2022 MA Project Proposal

Ilona Kovacs

EDPX MA 4+1

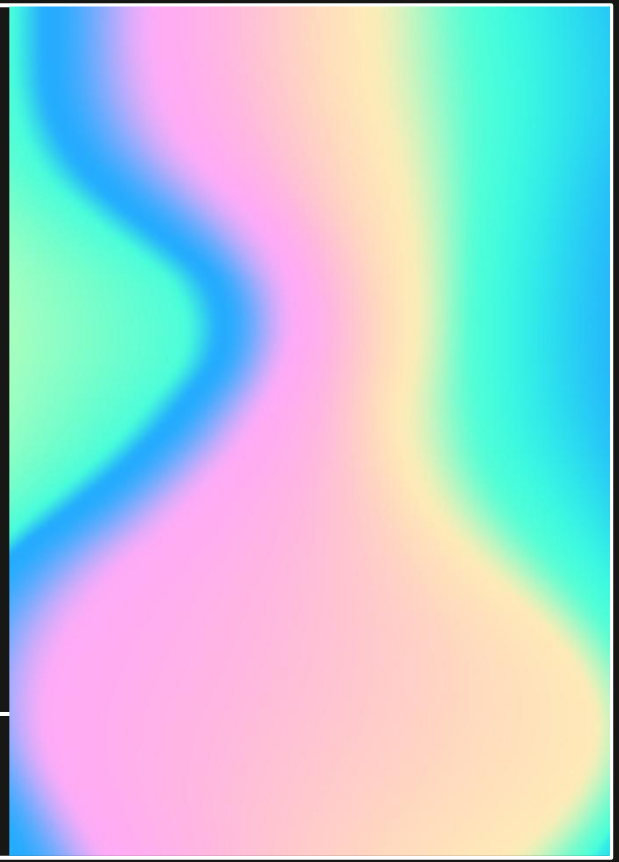


Table of Contents

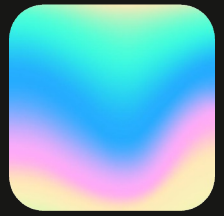
01

An Auditory Exploration of Environmental Awareness

Literature & Media

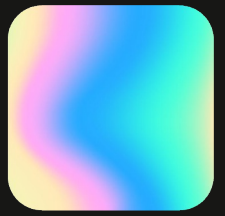
Biophilia & Thing-ification

studying and fostering human love for life



Ecofeminism

exploring and critiquing systemic control over nature



Psycho-Ecoacoustics

framing noise as a key component in environmental well-being

Foundations

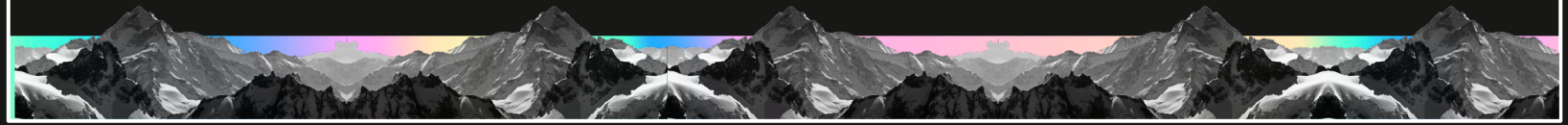
Adaptive & Generative Audio

