# 21M.370 Digital Instrument Design

# Group Project 1 - instrument research

For your first group project you will be researching a digital musical instrument to learn more about instrument design, sensors, communicating musical information digitally, and overall performance practice.

Soma Terra March 6

Allie

Val

Miles

Joseph

Audiocubes March 8

Austin

Yohan

Leo

Joyce

Haaken Continuum March 13

Sebastian

Vishruti

Andrew Sepulveda

Amie

Mimu Gloves March 15

Sophia

Elaine

Andrew Li

Karima

Your goals for this assignment are to go as in-depth as possible into the instrument's design and use. Depending on your instrument it may be hard to find certain materials - do your best, and don't be afraid to reach out to manufacturers/instrument designers directly.

Questions you should address:

1. What is the overall model for this instrument? Are there previous instruments this is based on?

2. How does the performer interact with the instrument physically, and how does the instrument sense this interaction? What specific sensors are used? How are the control signals from the sensor processed before being sent to a synthesizer? Are there control signals derived from the sensor signals (e.g. jab, strike, or other qualitative values?)

3. How does the instrument interact with other systems, e.g. what communication protocol (MIDI, OSC, etc), what software tools for mapping or signal processing, what synthesizers are bundled / specifically designed for it? What software is used with this instrument, either to program it or for sound design or. . . .

4. How is the instrumented marketed? What does this say about the design intentions?

5. Are there any specifically interesting technical details? Dive into it and report!
6. Who uses this instrument? What aesthetic / performance concepts are embedded in the instrument?
7. What performance techniques do people use? Specifically describe and demonstrate at least a couple of prominent techniques, and think about how it would feel to perform in that way.
8. Are there other controllers/interfaces/instruments that people often use in addition to this instrument? What are they, why are they used?
9. Any other topics you find relevant.

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Your materials can take many forms:
1. the manual for the instrument and relevant software should be your first stop, if available
2. academic publications are also essential if available
3. marketing material can be interesting, if limited
4. demo videos / walkthroughs
5. videos/interviews/blog posts/scores of performances
6. personal interview by your group, in which you contact the manufacturer/designer directly and schedule a date for the interview
7. any other resources you can find

The in-class presentation will be 20m that will include up to 5m of video snippets, as well as detailed answers to the questions above. Following your presentation will be 10m of discussion/questions.

You will also submit as a group a 5 page paper with the results of your research. This paper should include a bibliography of your materials. It should also present a summary of the points described above, and which you will include in your presentation. Your paper is due the same day as your presentation.