

**Jason Freeman, Yan-Ling Chen, Weibin  
Shen, Nathan Weitzner, and Shaoduo Xie**

# **Sketching (2013)**

**for 5 – 7 improvising musicians  
with audience participation  
via mobile phone**

## **Performance Guide**

## **About the Piece**

In Sketching, a chamber group of musicians improvises as guided by a graphic score. Audience members using mobile devices draw the score collaboratively, in real time, during the performance. This creates a feedback loop in which the musicians constantly respond to the audience's input (and each other) and the audience responds to the music the musicians play (and each other), resulting in a unique musical experience that changes dramatically in each performance.

Sketching uses massMobile, a smartphone participation system developed at the Georgia Tech Center for Music Technology. Its development was supported in part by a grant from the National Science Foundation as part of a larger research project on musical improvisation in performance and education (NSF CreativeIT #0855758). It was written for the Georgia Tech Jazz Ensemble.

## **Duration**

Duration is flexible but we expect most performances to last 5-8 minutes.

## **Instrumentation**

We recommend 5 – 7 musicians (any instrumentation) who are comfortable improvising and (preferably) have prior experience improvising together as a group.

## **Technical requirements**

Each participating audience member must have a computing device (e.g. smartphone, tablet, computer) with a recent web browser connected to the Internet (via WiFi, 3G, or 4G). Note that Windows Phone, Blackberry, and Internet Explorer are not supported at this time.

A Mac or Windows laptop (also connected to the Internet) is required to run the Sketching software that manages the performance and creates the (optional) video projection.

Each musician needs a computing device (e.g. smartphone, tablet, computer) with a recent web browser connected to the Internet (via WiFi, 3G, or 4G). We expect the musicians to place these on their music stands. Alternately, the musicians can look at the (optional) video projection.

Optionally, a video projection (connected to the laptop) shows the graphical score to the audience. (Audience members and musicians can also view it individually on their mobile devices.)

## Audience Participation Instructions

Please contact us for the URL and QR code for audience participation. (See contact info at the end of this document.)

### The Performance

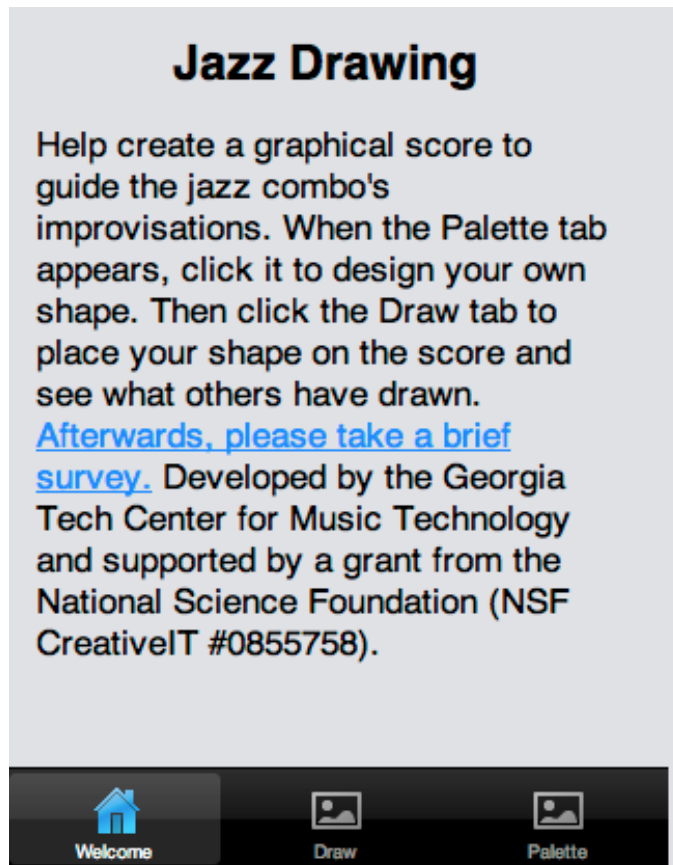
#### *Introduction*

Explain to the audience that they will help the ensemble to improvise by collaboratively drawing a graphical score to guide the musicians' improvisation. Explain that each musician is assigned a different shape in the score (and identify which musician is which shape). Explain how different characteristics of their shape affect how the musicians improvise their gestures (see below for details).

