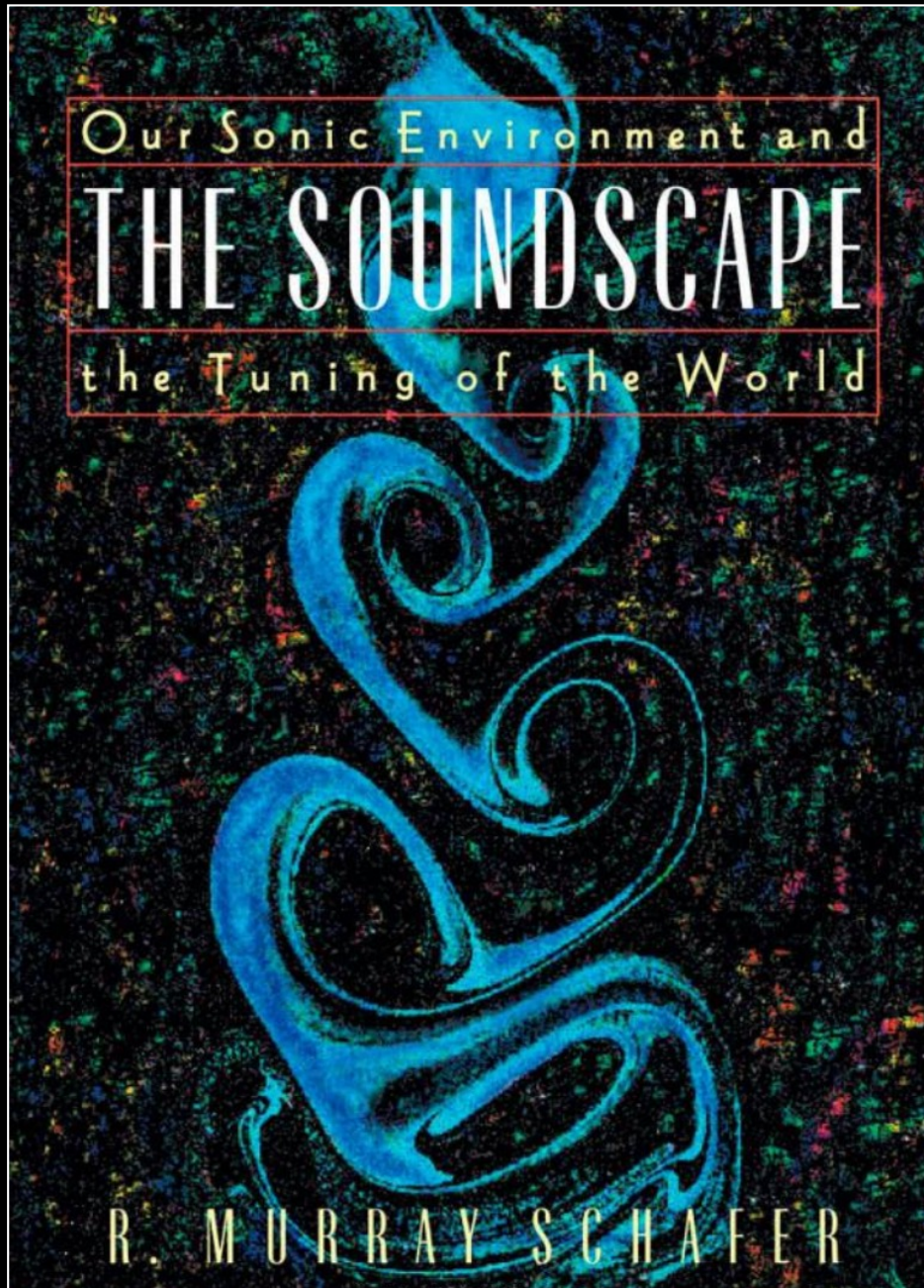


21A.505 / STS.065 Anthropology of Sound Spring 2022 MIT

2. Feb 10 HELMREICH

Soundscapes, Acoustemologies, Space, Culture



SOUNDSCAPES made of

keynote sounds

signals

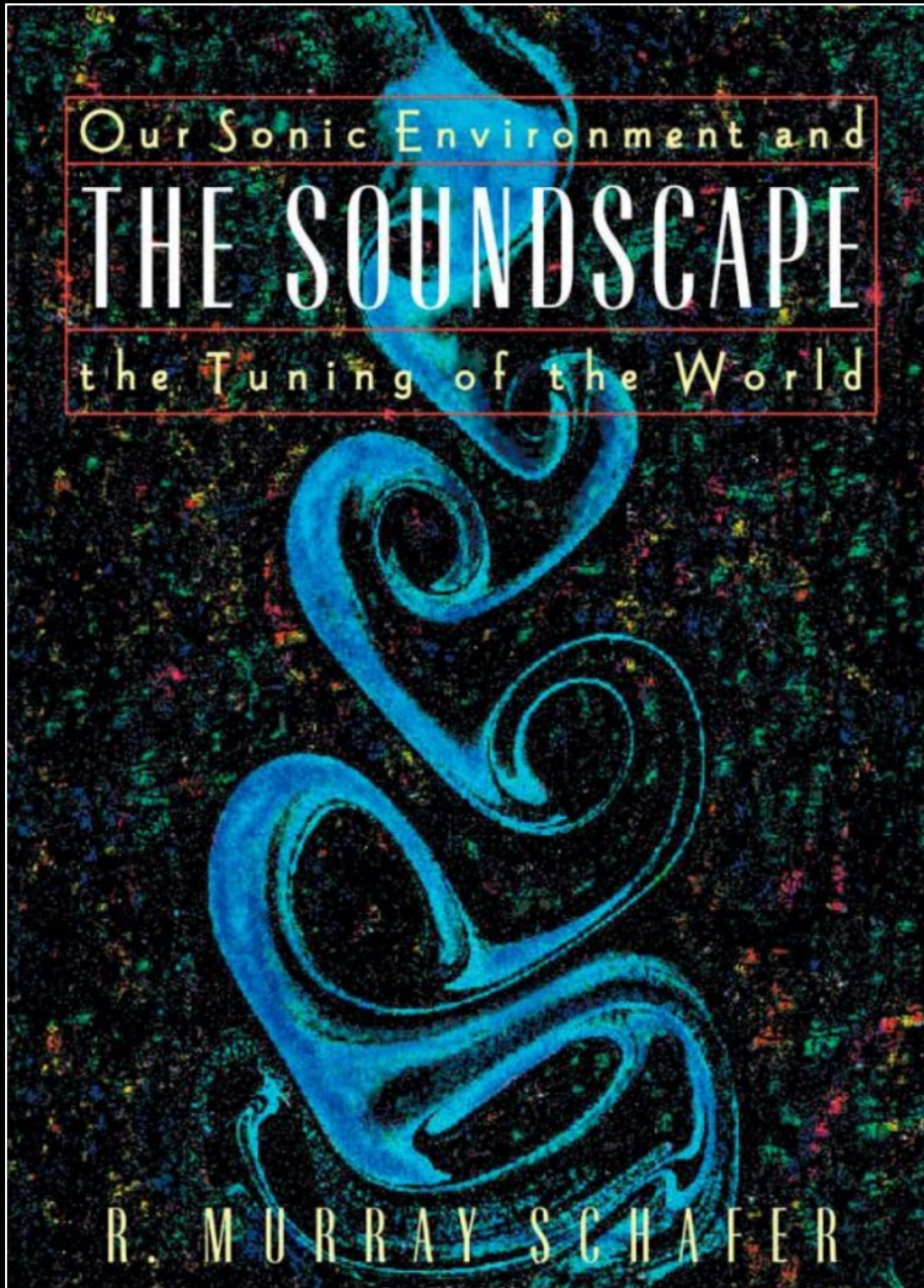
soundmarks

TUNING OF THE WORLD through

clairaudience

refusing *noise*, reanimating
Appolonian (v *Dionysian*)
notions of music

repairing *schizophonia*



Schafer, R. Murray. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Destiny Books, 1993. © Destiny Books. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

Destiny Books, 1994; first edition Knopf, 1977



Sound Imperialism

Wherever Noise is granted immunity from human intervention, there will be found a seat of power. The noisy clank of Watt's original engine was maintained as a sign of power and efficiency, against his own desire to eliminate it, thus enabling the railroads to establish themselves more emphatically as the "conquerers" that I will, in a moment, let Charles Dickens describe. A glance at the sound output of any representative selection of modern machines is enough to indicate where the centers of power lie in the modern world.

