
Soundscape Composition and Field Recording as a Platform for Collaborative Creativity

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In this paper, the authors describe and discuss UrbanRemix, a platform consisting of mobile-device applications and web-based tools to facilitate collaborative field recording, sound exploration, and soundscape creation. Reflecting on its use at workshops, festivals and community events, they evaluate the project in terms of its ability to enable participants to engage with their aural environments and to uncover their own creativity in the process.

1. INTRODUCTION

This paper discusses UrbanRemix, our platform for facilitating collaborative field recording, sound exploration and soundscape creation. The platform's name reflects our focus thus far on events in large cities and urban neighbourhoods, but UrbanRemix can be used anywhere. With the UrbanRemix mobile phone software participants record and share geo-tagged sounds and images captured from their environment. Web-based tools enable anyone to browse, remix and share the sounds through an intuitive map-based interface. Musicians and DJs can also export audio content to other software environments to create electroacoustic compositions, live performances and installations. Through the platform and associated events, we encourage participants to explore, develop and express the acoustic identity of communities, documenting the sounds they discover and reframing them as unique soundscapes. Through this experience, we hope that participants become increasingly aware of the sounds in their environment and perceive their surroundings anew.

In developing UrbanRemix and defining the project's goals, we were informed by our diverse backgrounds bridging interactive music, participatory design, virtual worlds and human-computer interaction. Freeman is trained as a composer and computer musician, with a focus on interactive music in participatory contexts. His work has traditionally focused on breaking down the barriers among composers, performers and listeners, linking the creative activities of audiences to the music created in live

performance (Freeman 2008). Nitsche has a background in architecture and mediated spaces and a research agenda that focuses on design and critique of virtual media spaces in interactive digital media (Nitsche 2009). DiSalvo is a designer with a focus on participatory and socially engaged practices, and has previously worked in collaborative online mapping and locative media. Garrett's prior work is focused on human-computer interaction, with a particular focus on mobile interfaces for participatory performing arts. UrbanRemix, thus, grew from a shared interest in creativity and participation but was further shaped and informed by our multiple disciplines and interests.

We brought together these diverse perspectives in order to reconsider the role of soundscape composition in both raising listening awareness and facilitating creativity. Hildegard Westerkamp describes the 'essence' of soundscape composition as 'the artistic, sonic transmission of meanings about place, time, environment and listening perception' (Westerkamp 2002: 52). We share Westerkamp's passion for soundscape composition, but, like her, we have struggled to answer a fundamental question about its role and context: 'How can the soundscape composer raise listening awareness in an already overloaded sound world with yet another sound piece?' (Westerkamp 2002: 52).

We believe that by shifting the focus away from the creation and dissemination of fixed-media soundscape compositions we can invite others to participate in all stages of the creative process. In this manner, we challenge participants to engage with their aural environments, to explore, discover and share the sounds they find, and to uncover their own creativity along with the music of their environment. In our work, soundscape composition moves away from Westerkamp's conception of transmission of meanings from composer to listener, instead asking each person to discover, create and (perhaps) share their own meanings as they explore a physical environment or its virtual representation. In this context, we are not in fact

composers, but rather designers of a platform through which music is collaboratively created.

In the following sections, we discuss the design and implementation of UrbanRemix in detail as well as its use in workshops, festivals and community events. The accompanying video example (Movie example 1) also demonstrates the platform and its use at an event.

2. RELATED WORK

In designing UrbanRemix, we were influenced by a diverse set of arts and research projects spanning locative media, interaction design, and contemporary and electroacoustic music. In this section, we highlight some of the projects that have most influenced our work.

The term ‘locative media’ is used to designate a range of arts and design practices that share a focus on the situated and spatial aspects of media production, use and experience (see Hemment 2006). Although the use of interactive media is not a prerequisite for locative media, such projects tend to involve some combination of online mapping systems, Global Positioning System (GPS) enabled devices and mobile computing platforms as key components. More than any particular technology or configuration of technologies, though, locative media is perhaps best understood as a “‘test category” for the convergence of geographical and data space’ (Hemment 2006).

For example, the [murmur] project (High and Sworn 2009) is an early example of an interactive locative media project in which sound plays a central role. In this project, participants recorded, on location, oral histories and reflections of urban spaces. On the [murmur] website, visitors listened to these recordings by navigating a map-style interface. Clicking on red dots on a hand-drawn map loaded a new web page featuring a street-level photograph of the location and embedded audio files recorded at that location. While UrbanRemix does not share this project’s focus on oral history, we were inspired by its map-based browsing interface and its use of geo-located photographs in conjunction with audio recordings.