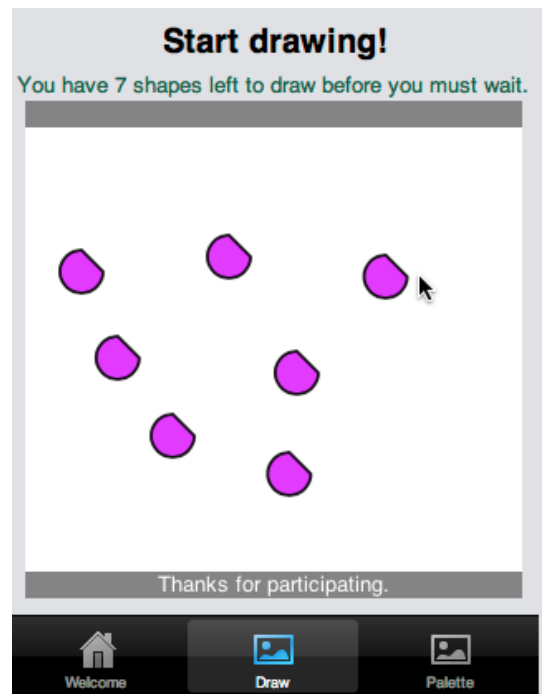
Explain how to load the web application on their computing devices, and display the URL on the projector (if available). We also strongly encourage you to print the URL and QR code in a program booklet or on a flyer or program insert.

#### *Audience Interface*

When audience members open the web application on their devices, they will see a welcome page like this:

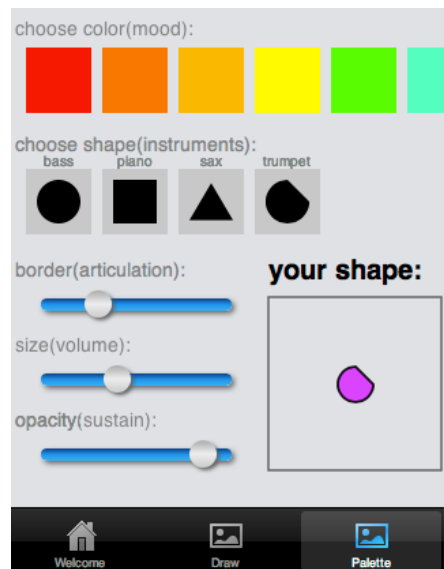


When they click the Draw tab, they'll see the animated score:



They click or touch a point on the screen to place their shape onto the score. (They can add it as often as they want.) The shapes placed by other audience members are displayed on the score as well. The entire score scrolls to the left continuously.

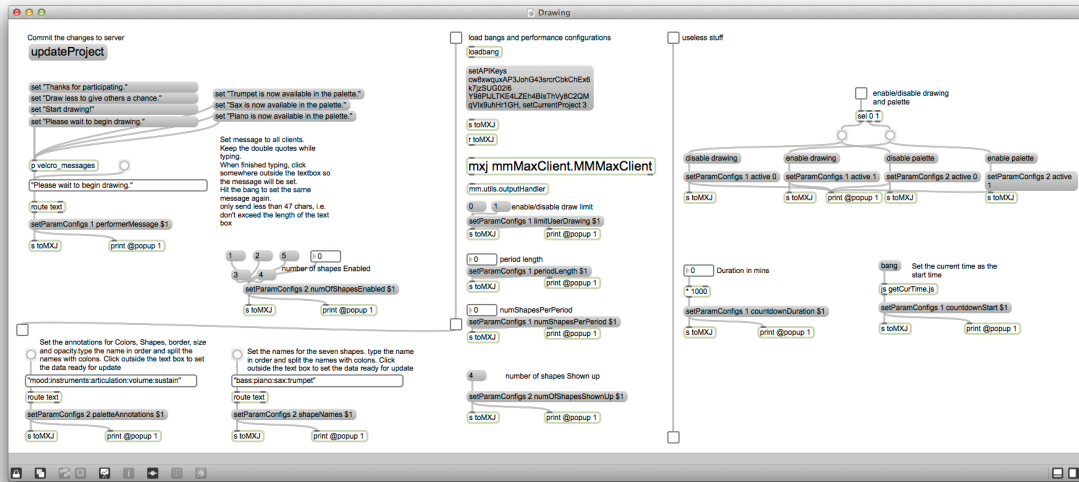
When they click on the Palette tab, they'll see this screen:



Here, users can change the shape, color, border, size, and opacity of the shape they are drawing.

## Laptop Software

The laptop software has controls to configure aspects of the audience interface and the performance.