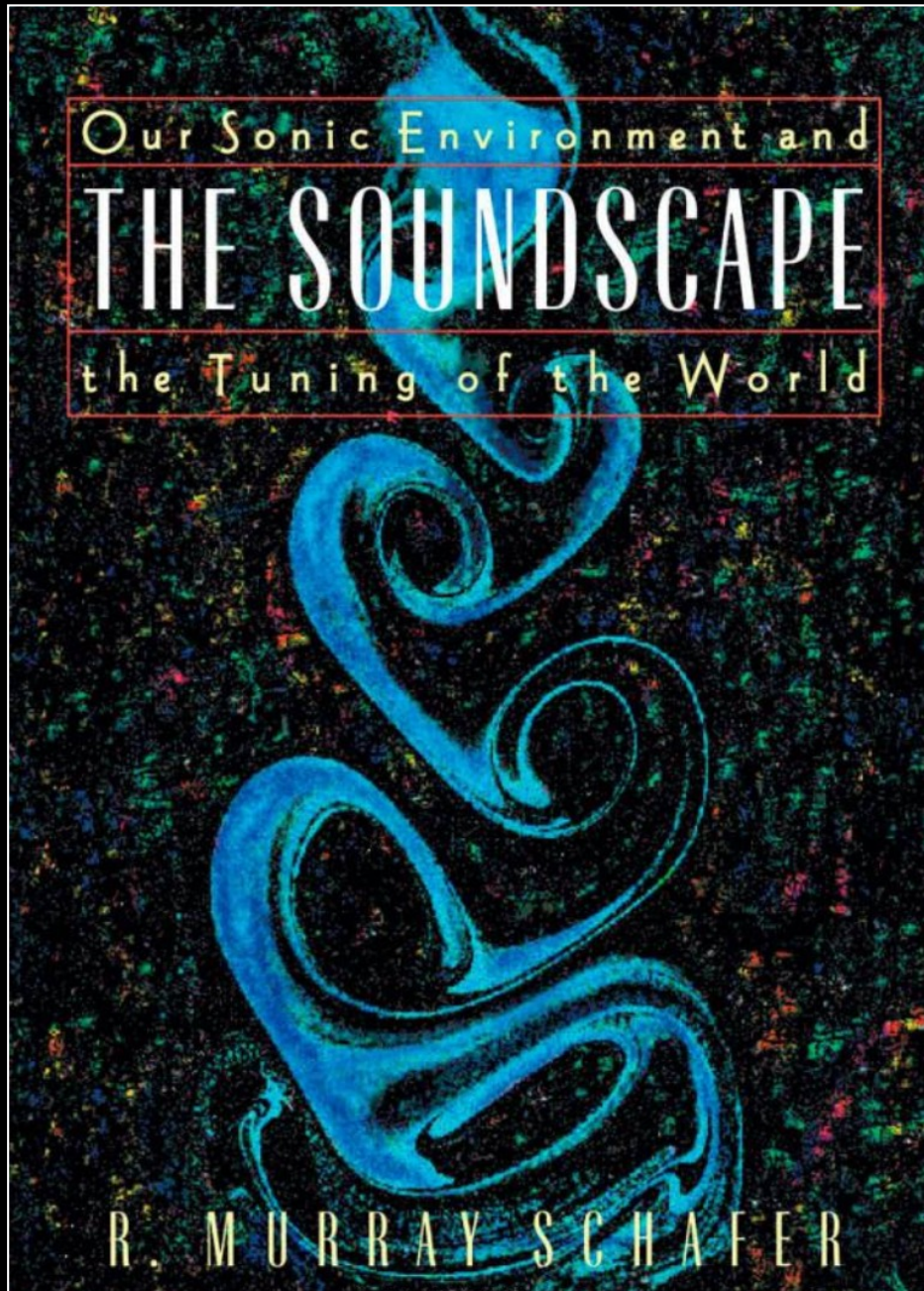
Steam engine	85 dBA
Printing works	87 dBA
Diesel-electric generator house	96 dBA
Screw-heading machine	101 dBA
Weaving shed	104 dBA
Sawmill chipper	105 dBA
Metalwork grinder	106 dBA
Wood-planing machine	108 dBA
Metal saw	110 dBA
Rock band	115 dBA
Boiler works, hammering	118 dBA
Jet taking off	120 dBA
Rocket launching	160 dBA

76-77

Just as there is no perspective in the lo-fi soundscape (everything is present at once), similarly there is no sense of duration with the flat line in sound. It is suprabiological. We may speak of natural sounds as having biological existences. They are born, they flourish and they die. But the generator or the air-conditioner do not die; they receive transplants and live forever.