Other projects such as Tactical Sound Garden Toolkit (Shepard 2007) have made use of the increasing ubiquity of Wi-Fi and GPS-enabled mobile devices to explore urban space as mediated by sound. The Tactical Sound Garden Toolkit invited participants to ‘plant’ sounds in physical space, using a mobile device to tag them with a particular location. A mobile playback engine enabled participants to hear spatialised remixes of the planted sounds as they moved through the physical space. Unlike UrbanRemix, Tactical Sound Garden did not include field recording: participants planted existing sounds stored on the server. But its concept of movement through space as a mechanism for spatially mixing

audio files influenced the development of UrbanRemix’s soundscape creation tools.

In Sonic City (Gaye, Mazé and Holmquist 2003), a wearable computer received data from a suite of sensors monitoring environmental conditions, such as light and temperature, and the physical properties of the participants, such as their heart rate and the direction they were facing. The data controlled parameters of an algorithm to process environmental sounds in real-time and create a continuously evolving soundscape. The participant listened to the soundscape over headphones as he or she moved through the city. UrbanRemix shares Sonic City’s focus on geographic paths as generative processes and on the use of environmental sounds, but it explores these ideas within a collaborative framework instead of as a private experience, using persistency and virtual representations to facilitate that collaboration.

UrbanRemix is closely aligned with and inspired by practices of field recording and soundscape composition, and, to a degree, acoustic ecology. While we do not consider ourselves to be acoustic ecologists, we are nonetheless influenced by Schafer’s conception of the macrocosmic composition (Schafer 1977), and by the potential of soundscape composition to reveal the inner sonic life of a particular place and frame of time. Soundscape composition’s long history not only as a compositional genre but also as an educational tool, particularly in general music courses (Cumberland 2001), provided further inspiration for us to build a participatory platform for such work and to make workshops a key component of the project.

Silence of the Lands (Giaccardi, Eden and Sabena 2006) draws from the same core ideas of participatory field recording and path-driven soundscapes as UrbanRemix, but uses these tools for different purposes. With Silence of the Lands, as participants move through an environment, their course is logged via GPS. They use mobile devices to record geo-tagged sounds, which, along with their route data, are stored in a central database. A website and tabletop interface displayed within a museum or gallery then visualises the individual walks and the sounds collected along those routes. Soundscapes are created manually through interaction with the tabletop interface, and these soundscapes can reflect the overlap of individual walks. Silence of the Lands uses these tools to support ‘creative and sustainable solutions to complex societal problems’ by ‘using ambient sounds as conversation pieces of a social dialogue aimed at transforming the virtual museum in a place of cultural negotiation’ (Giaccardi, Eden and Sabena 2006). UrbanRemix, in contrast, does not capture route data, just the sounds contributed by users, with soundscapes being uniquely generated by each user of the interface as they define new routes along the map. Moreover, with UrbanRemix the immediate goal is not dialogue and progress in the

social or political realms, but an artistic exploration and re-discovery of the space.

In addition, UrbanRemix is influenced by recent experimental music projects that link participants' movements through the city to a concert performance or gallery installation in real time. GPSart (Wierzbicki, Pączkowski and Choloniewski 2010), for example, enables the production of urban soundscapes that are rendered on interactive maps or as projections that make use of, and manipulate, video footage associated with the spaces from which the field recordings are taken. Net_Dérive (Tanaka and Gemeinboeck 2006) outfits participants with GPS sensors and mobile phones that, as they move through the city, generate an audiovisual stream in a gallery in real-time. What is notable about these two projects (and Silence of the Lands) is how they transform movement through the city into a creative, and at times critical, act. They call to mind the spatial tactics of de Certeau (1984), and the work of the Situationists (Sadler 1999), providing inspiration for our own framing of the workshop and field-recording components of the UrbanRemix project.