- **Text Messages:** At any point during the performance, you can display a short text message on the audience drawing interface. Examples would be indications to start or stop drawing, to look for new instruments in the shape palette, or to draw more or less.
- **Shape Parameter Annotations:** These annotations in the shape palette indicate how each shape parameter affects the musicians' improvisation. By default, color maps to mood, each shape maps to a single instrument in the ensemble, border thickness maps to articulation harshness, size maps to volume, and opacity maps to sustain. But we encourage you to experiment with other mappings.
- **Instrument Names:** These determine the instrument names associated with each shape in the shape palette, and you will need to update them to reflect the instrumentation of your ensemble.
- **Instrument Enabling and Disabling:** You can enable only some of the shapes on the palette in order to control which instruments are available to play at any given time. To do so, set the "number of shapes enabled" number box by clicking it, entering a number, and pressing enter. For example, if you only have two shapes enabled, only the two leftmost shapes in the shape palette will be selectable. To set the total number of instruments in your full ensemble, set the "number of shapes shown up" number box. (Note that the maximum number is 7.)
- **Drawing Limits:** For larger audiences, we encourage you to enforce turn-taking by audience members: each participant can only draw a certain

number of shapes before waiting a “timeout” period to get to draw again. To turn this feature on and off, press the 1 and 0 buttons for “enable/disable drawing limit.” To set the timeout period, click the number next to “period length,” enter the duration in seconds, and press enter. To enter the maximum number of shapes each participant can draw in each period, click the “numShapesPerPeriod” box, enter the maximum number, and press enter. We encourage you to monitor and update these parameters during the performance to make sure the score is neither too sparse nor too dense.

**Important note:** whenever you make a change to these parameters, you must press the “updateProject” button on the top left of the window to transmit your changes to participants.

The laptop software does not have an integrated video projection of the score. Instead, simply open the audience participation URL in the laptop’s web browser (Chrome, Firefox, or Safari) and project the browser page. You can use the built-in controls on most web browsers to zoom the display to take up the entire screen, hide some of the browser toolbars, and enter full screen mode if you wish.

### *The Performance*

Each musician should view the score by going to the audience participation URL and clicking the “draw” tab.

Each musician should choose one shape to play such that each shape is assigned to exactly one musician. We suggest that the ensemble’s drummer not be assigned a shape and follow the score but instead play normally.

Play the shape as it touches the left-hand side of the screen. In general, one shape equals one gesture (a single note or very short phrase).

Vary your playing as follows (these are suggestions and we encourage you to experiment with modifications):

- Height: the higher the shape on the screen, the higher the gesture you play.
- Size: the bigger the shape, the louder you play.
- Border: the larger the border on the shape, the more intense the articulation you play. This can be a simple accent, a slap tongue, a flutter tongue, staccato, or anything else you think is musically appropriate in the moment.
- Opacity: The more translucent the shape, the less sustain you give to each note.
- Color: This represents the general mood or character of your gesture.

Expect to see identical shapes (i.e. with the same size, border, opacity, and color) repeat many times in a row before you see a new one. Each time you see an identical

shape, try to repeat your gesture as closely as possible (varying pitch as the height of the shape varies), with small variations to accommodate the musical needs of the moment.

### *Performance Structure*

There are two options for structuring the performance:

- **Free Improvisation:** The entire performance is based on the audience-generated score, with no ground rules as to harmony, meter, or anything else.
- **Solo Section:** The ensemble plays a jazz standard and improvises based on the audience-generated score only during the solo section. This provides a clearer foundation on which to improvise.

In both cases, we also recommend the following:

- **Add musicians in one by one.** Begin the improvisation (section) with a single instrument and add in additional instruments every 30-60 sections, with a text message to the audience indicating a new instrument is available in the shape palette.
- **Use text messages and turn-taking options to manage score density.** Send text messages to the audience and dynamically modify the period length and shapes per period parameters to help keep the score from becoming too sparse or dense. Also use these techniques to help the score from becoming too static: you may want to deliberately try to increase or decrease density at different times or message audience participants to cluster around a particular instrument (or group of instruments) or height / register at different times in the performance.

### *Practicing*

A web-based simulator is available to simulate the participation of a large audience. For access, please contact us (see contact information below).

### *Survey*

After the performance, thank audience members for their participation and ask them to go back to the welcome screen on the web application to complete a short survey about their experience.

### **Send us your thoughts and feedback**

We are always happy to help with technical support and troubleshooting. We also want to hear about your experiences using Sketching at your performance.

Contact us at:

<http://www.jasonfreeman.net/contact/>