Schafer, R. Murray. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Destiny Books, 1993. © Destiny Books. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

78



Schafer, R. Murray. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Destiny Books, 1993. © Destiny Books. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

Destiny Books, 1994; first edition Knopf, 1977



Schizophonia The Greek prefix *schizo* means split, separated; and *phone* is Greek for voice. *Schizophonia* refers to the split between an original sound and its electroacoustical transmission or reproduction. It is another twentieth-century development.

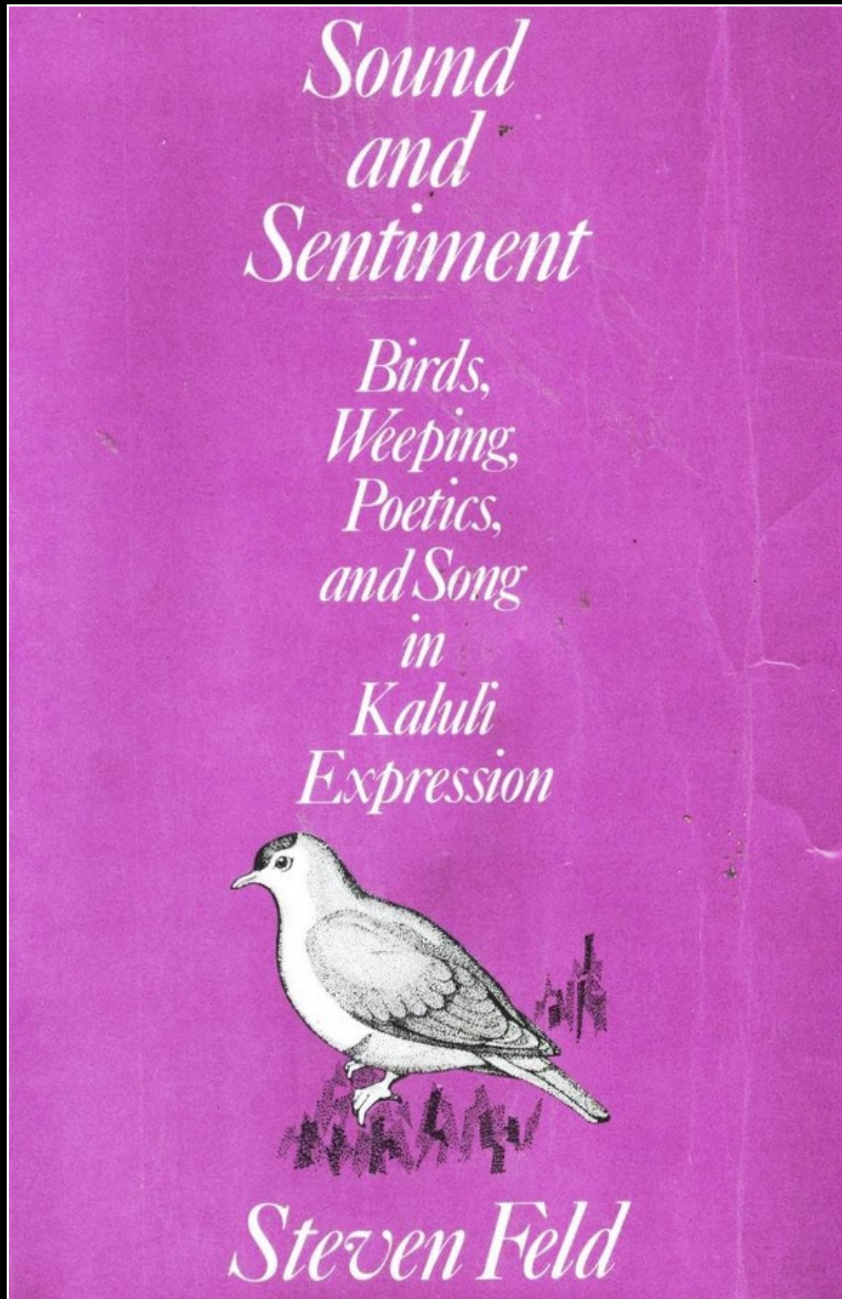
Originally all sounds were originals. They occurred at one time in one place only. Sounds were then indissolubly tied to the mechanisms that produced them. The human voice traveled only as far as one could shout. Every sound was uncounterfeitable, unique. Sounds bore resemblances to one another, such as the phonemes which go to make up the repetition of a word, but they were not identical. Tests have shown that it is physically impossible for nature's most rational and calculating being to reproduce a single phoneme in his own name twice in exactly the same manner.

