**Project Update**

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**Key Challenges:**

* Putting down the Lightpad to type with the agent is not a very fluid experience for a single user. I’ve been trying to change the system to instead use continuous speech recognition using Google Cloud’s API so that the user can “speak” with the instrument while their two hands are occupied.
  + The first problem I encountered with google’s speech recognition is synchronizing real time audio with their servers for continuous detection. I don’t think this is the best approach, and I will now change this to perhaps use an Amazon Alexa and an “Alexa skill”. The device would handle noise by only listening to the wake word for the user’s response.
  + If speech recognition does not work in time for the final deadline, I will change the interaction to a performer who uses the lightpad, and an audience member who logs into a session and reacts to the music via messenger.
* Defining meaningful and reproducible states and the interpolations between them.
  + Wekinator has proved to be a very powerful tool in many-to-many mappings, allowing me to use the Lightpad in expressive manners I never thought possible. What’s problematic is how to meaningfully and reliably interpolate these spaces.
  + For example, in one incarnation of the system, a negative sentiment caused the system to become quiet and subdued, almost like a “timid” performer reacting to bad comments. A positive sentiment caused the sound to become bright, loud and “confident”. This state was born purely out of coincidence, and I’ve been having trouble recreating it since.
  + Going forwards, I will use a combination of Wekinator-interpolated parameters, but also hand-design one-to-one mappings that are reliable and reproducible. For example, the negative sentiment will be hardcoded to amplitude related parameters like synth volume and sustain to signify a shy musical agent.

**Remaining work and changes**

* Work remains to be done in the generative aspect of the system.
  + Given that some of the most expressive uses of the system come from long, broad movements with modulations in pressure and x,y position, I feel a more meaningful generative system is not to have midi notes be triggered by say a bach object or Ableton (like in the video), but to actually have the system generate these “musical strokes” for itself. These system-generated strokes would then be displayed on the surface of the light pad in a duet with the user.
  + I’m frankly unsure of how to do this, and will appreciate input on how to simulate and generate virtual strokes in Max/MSP and perhaps learn these through collecting statistics from the user’s current session. Is the user making long broad strokes, or short “pecks” on the surface of the lightpad?
  + All the system would need to generate are “trajectories” that are varying in x,y position and pressure.