sounds with the velocity of the swipe directly mapped to volume.

The design of the apps was “percussionist-centred” (Martin, Gardner, and Swift 2014b), with a focus on providing a small number of sounds for the performers to explore alongside their existing percussion setups. It was envisioned that the apps would become “composed instruments” (Schnell 2002) with each app corresponding to a particular piece in the group’s repertoire.

All of the apps used in the group use Pure Data and *libpd* (Brinkman et al. 2011) for sound synthesis and Apple’s iOS frameworks for the interface. The apps were equipped with network features for logging touch interactions during performances and for inter-iPad communications. These features used OSC messages and took advantage of Apple’s Bonjour zero-configuration networking architecture that allowed the apps to

automatically discover each other and a logging server on a local Wi-Fi network.

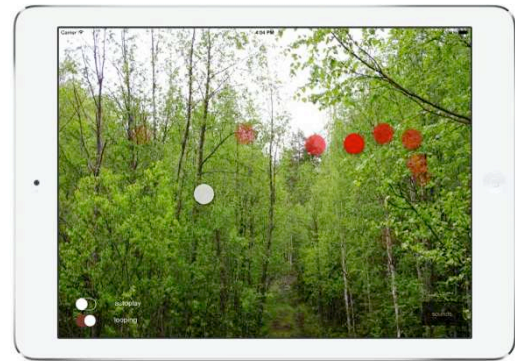


Figure 3. Screenshot of the *BirdsNest* app.

2. INITIAL REHEARSALS

Ensemble Metatone’s early rehearsals took place in April 2013 and were designed to harness the members’ training to define a vocabulary of musical gestures and modes of interaction with the iPads that could be used in subsequent compositions and improvisation. Over a number of sessions, the group followed a process of “Creative Music Making” (Cahn 2005) where freely improvised sessions were recorded, immediately played back, and discussed. In this early stage, no percussion instruments were used and the group played only the *MetaTravels* app.

After several iPad-only rehearsals, the group members were invited to choose a percussion setup to go along with the app. The members’ choices, vibraphone, a standing drumset, terracotta pots and plates, crotales and woodblocks, reflected their personal tastes as well as inspirations from percussion works by composers such as Frederic Rzewski, Tōru Takemitsu, John Cage, and prolific improvisers *The Necks*.

In these rehearsals, the utility of the four large monitor speakers was immediately apparent. The performers had no trouble recognising their sound and balancing with the group through the touch screen as well as the iPad’s hardware volume control. As the recording could be played back through the same speakers, the listening phase was strikingly life-like and quite fun!

This rehearsal series was thoroughly documented using not only audio and video recordings, but a log of touch-interactions sent to a server with OSC messages. This documentation allowed reproductions of the rehearsals, complete with animations of the iPad touch screens. A vocabulary of continuous touch-screen gestures was identified from these recordings (Martin, Gardner, and Swift 2014a) and has been used as a basis for a prototype gesture recognition system and scored compositions.

It was significant that even though performers were limited to the small number of sounds available in the *MetaTravels* app in this rehearsal series, the musical gestures and ensemble interactions that they developed

¹ <http://metatone.net/metalonsdale>

² <http://metatone.net/birdsnest>

allowed them to engage in long improvisations. This practice formed the basis for the group's subsequent performances.

3. PERFORMANCES



Figure 4. Performance of *MetaLonsdale* at the ANU School of Art Gallery, October 2013.

Following the initial series of rehearsals, the group met less frequently and focused on preparing for concerts rather than open-ended exploration. The group's first performance was part of the 2013 Canberra International Music Festival. In this initial performance, the group performed with the *MetaTravels* app and percussion setups as used in the rehearsal series. Powered speakers on stands were substituted for the studio monitors and the players were arranged in an arc, rather than the circular configuration in the rehearsal studio.

3.1. *MetaLonsdale*



Figure 5. Performance of *MetaLonsdale* for iPad duo at Everything/Nothing Projects.

The next *Metatone* performance was a duo concert by Charles and Christina at the Everything/Nothing Projects Gallery in Canberra's "Lonsdale St Traders". For this event, a new app called *MetaLonsdale* was created that blends field recordings from the area's cafés and shops with the textures of tuned percussion. In contrast to the chromatic pitches available in *MetaTravels*, *MetaLonsdale*'s pitched sounds were taken from a sequence of four scales. A single button in the user interface controlled the progression of scales and sounds.

This app used the OSC messages between iPads to keep scales and other functions on the iPads in synch.