Finally, UrbanRemix is informed by online sound databases. Users of the Freesound website (Universitat Pompeu Fabra Music Technology Group 2011), a database of creative-commons-licensed audio recordings, may manually geo-tag their recordings, and over 6,000 files have been tagged with location data. Website visitors can browse all geo-tagged samples in a map view. During the early development stages of UrbanRemix we used FreeSound as a testing database and we learned a critical lesson from that experience. In FreeSound, 6,000 geo-tagged files are currently spread across the entire planet, and there is never enough density of sonic material to generate meaningful composite soundscapes from it. So in UrbanRemix we decided to organise the project around a series of events that focus on specific neighbourhoods and communities, where promotion, workshops and other outreach would ensure a reasonable density of material in the database for that particular area.

3. DESIGN AND IMPLEMENTATION

UrbanRemix incorporates key ideas from past work in its platform for participatory field recording and soundscape creation: the use of a virtual map to represent geo-tagged sounds; the use of commodity mobile devices for field recording; the role of a path through the environment to organise aural content; and the suitability of these tools for educational contexts.

UrbanRemix is distinct from past work in its methods and practices of community engagement and mechanisms for collaboration. Our project engages participants at three distinct stages: it invites them to discover environmental sounds and to document them via field recording; to investigate the sonic character and

memory of a space by exploring the contributed field recordings; and to unearth the musical potential of those sounds by creating soundscapes, remixes and other musical compositions incorporating the field recordings. At each of these stages, we attempt to engage a broad and diverse public to participate by making intuitive tools available on commodity devices (mobile phones and desktop web browsers) and holding workshops and outreach programmes. We also seek to link the contributions of the general public with those of professional musicians, engaging electronic musicians to create their own live performances based on the sounds recorded by participants.

This section discusses the design and implementation of the UrbanRemix platform in terms of these three stages of participation: field recording, sound exploration and soundscape creation.

3.1. Field recording

UrbanRemix enables anyone to record and share sounds using free applications we developed for Google's Android and Apple's iOS mobile devices (Figure 1) using their respective software development kits. Participants register for an account on the UrbanRemix website and agree to release all field recordings under a creative commons licence. They can then download the application to their phone and record short audio clips of up to 60 seconds (though in practice most are shorter). Each sound file is

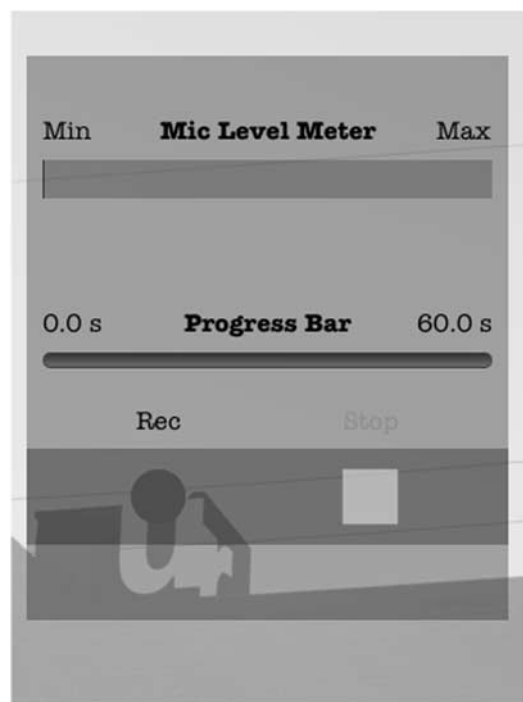


Figure 1. The UrbanRemix application for iOS enables users to record geo-tagged audio files and upload them to the server.