90

The Electric Revolution extended many of the themes of the Industrial Revolution and added some new effects of its own. Owing to the increased transmission speed of electricity, the flat-line effect was extended to give the pitched tone, thus harmonizing the world on center frequencies of 25 and 40, then 50 and 60 cycles per second. Other extensions of trends already noted were the multiplication of sound producers and their imperialisitic outswep by means of amplification.

Two new techniques were introduced: the discovery of packaging and storing techniques for sound and the splitting of sounds from their original contexts—which I call *schizophonia*. The benefits of the electroacoustic transmission and reproduction of sound are well enough celebrated, but they should not obscure the fact that precisely at the time hi-fi was being engineered, the world soundscape was slipping into an all-time lo-fi condition.

88



Feld, Steven. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*. University of Pennsylvania Press, 1982. © University of Pennsylvania Press. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

University of Pennsylvania Press, 1982



Ulahi Gonogo and Steven Feld review song translations, Bona village, Bosavi, 2018

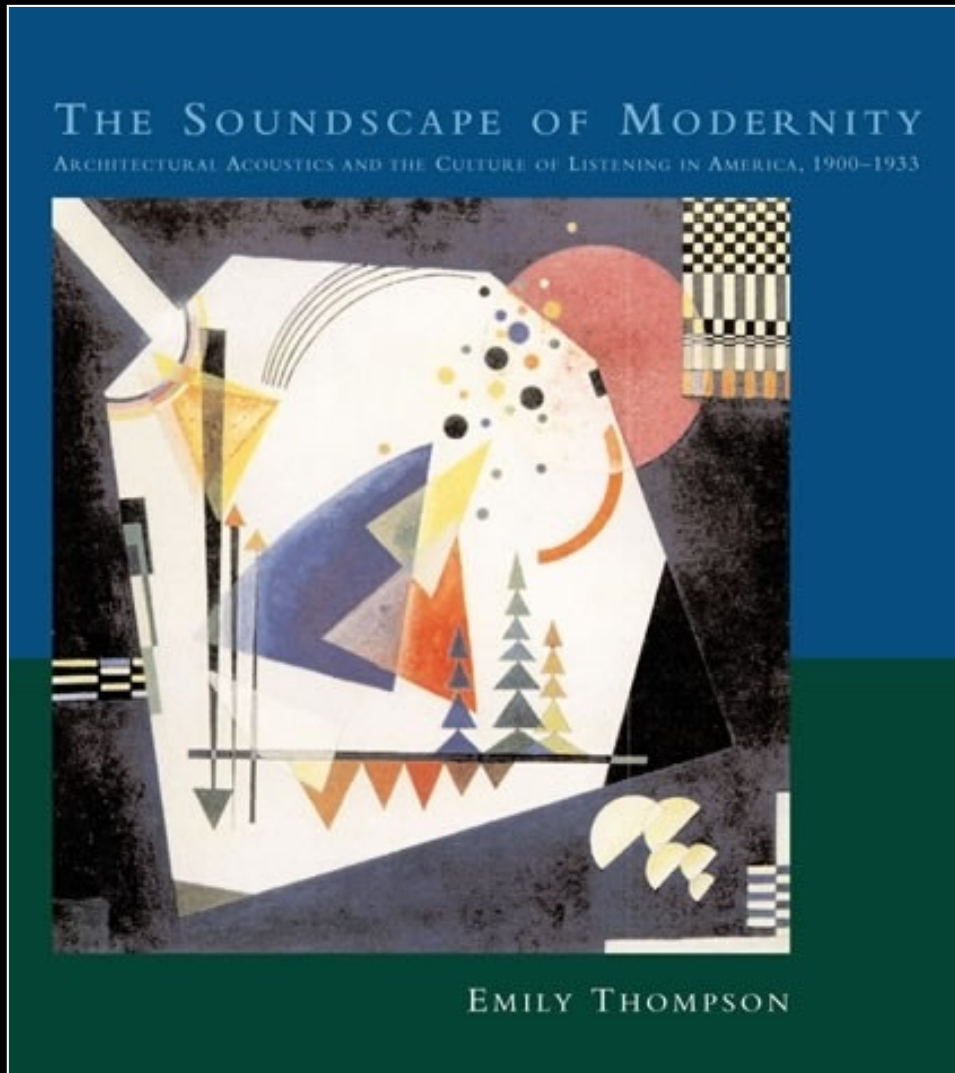
ACOUSTEMOLOGIES
patterns of cultural apprehensions
and understandings of sound