audio feedback relating to data input

existing applications include *Endel* and *Weav*

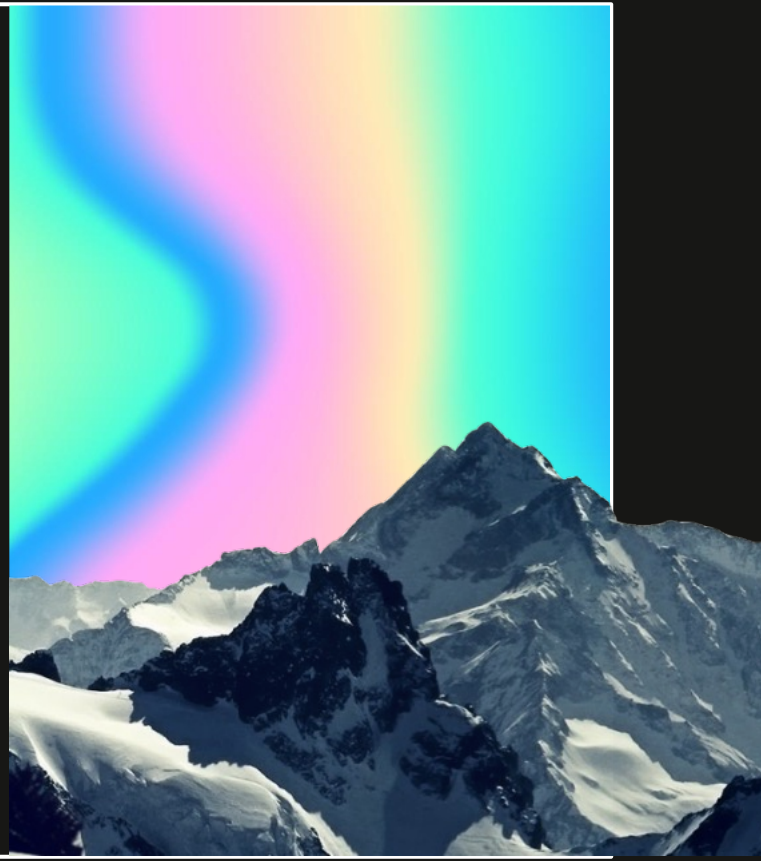
Sound Maps & Cybercartography

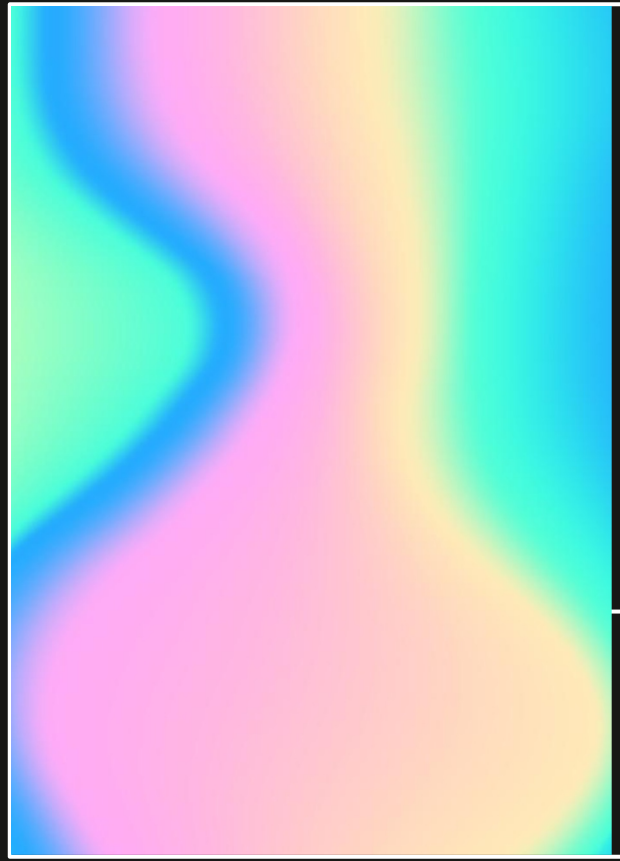
geographic locations pointing to aural experiences



A model sound mapping system of speed, altitude, and time to

- demonstrate data collection methods through field research opportunities
- explore the potential of transcoding data into auditory indication triggers
- contribute to the development of innovative approaches to address the urgent need for environmental awareness



