Other Bodies

American Dreams/Asian Nightmares part 1 of 3
by Yan-Jie Micah Huang, 2022

Other Bodies is a musical data sonification which explores the relationship between online hate speech and real-world violence against Asian Americans during the Covid-19 pandemic.

The piece derives its structure from five streams of statistical information pertaining to the period between Novermber 3rd, 2020 and February 14th 2021. Each stream contains one or more data sets, and is mapped to one of five instruments. Within streams, each data set controls one or more sonic parameter in the manner described below. There is no cross-modulation between streams, except for some gentle spectral ducking on the master mix, to improve clarity.

Ensemble

The ensemble for Other Bodies consists of two Blunt Instruments, two Precision Instruments and one Organic Instrument.
Blunt Instruments express their information content through qualitative sonic changes, manifested over time.
Precision Instruments, on the other hand, express their information content through rhythmic patterns of sound-onset.
The Organic Instrument is an acoustic Chinese Pipa, which was played live during the piece's premiere in October 2022. The Other Bodies Max MSP patch now contains a recording of the Pipa part, which is routed through the same signal chain used in live performance. Automation within that signal chain conforms to the characteristics of a Blunt Instrument.

Tempo

Each day from Novermber 3rd, 2020 and February 14th 2021 corresponds to one second in Other Bodies. There are two master clocks in the patch; Clock 1 marks weeks (7000ms) and Clock 2 marks months, with varying month lengths averaged to produce a steady pulse (30436.875ms).

Key

The primary harmonic field of Other Bodies conforms to an A–dorian type profile. Because of the way in which the instruments are actualized in the Max patch, it is perhaps more accurate to say that the pitched elements of the Hateword Search and Hateword Tweet instruments are designed, rather than composed, to create a shifting harmonic texture that traverses the liminal space between the A minor and D major sonorities that are ultimately embodied by the Chinese Pipa. The use of processed vocal samples as sound sources, as well as the microtonal variations present in the Hateword Search instrument, distracts the listener from the musical structure of these elements, relegating their pitch to a realm of quasi-subliminality in which the boundaries between notes, speech

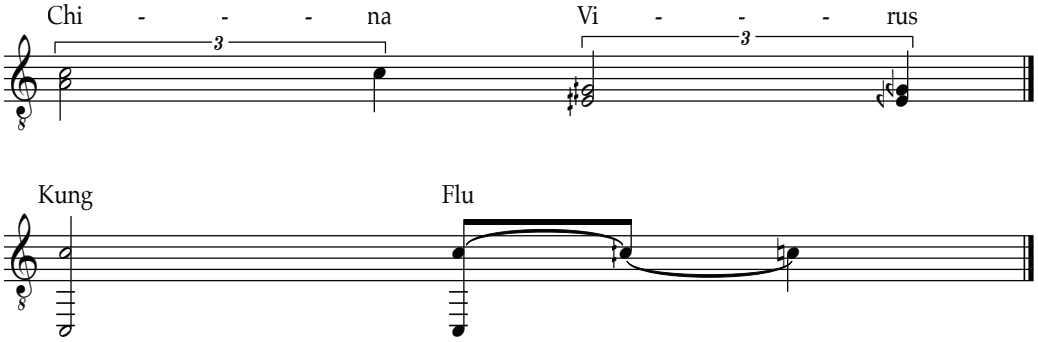
Blunt Instrument 1: Hateword Search

This Blunt Instrument is driven by weekly data on the popularity of two Sinophobic terms, “China Virus” and “Kung Flu,” on Google’s search engine. The data sets are sourced from Google Trends, directly in the case of week 1-18 figures, and indirectly (via the CSUSB Center for the Study of Hate & Extremism’s 2021 Report to the Nation[1]) for weeks 18-68.

The data set for each Sinophobic term consists of weekly figures representing the peak number of daily searches during each week.