POETIC CARTOGRAPHY

In Kaluli musicking and sound

lift-up-over sounding

flow



Thompson, Emily. *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933*. MIT Press, 2004.
© MIT Press. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

MIT Press, 2002

THE SOUNDSCAPE OF MODERNITY works with



scientifically described signal-like
sound, with aim of rational control over
reverberation and resonance

rect for the variations that he could not eliminate or control.⁹³ He ultimately determined that the hyperbolic parameter k was proportional to the volume of a room according to the equation:

$$k = .164 V.$$

Sabine's equation could now be written in the form:

$$t = \frac{.164 V}{\sum (a_n s_n)},$$

where:

t = reverberation time (in seconds),

V = volume of room (in cubic meters),

a_n = absorption coefficient of material n , and

s_n = surface area of material n (in square meters).



TRAFFIC

Automobiles
Trucks
Buses
Motorcycles

Horns
Brakes
Cut-outs
Gears
Defective--
Mufflers
Exhaust
Whistles
Rattling--
Parts
Rattling--
Loads
Sirens
Bells
Doorman's
-Whistles

Fire Engines
Horses
Policeman's
Whistles
General

TRANSPORTATION

Trolley Cars
Trains ---
Subway
Elevated
Railroads

Turnstiles
Brakes
Rattling--
Wheels
Bodies
Defective--
Switches
Joints
Wheel Impact
Whistles
Bells
Steam & Other
-Exhausts
Shifting --
Cars

BUILDING OPERATION

Pneumatic
Drills &
Riveters
Exhausts from
Steam &
Gasoline-
Hoists -
Shovels -
Pile --
Drivers
Blasting
Unloading
Loading
Shouting
Compressors

Plasterers &
Bricklayers
Welders
Demolition
Excavation
Subway
Construction
Sewer/Water
System
Construction
General

HOMES

Loud --
Speakers
Pianos
Phonographs
Musical --
Instruments
Late
Parties
Barking Dogs

People
Building
Machinery
& Systems

STREETS

Radio &
Music --
- Stores
Peddlers
Loiterers
Garage &
- Taxi -
Stands

Carnival
Barkers
Musical --
Instruments
Preachers
Gas & Service
Stations
Theater
Loudspeakers
Street
Cleaning
Mobile
Loudspeakers

HARBOR & RIVER

Whistles
Bells
Sirens
Motor --
- Exhausts
Horns

Dredging
General



COLLECTION DELIVERIES

Ash
Garbage
Milk
Papers
Food
Mail
Express

Fuel

MISCELLANEOUS

Airplanes
Factories
Restaurants
Amusement
- Halls

Animals
Children
Church Bells
Crowds
Parades
Workshop
Printing
Plant
Ice Plants
Noise
Abatement
Commission

Noise
Measurement
Dairies
Bakeries
Whistles
Social Clubs
Miniature --
Golf
General

Courtesy of
Diphtheria Prevention Commission
Staff - Artist



Max for Live

Convolution Reverb

by Ableton

Convolution Reverb is a creative device for bringing new space to your sounds – a sample-based reverb suite with hundreds of impulse responses from real-world spaces and world-class hardware.



Included in Live 11 Suite.