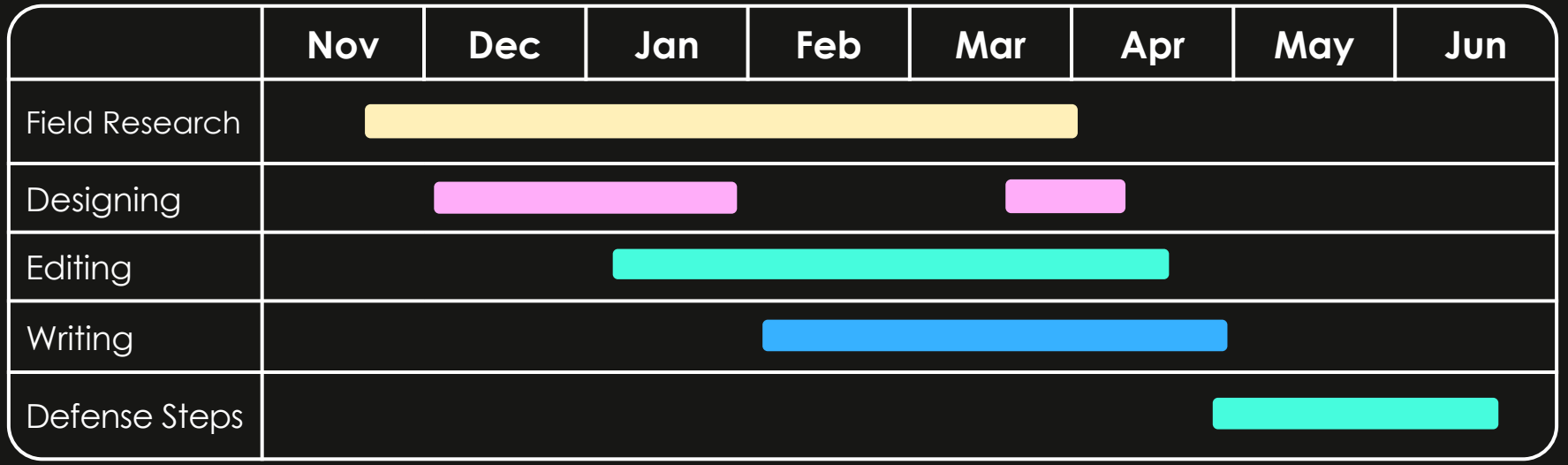


02

Scope & Timeline

for graduation June 9th, 2023

Timeline Overview



Field Research Collections

November 22
Trek1
Copper Mountain

December 20
Trek2
Winter Park

December 21
Trek3
Copper Mountain

December 22
Trek4
Monarch Mountain

January 6
Trek5
Copper Mountain

January 13
Trek6
Eldora Mountain

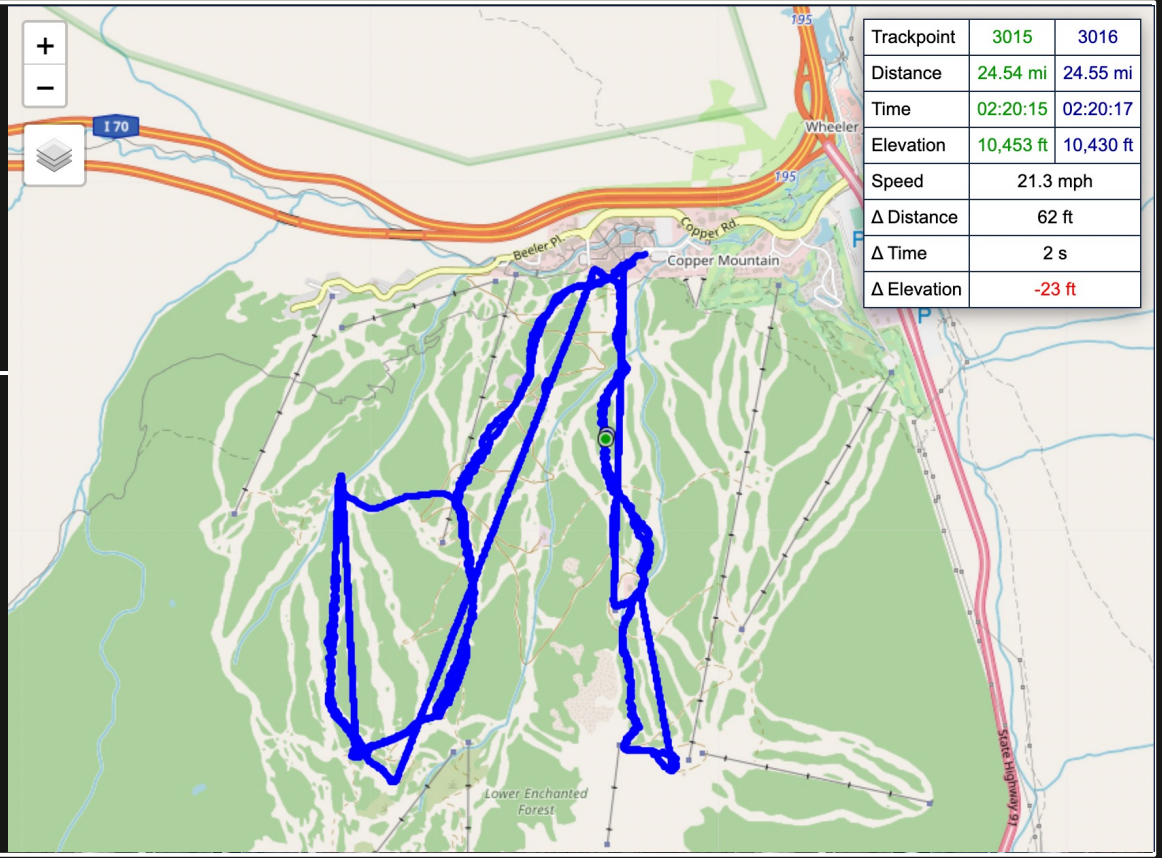
January 25
Trek7
Arapahoe Basin

*

March 31
Trek8
Monarch Mountain

March 30
AudioMoths Deployed
Salida, Colorado

Trek1 Recording Location



Trackpoint	3015	3016
Distance	24.54 mi	24.55 mi
Time	02:20:15	02:20:17
Elevation	10,453 ft	10,430 ft
Speed	21.3 mph	
Δ Distance	62 ft	
Δ Time	2 s	
Δ Elevation	-23 ft	

Map view of GPX data recorded by snoww app of Trek 1 displayed on Geo.JaVaWa.nl

Audio Recording Location

Map of private property near Salida, CO displaying AudioMoth drop locations

03

Materials & Methods

utilized for this research project

Hardware

AudioMoth

4 small, high-quality field sound recording devices protected in plastic waterproof cases

Location site of AudioMoth 4 indicated by a blue circle

Software

Max8 & MSP
to transcode data to auditory triggers

s n o w w
to collect speed, location, and time data during Treks

Adobe Audition
to edit & clip *AudioMoth* recordings

Microsoft Excel
to organize data collected for *Max8* usage

Geo.JaVaWa.nl
to translate waypoints from *snoww* for *Excel* organization

AudioMoth Configuration & Flash Applications
to update *AudioMoths* and set devices to default record settings