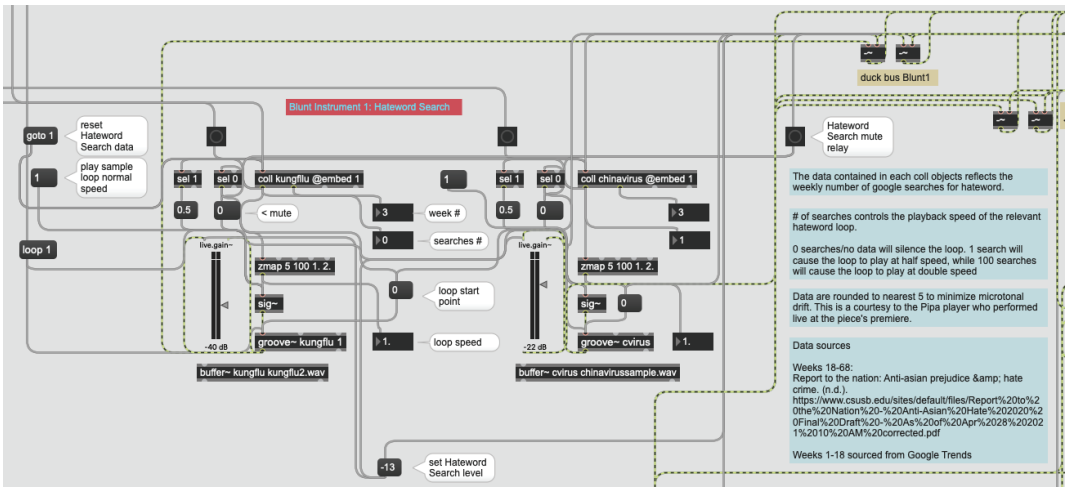
The sound sources for this instrument are voice samples of the terms themselves, being spoken by their highest-profile user, Donald Trump. The samples were extracted from royalty-free video clips of the former president on Videvo.net.[2]

The samples underwent audio restoration in Izotope RX Pro, and then were creatively processed in Logic Pro X. The signal chain included pitch smoothing and quantization, transposition, harmonization and ring modulation. Natural vocal contour was preserved, though starting pitches and intervals were adjusted to be consistent with the target key.



In Max, the signal chains for the two Hateword samples are identical. When running the program, each sample is set to loop whenever the data point for the current week is a non-zero integer. Data point integer values range from 1 to 100 for each Hateword. When a weekly search value is 1, the loop plays at half speed. For values from 1 to 5, the loop plays at normal speed. Values between 5 and 100 are mapped to playback speeds between 1X and 2X, on a linear scale. A value of 0 halts playback of the loop in question by setting playback speed to 0. Data points change at the start of each week in the sonification period following Clock 1, with no smoothing between values.

5 is the most common value in both data sets, accounting for 30/68 data points for Kung Flu and 28/68 data points for China Virus. This means that the two samples are “in key,” playing back at their original pitches, for much of the sonification. As such, they function as a harmonic backdrop for other instruments, creating a sense of tension and release as they move away from, and then back to, their original pitches along a 95-note equal-tempered scale. The abruptness of the stepped changes in playback speed provides the listener with a concrete temporal reference point for week-length, while also creating a sense of stability by avoiding smooth pitch slides.