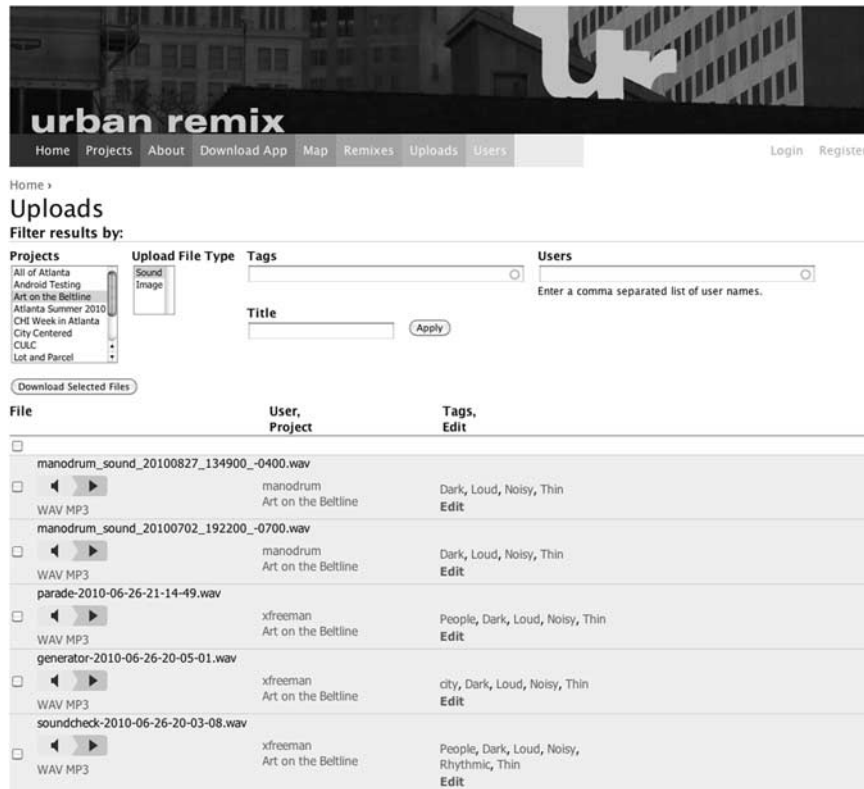


Figure 2. The UrbanRemix website includes a searchable list view of uploaded sounds and images.

automatically tagged with the geo-location at which it was recorded, the time when it was recorded, and the user who recorded it. Users may also give the file a unique name and select descriptive tags from a list. (Additional tags related to rhythmic and spectral content are automatically assigned to each audio file based on an algorithmic analysis of its content.) To support accessibility, no Internet connection is required during field recording, as sounds can be queued for later upload to the server. Sounds are uploaded as uncompressed audio files to ensure they maintain audio quality after mixing and processing, so users are encouraged to upload their queue over a Wi-Fi network.

The design of the mobile application is simple and focused, guiding users through each step of recording, tagging and uploading. Our goal was to facilitate the rapid capture of geo-located media, offloading more complex editing tasks to the project's website. In addition to sounds, users can upload photos using the device's camera through a similar process.

We chose to implement field recording on commodity mobile devices for a number of reasons. Their ubiquity makes it easy for people to participate; their programmability makes it easy for us to incorporate special features, such as tagging and user identities, into the system; their incorporation of GPS chips makes it easy to track the location of sounds; and their Internet access makes it easy to share recordings via a central server. The biggest drawback of such

devices is their microphone, which cannot rival the dedicated hardware typically used for professional field recordings. In our tests, though, we found the audio quality of these microphones was generally adequate, and that users who were eager to improve recording quality were able to use third-party accessories to connect high-quality external microphones to their devices.

3.2. Browsing and exploring

The UrbanRemix website (Figure 2), implemented in Drupal, enables users to browse and explore the content that has been uploaded from the mobile devices. Visitors can browse content by user and event and further search it based on timestamp, tags and filenames. Users can view sound and image content in list format or on a map. In the list view, they can also add descriptive tags, flag inappropriate content, and, for their own sounds and images, perform further editing or remove unwanted items. In the map view, individual sounds and images are displayed as geo-located markers; clicking on a marker displays (and plays) its content.

3.3. Soundscape creation

The UrbanRemix website's map view (Figure 3), implemented using the Google Web Toolkit, is not only a browsing mechanism, it is also an intuitive