Download

Contents

436 Presets, 1 Live Sets, 3 Max Devices

Size

Installation size: 573.91 MB

Download size: 298.9 MB

Requirements

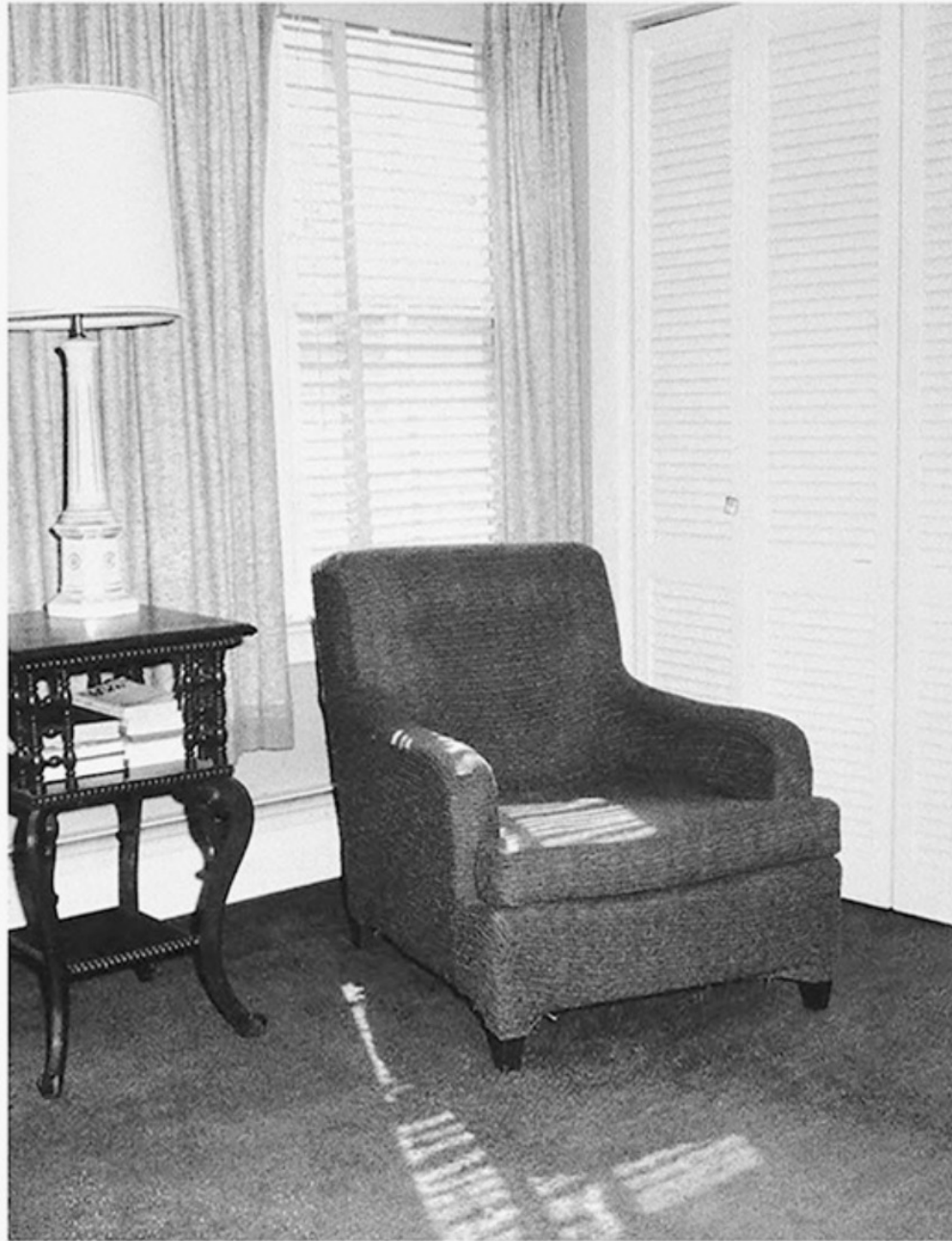
Live 11 Standard (version 11.0 or higher)

Max for Live

Tags

Experimental, Sound Effects, Device Presets

Alvin Lucier



I am sitting in a room

originally recorded, 1969

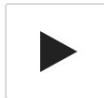


music

community

I Am Sitting In A Zoom

by [Tim Shaw and John Bowers](#)



I Am Sitting In A Zoom (Shaw) 00:00 / 14:56



Digital Album

Streaming + Download

Includes high-quality download in MP3, FLAC and more. Paying supporters also get unlimited streaming via the free Bandcamp app.

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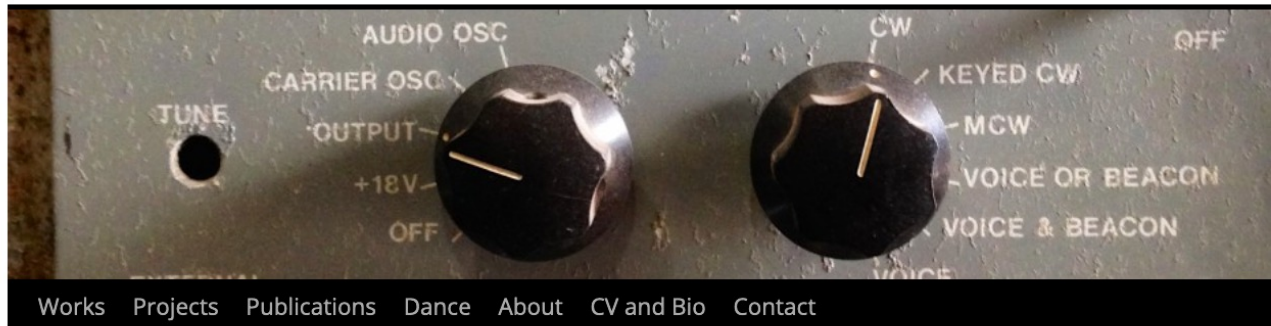
▶ 1. I Am Sitting In A Zoom (Shaw) 14:56