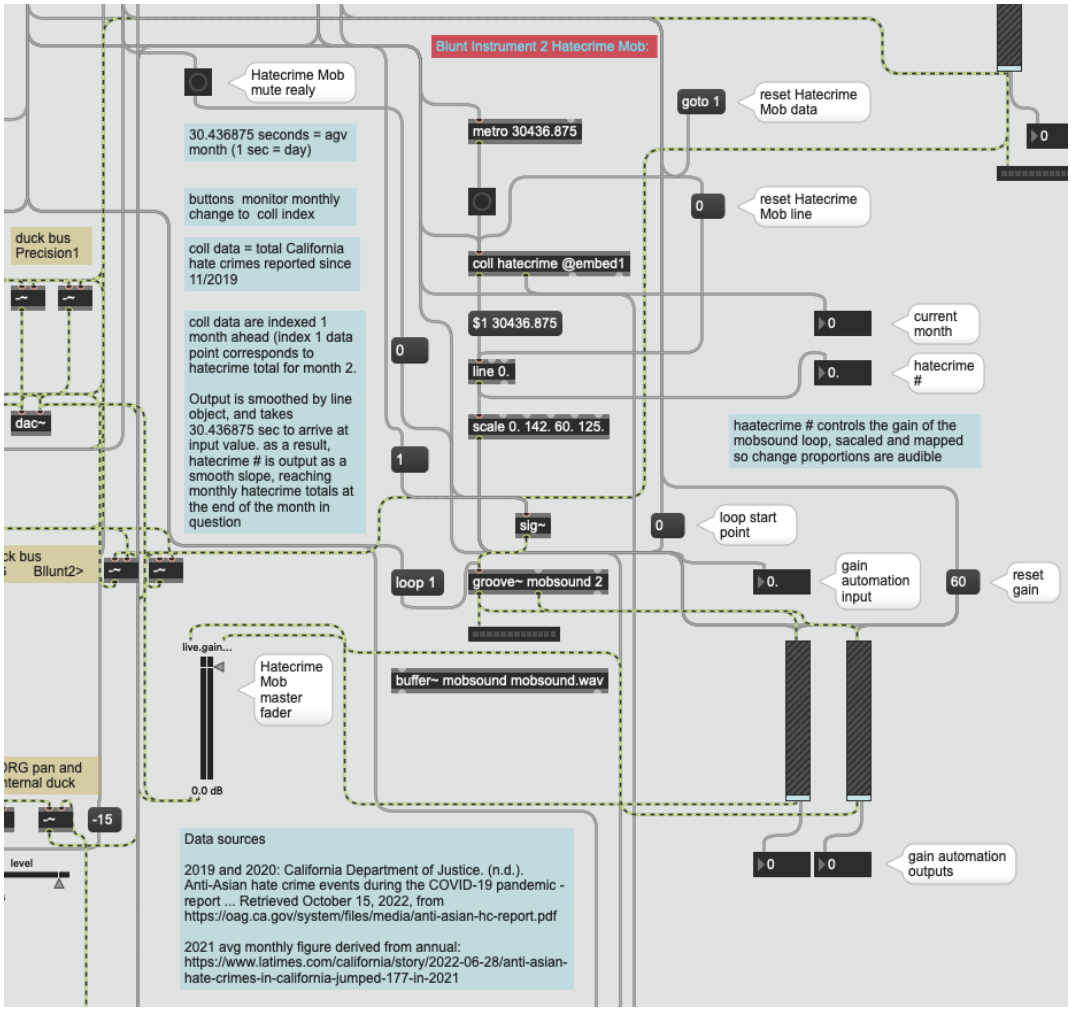
Blunt Instrument 2: Hatecrime Mob

This Blunt Instrument is driven by monthly totals for Anti-Asian hate crimes reported by the California Department of Justice during the sonification period. Data points change every 30.436 seconds following Clock 2.

The sound source for this instrument is a stylized sonic representation of an angry mob. It is constructed out of various samples drawn from the fbi.gov's videos of the 1/6/2021 Capitol Riot, which are in the public domain.[3]

Multiple samples were layered and processed using transient shapers, ring modulation, and several forms of spectral processing. The result is a loopable texture in which a naturalistic mob sound predominates, while high-frequency "notes" (extracted using a gated bank of bandpass filters) and low-frequency "percussion" (created by cycling impact noises from the riot, processed through multiple layers of transient shaping and EQ) become perceptible at high volumes.

The texture plays as a continuous loop. Its volume starts at a barely-perceptible level (60 on Max's gain~ objects) and rises in proportion to monthly hate crime totals. Changes between data points are smoothed using a linear slew limiting pathway in which changes last exactly 30436.875ms, or one pulse-length of Clock 2. As a result, each change in hate crime data point (at the beginning of each "month") sets the target for gain automation over the following 30.436 seconds. The gain objects are automated by the smoothed output, which reaches target level at the end of each "month" before receiving a new target for the following Clock 2 interval.
Hatecrime data point values range from 8 to 142. The slew limiter is programmed to start at a value of 0. Hatecrime values are scaled and mapped to gain values between 60 and 125, the latter of which represents the peak usable output level.