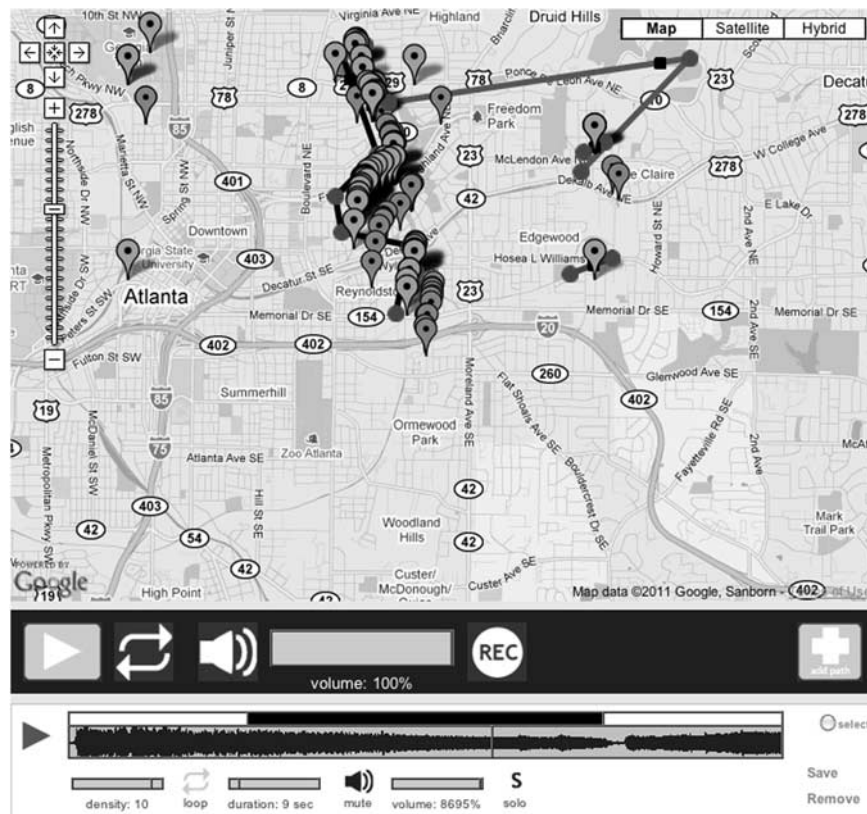


Figure 3. The UrbanRemix website's map view is a tool for both browsing contributed content and creating new soundscapes by drawing paths on the map.

interface that enables anyone to create soundscapes by traversing virtual paths. On the map, paths become a means to mix audio content into spatialised soundscapes. Our intent was not to recreate the features of dedicated audio production software, but rather to create a simple, accessible tool that uses movement through the environment as an organising principle. Such structural strategies have long been a common technique in soundscape composition (Truax 2002).

Users can draw paths directly onto the map or compute directions between two locations to generate a path. The path is then rendered as an audio soundscape, mixing together the sounds closest to the path and changing their amplitude, panning and filtering over time to reflect movement along the virtual path. An earlier version of the website used binaural spatialisation, but we dropped this implementation: the extra processing time affected the responsiveness of the user experience, and the spatialisation could only be heard on headphones, which most users did not use. Our current algorithm simply finds the geographically closest sounds to the drawn path on the map that satisfy the chosen search criteria (author, timestamp, tags, etc.). It then creates envelopes to control the amplitude, panning and low-pass filtering of each of the corresponding sound files based on the changing distances and angles between

the marker locations and a virtual person walking along the path. The virtual person always faces north so that panning envelopes make intuitive spatial sense when viewing the map onscreen. All audio processing takes place on the server using RTcmix (Garton and Topper 1997), and the resulting soundscapes are seamlessly streamed to the browser as MP3 files (Freeman 2009).

Users can configure basic parameters of the algorithm, including the maximum number of sounds to include in the mix and the duration of the soundscape. They can share the resulting soundscape on the site. Users can also 'perform' with the paths, creating several different paths and then triggering, looping and scrubbing through them in real-time. These performances can likewise be captured and shared on the site.

Finally, we added functionality that enables users to instantly mix soundscapes from the mobile device application itself, so that they can experience the sounds in the physical space in which they were recorded. The application looks at the current GPS and compass readings, along with user-defined search criteria and parameters such as sonic density and radius of search, to create a continuously evolving mix of sounds near the user's current location. The algorithm is similar to that in the web-based tool. Essentially, the application creates and renders a virtual path that encircles the user

at the specified radius; its exact shape changes based on physical movement as detected by the compass. Again, the audio is rendered on the server and streamed to the mobile phone. The circular shape of the rendered path ensures a smooth, continuous soundscape even though each loop around the circle is actually a discrete audio file. The phone's display shows images from the database within the same radius of the current location as the sounds.

Electroacoustic musicians and DJs can also mass-download search results as an archive of uncompressed audio (and high-resolution image) files and then quickly import this content into professional music and video production software. While the website's map-based tools encourage the casual creation and sharing of soundscapes, this export facility encourages more prolonged, intense engagement with the material in the context of live performances, installations and fixed media works.

4. URBANREMIX EVENTS

A central part of UrbanRemix are participatory workshops and public events in urban neighbourhoods. We focus on particular events and locations to create a meaningful density of sounds. These events are designed around existing communities, involving local residents and community stakeholders for sound recording, online soundscape creation and live performance.