Transcoding Treks

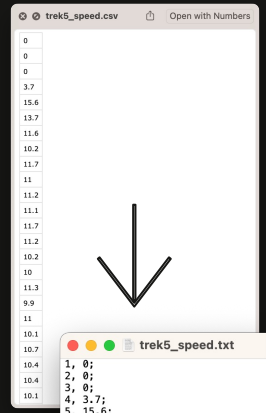
Copper					1/6/23					
Trackpoint	Date/time	Lat. [°]	Lng. [°]	Distance [ft]	Time	Elevation [ft]	Speed [mph]	Δ Distance [ft]	Δ Time [s]	Δ Elevation [ft]
1	1/6/23 9:46	39.4994	-106.1464	0	0:00:00	9645.6	0	282	2	31
2	1/6/23 9:46	39.4994	-106.1454	282	0:00:02	9676.6	0	89	0	0.3
3	1/6/23 9:46	39.4993	-106.1451	371	0:00:02	9676.9	0	758	1	18.2
4	1/6/23 9:46	39.4976	-106.1466	1129	0:00:03	9695.1	3.7	5	1	54.6
5	1/6/23 9:46	39.4975	-106.1466	1134	0:00:04	9749.8	15.6	46	2	64.2
6	1/6/23 9:46	39.4974	-106.1466	1180	0:00:06	9814	13.7	40	2	42.2
7	1/6/23 9:46	39.4973	-106.1465	1220	0:00:08	9856.2	11.6	34	2	27
8	1/6/23 9:46	39.4972	-106.1465	1254	0:00:10	9883.2	10.2	45	3	16.3
9	1/6/23 9:46	39.4971	-106.1466	1299	0:00:13	9899.5	11.7	34	2	9.8
10	1/6/23 9:46	39.497	-106.1466	1333	0:00:15	9909.4	11	48	3	15
11	1/6/23 9:46	39.4969	-106.1466	1382	0:00:18	9924.4	11.2	33	2	9.6
12	1/6/23 9:46	39.4968	-106.1466	1414	0:00:20	9934	11.1	49	3	17.2
13	1/6/23 9:46	39.4967	-106.1467	1463	0:00:23	9951.1	11.7	34	2	23.7
14	1/6/23 9:46	39.4966	-106.1467	1498	0:00:25	9974.8	11.2	33	2	9.1
15	1/6/23 9:46	39.4965	-106.1467	1530	0:00:27	9983.9	10.2	45	3	19.2
16	1/6/23 9:46	39.4964	-106.1468	1575	0:00:30	10003.1	10	44	3	20.5
17	1/6/23 9:46	39.4962	-106.1468	1619	0:00:33	10023.6	11.3	33	2	11.1
18	1/6/23 9:46	39.4961	-106.1468	1652	0:00:35	10034.7	9.9	44	3	20.3
19	1/6/23 9:46	39.496	-106.1468	1696	0:00:38	10055.1	11	48	3	25.1
20	1/6/23 9:46	39.4959	-106.1469	1744	0:00:41	10080.2	10.1	44	3	23.4
21	1/6/23 9:46	39.4958	-106.1469	1789	0:00:44	10103.5	10.7	47	3	20
22	1/6/23 9:47	39.4957	-106.1469	1836	0:00:47	10123.6	10.4	46	3	21
23	1/6/23 9:47	39.4955	-106.147	1882	0:00:50	10144.6	10.4	46	3	19.8
24	1/6/23 9:47	39.4954	-106.147	1927	0:00:53	10164.4	10.1	45	3	21.6
25	1/6/23 9:47	39.4953	-106.147	1972	0:00:56	10186	12.4	36	2	8.2
26	1/6/23 9:47	39.4952	-106.147	2008	0:00:58	10194.2	10.5	46	3	16.8
27	1/6/23 9:47	39.4951	-106.1471	2054	0:01:01	10211	10.6	47	3	18.7
28	1/6/23 9:47	39.4949	-106.1471	2101	0:01:04	10229.7	11.1	49	3	14
29	1/6/23 9:47	39.4948	-106.1471	2150	0:01:07	10243.7	11.7	34	2	5.8
30	1/6/23 9:47	39.4947	-106.1472	2184	0:01:09	10249.5	12.3	36	2	8.4
31	1/6/23 9:47	39.4946	-106.1472	2220	0:01:11	10257.9	11.2	49	3	13.1
32	1/6/23 9:47	39.4945	-106.1472	2270	0:01:14	10271	10.5	46	3	15.4
33	1/6/23 9:47	39.4944	-106.1473	2316	0:01:17	10286.4	10.9	48	3	15.8
34	1/6/23 9:47	39.4942	-106.1473	2364	0:01:20	10302.2	10.9	48	3	16.3
35	1/6/23 9:47	39.4941	-106.1473	2412	0:01:23	10318.5	10.5	46	3	19.6

The first 35 waypoints of Trek 5 in Microsoft Excel

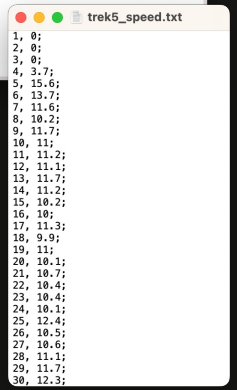
	A	B
1	0	
2	0	
3	0	
4	3.7	
5	15.6	
6	13.7	
7	11.6	
8	10.2	
9	11.7	
10	11	
11	11.2	
12	11.1	
13	11.7	
14	11.2	
15	10.2	
16	10	
17	11.3	
18	9.9	
19	11	
20	10.1	
21	10.7	
22	10.4	
23	10.4	
24	10.1	
25	12.4	
26	10.5	
27	10.6	
28	11.1	
29	11.7	
30	12.3	
31	11.2	
32	10.5	
33	10.9	
34	10.9	
35	10.5	