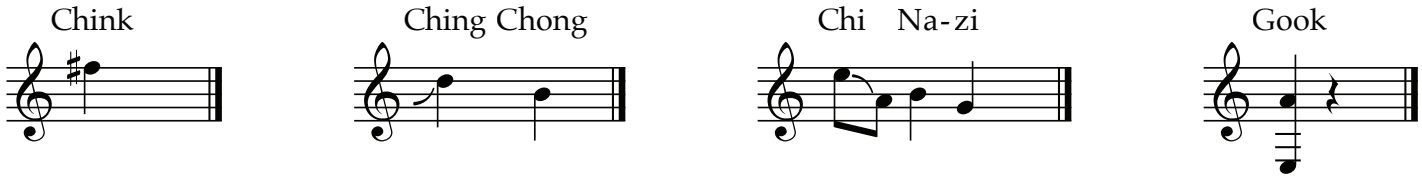


Precision Instrument 1: Hateword Tweets

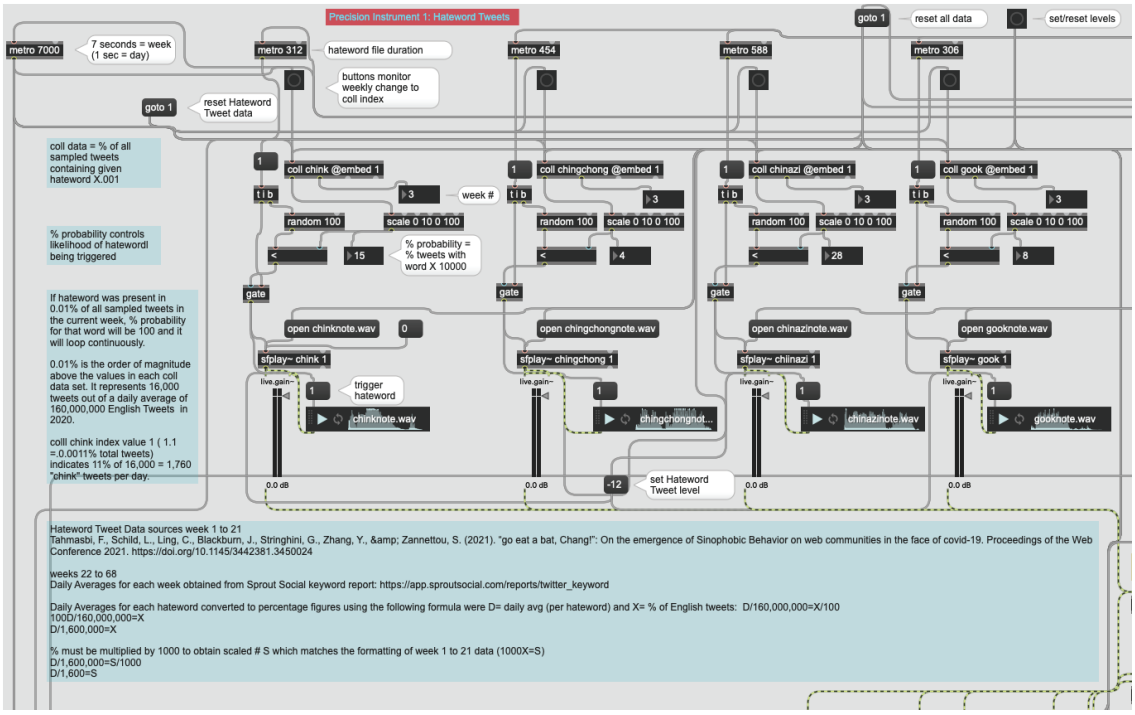
This precision instrument is driven by weekly figures regarding the percentage of tweets (on English-language Twitter) containing each of 4 Sinophobic slurs: Chink, Chingchong, ChiNazi and Gook, during the sonification period. The data for weeks 1-21 are sourced from Schild et al,[4] while the data for weeks 22-68 were collected using keyword analytics available through Sprout Social.

Percentage figures are based on a "daily average" for each week. percentage figures are multiplied by 1000 to reduce the number of decimal places used in the data sets. As a result, a data point value of 10.0 represents 0.01% of all English-language tweets (about 16,000 out of 160,000,000 English tweets per day) while a value of 0.1 represents 0.0001% (about 160 tweets per day). Data point values for this instrument range from 0 to 5.7 and change following Clock 1.

Sound sources for this instrument are derived from original vocal samples of each Sinophobic term. The samples were pitch-quantized, smoothed and harmonized before being subjected to various audio modulations.



The weekly data for each Sinphobic term is multiplied by 10 and then routed to control the probability of a random trigger sequencer. For each Hateword, a data point value of 10 will result in a 100% chance of the corresponding sample being triggered during the current week, while a value of 0 will result in a 0% chance. Each of the four Hatewords has its own trigger sequencer, which is clocked independently of the Master clock buses 1 and 2. The clock speed of each trigger sequencer is determined by the length of the associated sample (312ms, 454ms, 588ms and 306ms, respectively) so that, when triggered, each sample will have enough time to play back in full before being triggered again. The probability value for each week applies to each beat or instance of each trigger sequencer falling within the 7000ms of the program's run which correspond to that week.