Each event typically begins with a period of sound and image collection: this may last as little as an hour or as long as a month, and may involve group walks through an area as well as open-ended invitations to contribute. After collection is complete, electroacoustic musicians prepare a public performance in the neighbourhood, using only the contributed sounds in their performance. The public is invited to explore the content online and to create and share soundscapes, both during and after the event.

4.1. City Centered

During the summer of 2010, we presented UrbanRemix at three public events. At the City Centered Festival of Locative Media in San Francisco, we worked with Glide Memorial Church, which provides extensive support services for the community of the Tenderloin neighbourhood. We collaborated with about a dozen members of the Glide community to venture out into the Tenderloin to record sounds (Figure 4), capturing snippets of conversations, traffic, an argument, security keypads, and so on. Over 170 sounds were recorded during the one-day workshop. Based on this collection, Bay Area musician Ken Ueno prepared a performance. He improvised on his laptop to shape a granular synthesis algorithm



Figure 4. Participants in the UrbanRemix workshop at Glide Memorial Church recorded sounds in San Francisco's Tenderloin district.

that merged these sounds into spatialised clouds, moving between moments of recognition and abstraction. The result was a dual re-interpretation of the Tenderloin district: once through the selective collection of sound, and again through the performance incorporating those sounds.

One of the biggest challenges we faced with this presentation concerned timing and preparation. Ueno noted to us that his biggest challenge was that he had only a day after the collection of the sounds to prepare his performance (Ueno 2011). There were two key reasons behind this tight schedule: the short timetable of the festival itself and our desire that the community members who had helped to collect sounds attend the performance while the experience was fresh in their minds. Ueno's solution to this challenge was to develop his approach in advance, using a small set of test sounds recorded at a previous UrbanRemix event, and then to work intensively with the new sound collection to refine and adapt that approach with the available time.

4.2. Art on the Beltline

We organised a second event in summer 2010 in collaboration with Art on the Beltline, part of a larger public project in Atlanta that seeks to transform old urban railways into walking and biking paths that will connect city neighbourhoods (Gravel 1999). Over the course of a month, we invited Atlantans to walk



Figure 5. Musician Travis Thatcher's laptop performance on the Atlanta Beltline.

the Beltline and capture the sounds they heard. As in the City Centered project, we chose a local musician, Travis Thatcher, to create an ambient performance of the resulting 180 sounds in a show that took place outdoors along the planned Beltline route (Figure 5).

Our biggest challenge with the Beltline event was to attract a critical mass of participation in field recording. We relied entirely upon email blasts and word-of-mouth, and did not organise any formal workshops or walks for sound collection. Ultimately, only eight distinct users uploaded recordings to the database for this project, while over a hundred came to the performance. Clearly, an open-ended invitation to download the mobile app, locate the Beltline (which at this early stage of construction is quite difficult to do), and contribute was not sufficient to garner the scale and depth of participation we had hoped for with the project. We explore this issue further in the discussion section below.

4.3. Woodruff Arts Center

Finally, we collaborated with the Woodruff Arts Center and Atlanta Public Schools to hold a two-week summer camp for middle school students. During the camp, twenty teenage participants captured nearly 800 sounds and images from the neighbourhood surrounding the arts centre. Instead of involving professional musicians (as with the previous two projects), we made the development of a live performance an integral part of the camp. Students first explored the content and created soundscapes through our website and then used professional DJ and VJ tools to prepare and present performances with the material. The curriculum, developed in partnership with arts educators, aimed to raise students' awareness of the sound environments they encounter and also to introduce them to skills in mobile device use, map-reading, and music and video production.

At the camp, most students mastered these skills with relative ease. The biggest challenge they faced, unsurprisingly, was in working together to create compelling performances. A low student-to-teacher ratio ensured that the students received ample guidance and support in this regard. As we continue to collaborate with Atlanta Public Schools to refine this curriculum for use in general music classes we are developing curricular modules which focus more explicitly on group collaboration, structural and notational paradigms, and rehearsal techniques.

4.4. Independent events

In addition to these UrbanRemix events, independent researchers, artists and organisations have also used the UrbanRemix platform for their own purposes, organising their own independent projects.