Speed waypoints of Trek 5 isolated

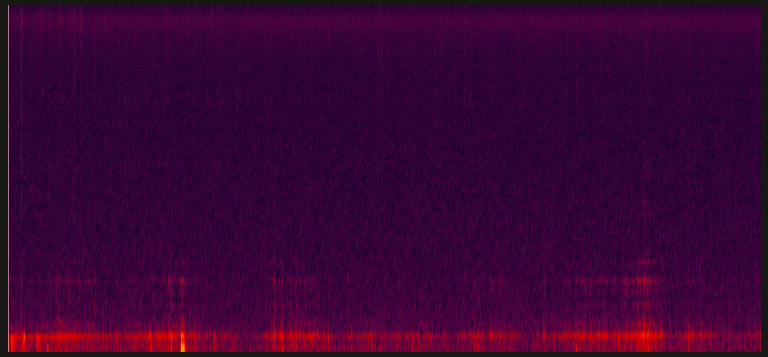
Isolated speed waypoints as CSV



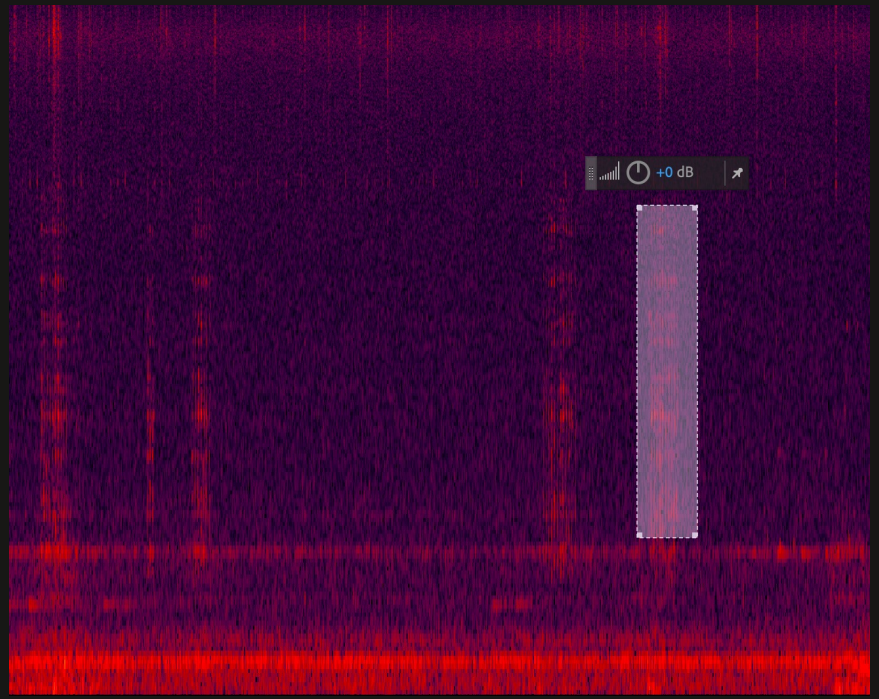
CSV formatted as TXT collection



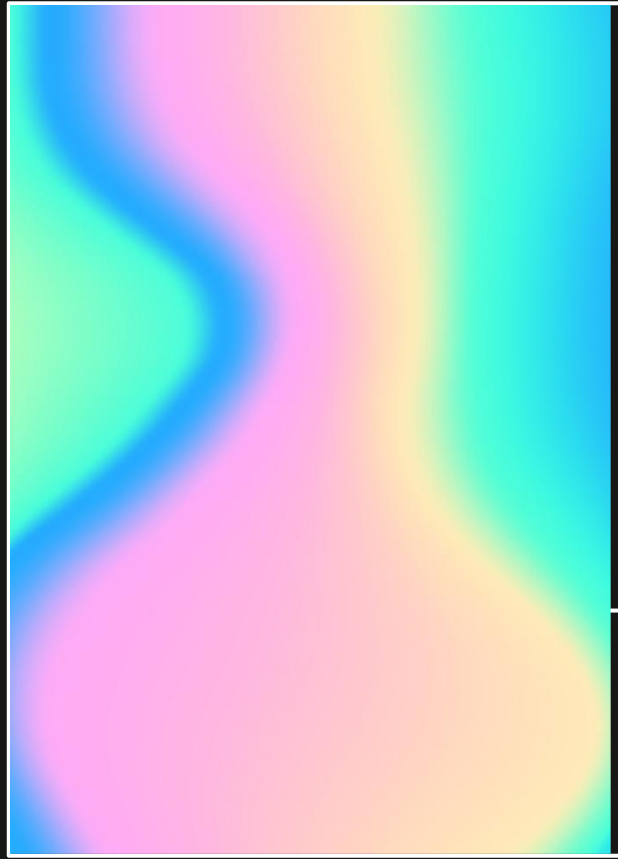
Editing Soundscapes



Adobe Audition spectral frequency display of the first ten-hours recorded by AudioMoth 4.