3.2. Research Recital

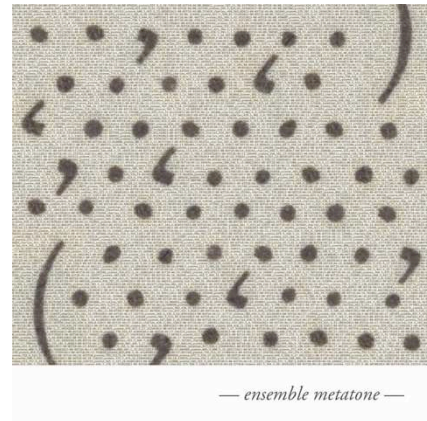


Figure 6. Cover art for *Metatone*'s debut release created by Benjamin Forster. The textured background is formed from an excerpt of the touch interaction log of the performance.

MetaLonsdale was brought back to the full quartet at a research recital held at the ANU School of Music (see **Figure 2**). The concept of this concert was to capture audio, video, and touch data in a live performance environment with an audience. *MetaLonsdale* was performed without percussion followed by a performance on the *MetaTravels* app with percussion setups similar to those used in the rehearsal series. The recording of the performance was later released digitally as a self-titled album¹ shown in **Figure 6**.

Several audience members commented at this recital that it was difficult to see the performer's interaction with the iPads amongst the much larger percussion instruments. In a performance of *MetaLonsdale* at the ANU School of Art Gallery (**Figure 4**), we attempted to address this issue by standing in a close configuration without stands for the iPads. While this setup limited our two-handed dexterity, the audience was able to clearly see our hands and even the content of the screens. The close proximity of the group also created a relaxed and enjoyable environment for improvisation.

3.3. Touring to Electrofringe

Ensemble Metatone's first touring experience was at Electrofringe 2013 in Newcastle. In a trio configuration (Charles Martin, Christina Hopgood, and Jonathan Griffiths), we reduced our percussion setups to what would fit in one car along with the three performers. Vibraphone was replaced with the electronic MalletKat, crotales with singing bowls and bass drum with a floor tom.

The reduced percussion setup introduced limitations in our sonic palette forcing us to make up the gap with the iPad instruments. This fact combined with the installation style presentation in Newcastle's Hunter

¹ <http://charlesmartin.bandcamp.com/album/ensemble-metatone>

Street TAFE made this a challenging but worthwhile concert.

3.4. *BirdsNest* at PASIC 2013

The *BirdsNest* app (see **Figure 3**) was developed by Charles Martin for his US-based percussion group *Ensemble Evolution* with Maria Finkelmeier and Jacob Remington. This group was invited to perform a suite of works written in Northern Sweden at the 2013 Percussive Arts Society International Convention in Indianapolis, USA. With a similar interface to *MetaLonsdale*, *BirdsNest* included field recordings from Northern Sweden as well as percussion samples. Informed by Charles' experience with *Metatone*, this app was used in improvised trio performances alongside a table of handheld percussion instruments, twigs, branches, and birdcalls.

3.5. Expanding the Ensemble



Figure 7. Performance of *Study in Bowls 1* at the You Are Here festival, Canberra.

The first *Ensemble Metatone* performance for 2014 was at Canberra's You Are Here festival at Canberra Museum and Gallery's entryway. This performance included a continuous set of *MetaLonsdale* and *BirdsNest* as well as a new app, *Singing Bowls*, and a new composed work *Study in Bowls 1*.

For this new work, three extra members joined the group to make an ensemble of seven players. *Study in Bowls 1* was a scored work where three groups of players perform repeated cells of semi-improvised touch gestures based on those identified in our rehearsal study. The *Singing Bowls* app presented each player with a setup of several pitches of synthesised singing bowls that can be struck with taps or continuously sounded with swipes. This new app interacted with our prototype gesture recognition software, automatically updating the setup of pitches in response to the changing gestures of the performers.

In this expanded ensemble configuration, the members of *Metatone* acted as section leaders, teaching the new players our vocabulary of touch gestures. Although working from the score is limiting compared to free improvisation, it opens the possibility of sharing our work with new players or with other groups around the world.

4. REPERTOIRE

The works performed by *Ensemble Metatone* have evolved from free-form explorations into a repeatable repertoire.

- *MetaTravels* for iPad and percussion quartet*
http://youtu.be/nqB_TRsLS3U
- *MetaLonsdale* for iPad quartet*
<http://youtu.be/pYxEbKk7jPs>
- *BirdsNest* for iPad and found percussion
<http://youtu.be/zqnfMAHbPA>
- *Study in Bowls 1* for iPad ensemble
<http://youtu.be/ajC7XVWaVFo>

(* Featured on the *Ensemble Metatone* digital release.)

5. CONCLUSION

In *Ensemble Metatone*, a hybrid iPad/percussion ensemble was created through a rehearsal series that focused on developing techniques for improvisation and exploring the new touch-screen instruments. In performances throughout 2013 and 2014, and an album release, the group presented a new take on improvised music for iPad and percussion, experimented with a number of performance configurations and met some of the logistical challenges of touring. Future projects will expand the group's repertoire with new improvised and scored works not only to develop *Ensemble Metatone's* practice, but also to share it with other performers and groups.

6. REFERENCES

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