Mark Godfrey, a local Atlanta musician, used UrbanRemix to develop a multi-channel sound installation for a local art exhibition about mapping neighbourhoods. Using a high-quality external microphone attached to his iPhone, Godfrey recorded approximately 130 sounds, mostly in Atlanta's midtown neighbourhood, as he walked on a series of unplanned excursions. Using the UrbanRemix map view as a guide, he then composed a 14-minute loop, with his own music production tools, representing his walks through Atlanta. Unlike our own UrbanRemix events, there was no collaborative element here. But the platform was still an important tool in Godfrey's process because it could so easily record, geo-tag and organise his field recordings. Sarah Vaden, a Georgia Tech student, recently used the UrbanRemix platform in a similar manner, but with a focus on documenting New Zealand's South Island.

An Atlanta public radio station, WABE, is currently developing a project with the UrbanRemix platform, with much more of a focus on participation and collaboration. The station's popular news short series *Atlanta Sounds* focuses on the interesting but overlooked sounds of the city. The station is integrating the UrbanRemix platform into their website as a mechanism for listeners to suggest ideas for future stories and to build a community with each other as they share sounds online and create soundscapes from them. For the station, the platform is a powerful means to develop a practice of community journalism and engage their audiences via new media. For us, the project represents a new model for motivating participation, particularly in field recording: the possible inclusion of sounds in an on-air feature.

5. DISCUSSION

At the end of the Atlanta Public Schools workshop, one teacher said to us that UrbanRemix gave his

students an entirely different way to think about music in the world. This precisely reflects our original intentions: to spur participants to consider their surroundings in a new way and, upon reflection, to arrive at their own individual realisations and conclusions.

We were also encouraged by the ways in which participants used UrbanRemix to document and express unique and personal interests. For example, a teenage participant in our City Centered workshop went to great lengths to capture the sound of a table-soccer game at his youth club because it was one of his favourite activities, an important part of his identity, and thus important for him to share.

Participants felt connected to collections of sounds as well as to individual sounds. Once all sounds of an event were collected and mixed into unique soundscapes, these resulting pieces often became points of pride for their creators. One group of students at the Woodruff Arts Center camp created a skit about environmental sound awareness to frame their performance, while another choreographed a dance routine to accompany their audio and visual material. Participants in UrbanRemix events have created music in a tremendous variety of musical styles, from beat-driven electronica loops to ambient granular textures.

Overall, most field recording has taken place as part of scheduled workshops and outreach events; few people other than the project's creators have ventured out to record sounds independently from such organised workshops. For the most part, communities have not continued to use the platform beyond the formal conclusion of an event, even when their feedback about the experience has been quite positive.

There are many possible reasons for this situation. Smartphones are not widespread in some of the communities where we have worked, and so the only way in which many people could participate was to attend an organised event at which we provided phones. Early versions of the application were difficult to learn without a hands-on tutorial, and we initially lacked adequate online documentation. Most importantly, we failed to develop adequate organisational structures to motivate and support independent or ongoing participation. To foster more use of the system – and, more generally, to promote more engagement with the acoustic environment – as we plan for future UrbanRemix events we are further exploring how to motivate and facilitate participation in all three stages of the process beyond our current strategies of outreach workshops and live performances. Some of these ideas are described in the future work section below.

Along with reconsidering our modes and methods of public engagement, we continue to reconsider the design of the software itself. The focus of our field recording database not only on specific places but also on short frames of time influenced our design priorities for the soundscape creation tools. On our

website, movement along a path through mapped spaces became the principle organising method, with date and time ranges relegated to the search criteria. We remain interested in using the passage of time as a more dynamic organising strategy for these soundscapes, as seen in other compositional practices (Truax 2002), but the current realities of the database's contents make this option somewhat limited. Our mobile application creates soundscapes with a similar focus on location rather than time. One original conception of the project was to compare the acoustic character of a space at different times and to track its evolution over time, comparing day and night conditions, for example. Given the current database contents, such explorations are not yet possible.

In our initial conception of UrbanRemix, field recordings and photographs stood on equal footing in the online database. As the project developed, photographs were reduced to secondary elements of the platform. Users can indeed take pictures and upload them to the database, view them on the map or in a list, and export them, but we have yet to develop as rich an interface to 'mix' photos as we have for sounds. The website's map view does not permit any kind of photo mixing, and the mobile application simply shows a slideshow of nearby images to accompany the continuous soundscape it generates. Most of the events we organised did not use photographic content at all in their final public performances.