Ten-minute portion of AudioMoth 4's recording showing a bird call in the 2 kHz to 10 kHz frequency range selected as a clip



04

Discussion & Future Outcomes

including project conclusions and potential iterations

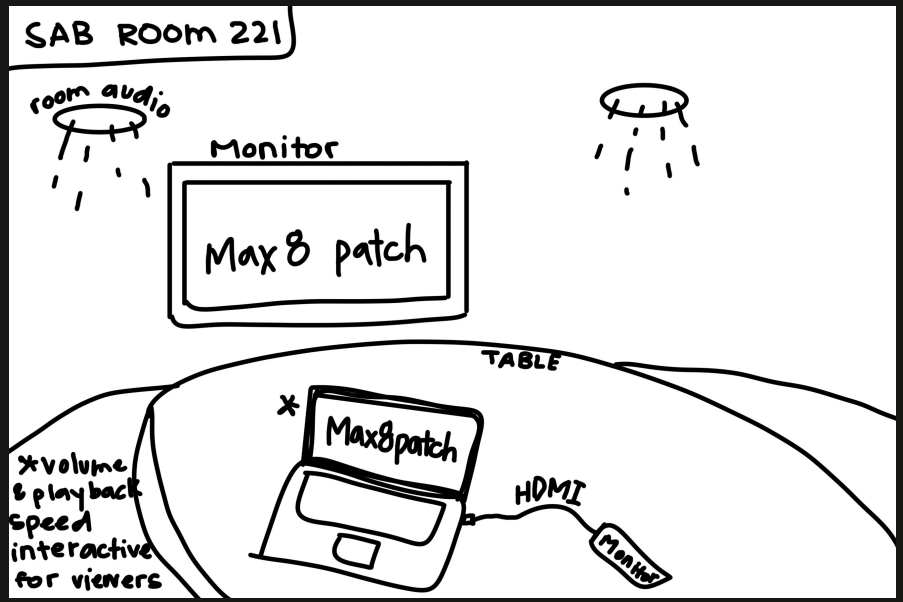
Dissemination

8 Trek Audio Translations
using data to signal auditory cues of environmental interaction with
Soundscape Recordings
from local ecosystems edited to short bird call clips to emulate the natural surroundings.

Audio Notifications

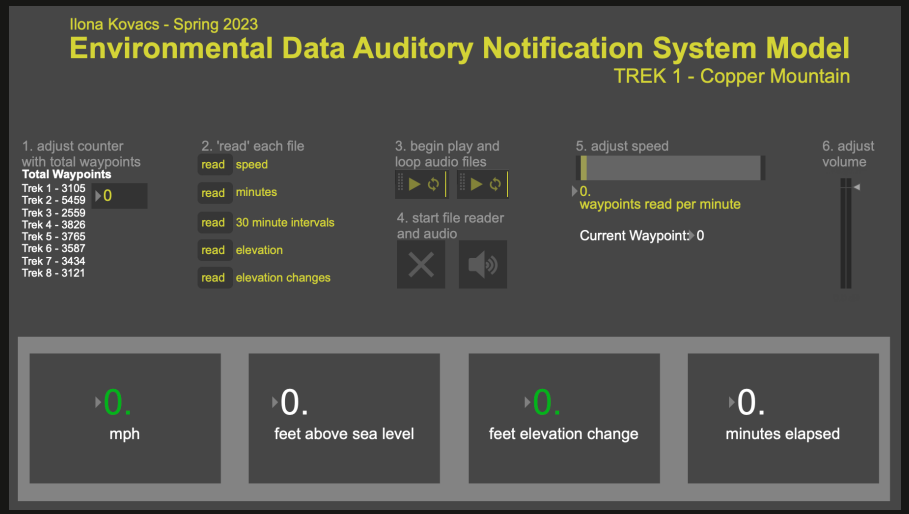
	Audio Clip	Volume	Speed	To Play	Description
Speed	2.2.4	✓	✓		Louder & higher frequency when exceeding 25 mph
Time					Monitors overall minutes passed during the Trek
30 Min Interval	2.2.18			✓	Like a cuckoo clock that sings every 30 minutes
Elevation					Monitors overall altitude
Elevation Change	1.2.6	✓	✓		Louder volume & faster tempo as change exceeds 17 feet

Exhibition



Mock-up sketch for EDP Expo set-up on May 18th, 2023

Interface



Screenshot of Trek 1 Max8 Patch

Future Presentations

Sound Mapping

Integrating adaptive & generative audio systems to real-time location to improve agency in navigation, especially for those with visual impairments.