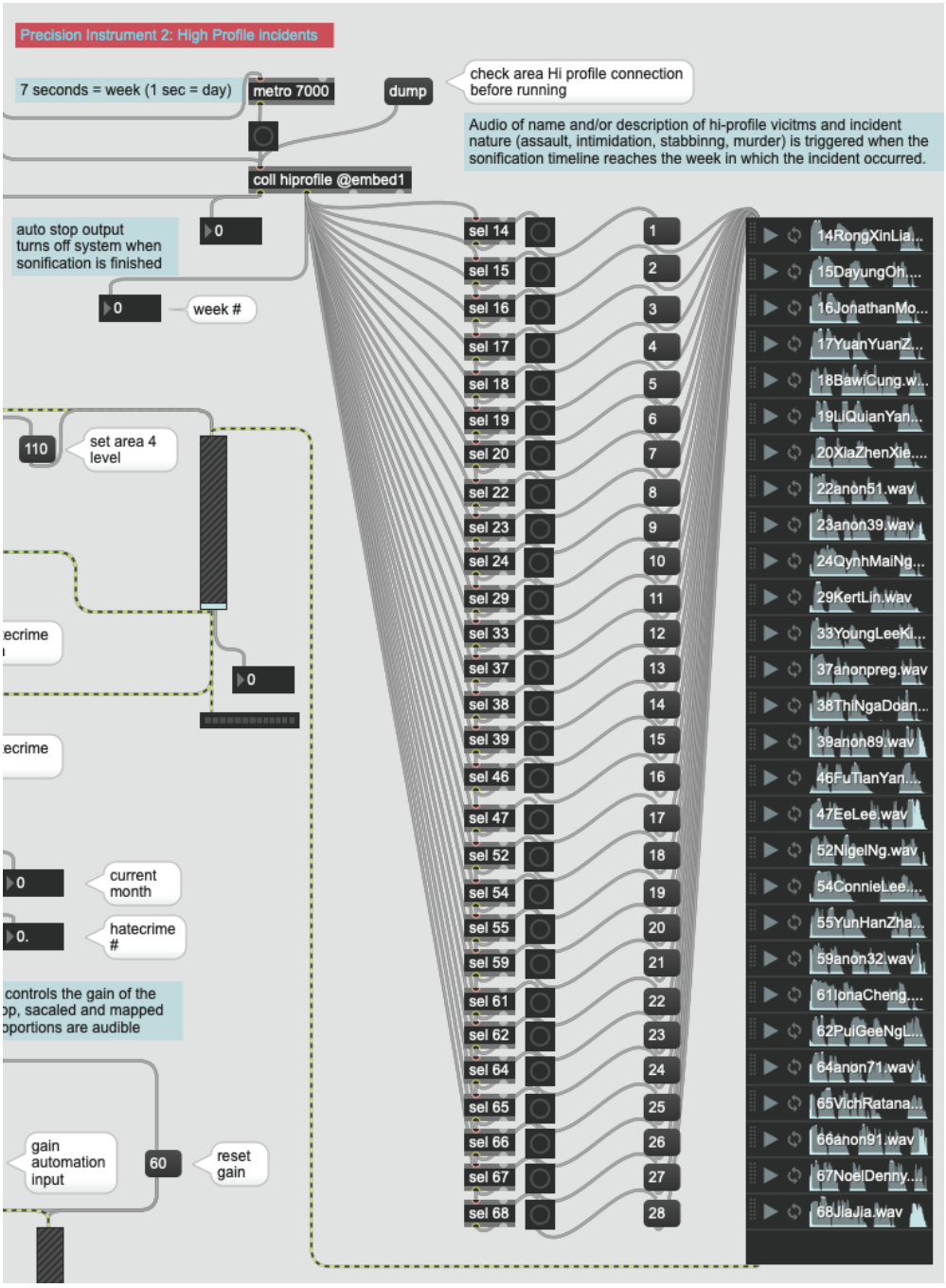


Precision Instrument 2: High Profile Incidents

This Precision Instrument is driven by a record of high-profile cases of Anti-Asian violence covered by the mainstream, English-language news media during the sonificaton period. The data set consists of names, descriptions, and dates associated with 28 such cases.
These data are drawn from a large number of sources, a full list of which can be found in the supplementary materials for Other Bodies.