Over time, photographic mixing has turned from an item on our to-do list into a broader question about the platform and similar participatory systems. In a culture where sound is often relegated to background support for visuals (Alexander and Collins 2008), we have become concerned about tipping the balance of the platform away from intense listening to and reflection upon the aural environment. Curiously, we have never received any feedback from participants asking for new functionality related to the photographs. At this stage, the photos seem to serve primarily as cues to the location in which sounds were recorded, just as in [murmur] (High and Sworn 2009).

Reflecting upon our success, the limitations of our public engagements and the software platform itself returns us to the core of UrbanRemix: sharing the experience of soundscape composition with others – the process, not just the product – in the hopes that such an experience will lead to revelations about one's environment and oneself. As Westerkamp notes: 'the actual recorded materials [in soundscape composition] are of course important, but the listening *experiences* while recording *and* while going about one's life are just as important' (Westerkamp 2002: 53). We build the experience of UrbanRemix from a foundation of participatory field recording, and then sound exploration and soundscape creation extend and develop the new perspective field recording affords.

And when participants then hear how others have created music from the sounds of that environment, they listen to it with a deep familiarity of the space.

By opening up the process to participation at all stages, we do give up substantial control over the products that come out of that process. As a result, we do not necessarily find all of the sound recordings, soundscapes and performances that arise from UrbanRemix to be interesting or musically compelling. But, ultimately, the products that arise from UrbanRemix are not really the point: the point is to experience the process.

In the case of performances, we often rely heavily on the professional musicians with whom we collaborate to imprint their own unique musical voices onto the performances, selecting and processing field recordings to create a coherent product from a multiplicity of contributors. There can be an inherent mismatch between the contributed sounds and remixes from participants and the performances of the professional musicians: the performers bring to the project tremendous experience and a substantial commitment, while most other participants engage much more casually in events. We see this as an opportunity rather than a challenge. We want participants to be able to hear how their contributions are artistically interpreted and incorporated by the professional performers, and we hope that this experience will inspire participants to engage more deeply in the project and perhaps in field recording and soundscape composition more generally. It does, however, place a greater curatorial burden on performers as they must sift through a large database of sounds, some of questionable quality and many requiring editing and post-processing, in order to find the compelling material they wish to use. A collaborative filtering mechanism on the UrbanRemix website, such as voting or ratings, could help performers identify the most promising recorded material more efficiently.

Moving forward, we also need to improve the connections between performers and participants. For example, we post recordings of each performance to our website, but the site does not individually identify the contributed sounds that were used. A participant might have recorded the sound and it might be used in a range of remixes – but as there is no feedback between the two, the user might never know about the impact the original recording had. We also need to create more structured opportunities for performers to engage with those whose sounds they use. After performing at the City Centered Festival, Ken Ueno stated: ‘What I most wished to happen was to meet the people who collected the sounds and talk to them after my performance, which, unfortunately, didn’t happen. I would have liked to have heard their impressions of what I did, and if they could recognize their contributions’ (Ueno 2011).

The performers not only engage with the contributed sounds, they also, like other participants, experience the acoustic environment of the locales anew. For instance, Travis Thatcher commented: ‘I often find myself with too many options for creating and manipulating sounds, often disconnected from my surrounding spaces. I feel that the way I worked on this project really allowed me to focus on the content and performance, and on the goal of conveying a sense of the environment in which I was performing’ (Thatcher 2011).

6. FUTURE WORK

We are currently planning two new UrbanRemix events that are pushing the platform in new directions. First, we are extending our collaboration with Atlanta Public Schools to use UrbanRemix both in summer camp and school-year curricula. As we refine the curriculum and instructional materials, we believe UrbanRemix has the potential to be a powerful platform for soundscape composition projects in grade-school education, essentially reimagining classic soundscape exercises with tools that enable direct reproduction of audio from the field.

Second, we are collaborating with the Times Square Arts Alliance to prepare an event in Times Square in New York City. This venue provides us an opportunity to explore new means of encouraging and organising participation. In addition to holding community workshops and a performance in Times Square, we are planning several new strategies to motivate participation, including a scavenger-hunt-style postcard to be distributed at local businesses and an online remix contest to encourage new compositions incorporating the recorded sounds.

As we further develop the UrbanRemix platform and organise events in new contexts, we look forward to seeing how we can continue to collaboratively discover, explore, capture, repurpose, share and reflect upon the unique spaces we so often take for granted.

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