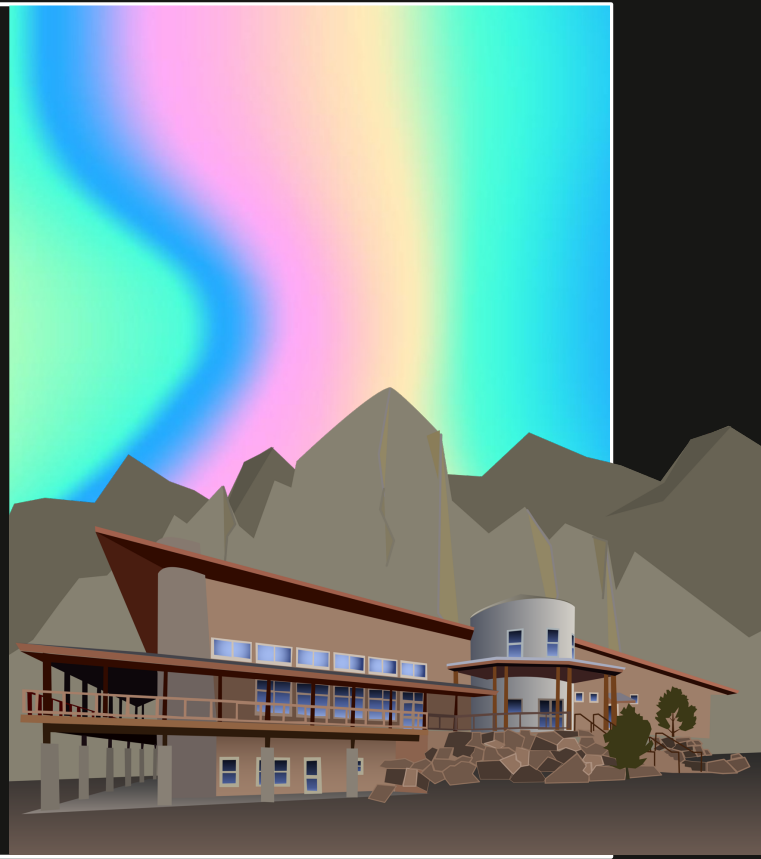
Field Recordings

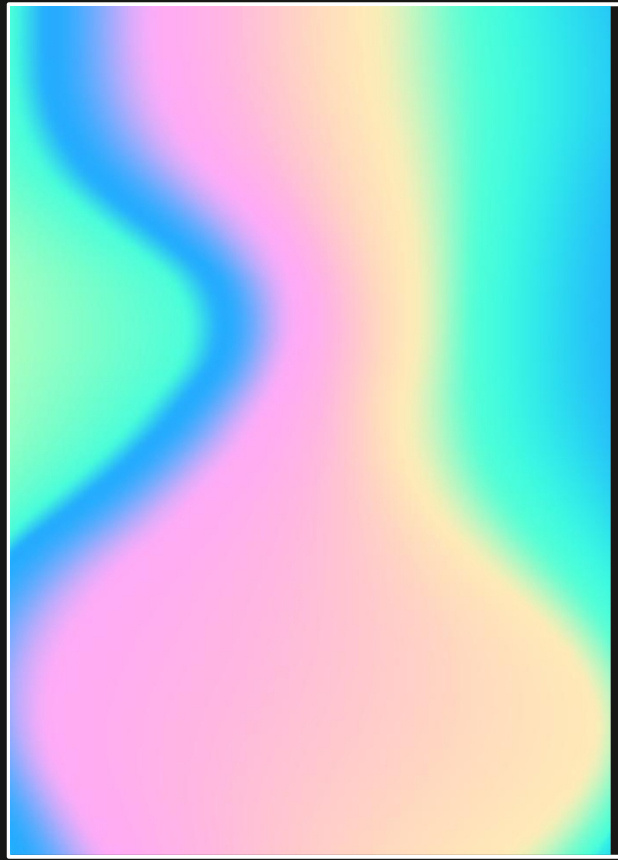
Discovering solutions for high altitude soundscape capturing methods.

Outdoor Activity Atlases

Without impacting the natural environment, cybercartography could enable auditory notifications for:

- Drastic temperature & elevation changes
- Recent wildlife encounters & risks
- Air Quality Index & sensitivities
- History, biodiversity, & stewardship lessons
- Trail skill levels





Thank you!