Sound sources for this instrument are minimally processed original vocal samples, which state each victim's name or personal description, along with a brief description of each incident such as "stabbing," or "Murder."

Hi Profile incidents were indexed by the week of their occurrence. When the program is running, each sample is triggered at the beginning of the 7000ms period corresponding to the week in which it took place. The longest sample lasts for just under 7000ms.



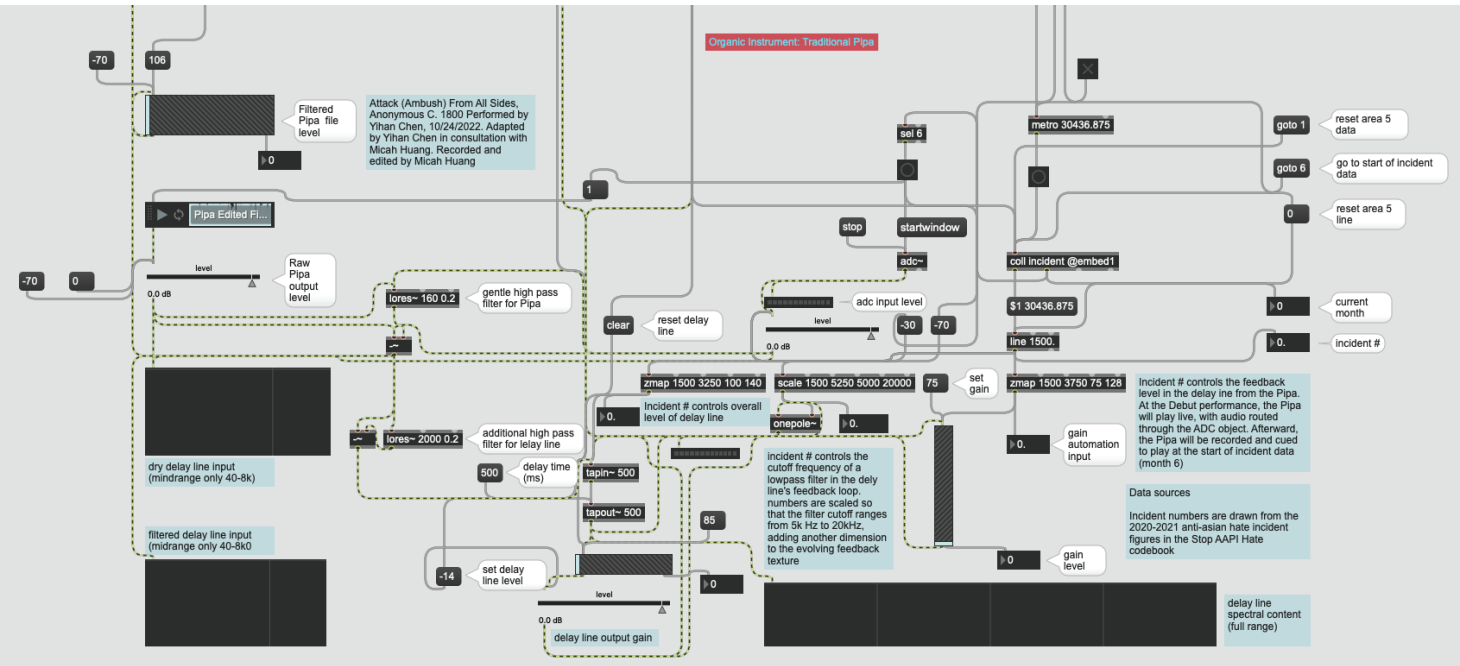
Organic Instrument: Traditional Pipa

The Chinese Pipa 琵琶 in Other Bodies plays an adaptation of the traditional piece 十面埋伏 (Ambush from Ten Sides) which was probably composed around 1800CE, during the Qing dynasty. The version used was arranged by Master 刘德海 (Liu Dehai) and then adjusted for length and content by Master Yihan Chen in consultation with Micah Huang.

The Pipa starts playing at the onset of month 6 (as per Clock 2) which corresponds to April 2020. In that Month, the organization Stop AAPI Hate began collecting self-reports of anti-Asian incidents online.

This Organic Instrument also contains a Blunt Instrument in its signal chain. The Stop AAPI Hate Codebook[5] contains a visualization of the total number of incidents reported to that organization over time. Monthly figures (rounded to the nearest 250) were extracted from that graphic using precision measuring tools in Adobe Illustrator. As with the Hatecrime Mob instrument, these data change in response to Clock 2, and are routed through a linear slew limiter which turns their output into a nominally smooth signal. The smoothed output is scaled to control three parameters in the signal chain, which processes an auxiliary feed from the live Pipa (or the Pipa playback file, in the post-premiere version of the Max Patch). Live audio input from the Pipa is high-pass filtered at 160 Hz, and the delay line is processed through an additional, gentle highpass filter at 2000hz to minimize interference with the fundamental tones of the dry Pipa.

The first smoothed data feed controls the overall level of a delay line (500ms). Its numerical outputs are scaled down so that 1500 reported incidents corresponds to a gain setting of 100 (quiet) while 3250 incidents corresponds to a gain setting of 140. Higher Incident values hold the gain steady at 140.



The Other Bodies Max Patch, along with the audio and data files necessary to enusre its function, can be found in the Other Bodies folder, which will be submitted along with this document

Postmortem

Chinese culture, including musical culture, contains many instances of the re-adaptation and/or re-contextualization of canonical or traditional elements in order to create new meaning. With this re-contextualization of 十面埋伏 (Ambush from Ten Sides) as an element of electro-acoustic data sonification, Other Bodies seeks to harmonize the ancient with the contemporary and the expressive with the quantitative. In this way, it strives to tell the story of Asian-American experiences during the Covid-19 pandemic in a way not possible through other media.

十面埋伏 (Ambush from Ten Sides) provides the theoretical scaffolding to which pitched elements of all the other instruments in Other Bodies refer. Not only are the notes of those elements designed to interact with those of the traditional Pipa piece, but they are also designed to form the sonic equivalent of a psychological environment, in which the organic, lyrical sound of the Pipa stands out as a center of human empathy and interest. If the electronic texture of Other Bodies is an analog of the Internet and the Streets, the Pipa is an analog of the Asian-American self in a hostile, frightening environment.

十面埋伏 (Ambush from Ten Sides) is extremely well-known in Chinese and Chinese-American circles, as is its mythological and historical significance. In this way, functions as a complex, emotionally rich vessel of meaning for Chinese-American listeners, much as a well-known Shakepeare passage or National Anthem might do for those of Western extraction.

The piece is a musical narrative of the last stand by historical/mythical general 項羽 (Hsiang Yu of Chu) at the battle of Gaixia (204 BC).

Far from home, betrayed, outnumbered and surrounded, Hsiang Yu suffered innumerable wounds and killed many of his Han enemies before cutting his own throat, rather than allow himself to be captured. His body was torn into five pieces by Han soldiers eager to claim the rich reward their king had offered to Hsiang Yu's killer.

Hsiang Yu's courage and defiance in the face of impossible odds resonates with the plight of Asian Americans in the 21st century, and with the motivation behind Other Bodies. The Hateword instruments provide a sonic glimpse into the experience of being surrounded by hostility online, while the Mob instrument embodies the rising tide of real-world violence directed at us. The Hi Profile instrument provides more insight into the way that hate speech and real-world violence cluster in space and time, while also reminding the listener that the mainstream media, like those Han soldiers of long ago, are eager to cash in on the death and dismemberment of Asian-American people and bodies.

In this context, the traditional Pipa piece gives voice to the indomitable spirit that animates us with the will to resist, despite the fact that acknowledgement of our plight–let alone easing of Anti-Asian rhetoric and violence–sometimes seems like an impossibly distant goal. The echoes in the delay line represent activation of the "echo chamber" that is the social internet, where the voices of those who dare to speak up against hate and violence are transmitted and re-transmitted in the very digital space where much of the hate originates. While the feedback loop may seem to become lost in the noise of the other instruments toward the end of the piece, it is actually fairly loud. It is only the attention-grabbing sharpness of hate speech and media violence, along with the pounding immediacy of real-world violence, that seems to drown out the digital echoes of hope and resistance.

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Further Reference

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