▶ 2. I Am Sitting In A Zoom (Bowers) 14:31



Cathy Lane

sound artist and composer



← Science Fiction

Here We all Are (Lucier Mix)

Posted on [May 18, 2020](#) by [cathylane](#)



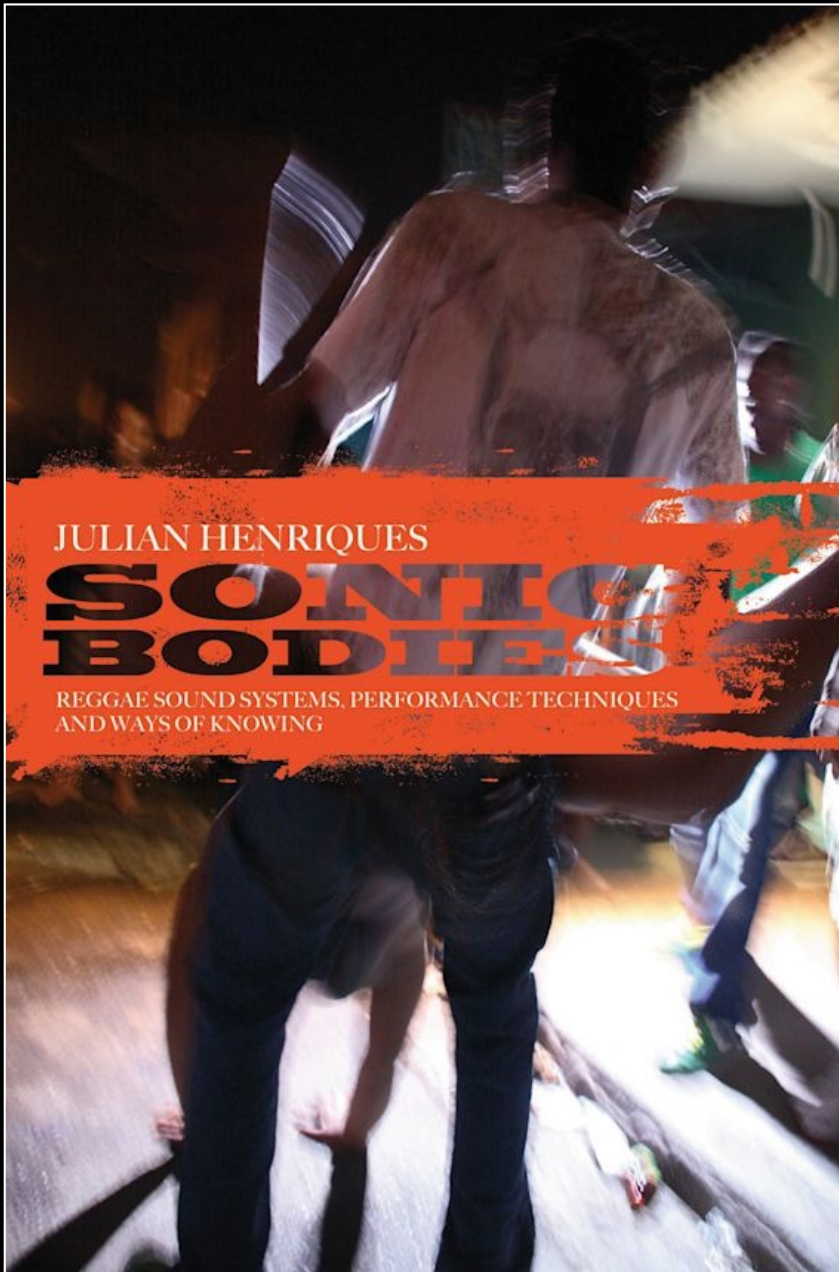
For a long time I've been thinking of what a feminist re-working of Lucier's "I Am Sitting In A Room" might sound like. It's a great work but I couldn't help but wonder about Lucier's position as the only sound in the room, the male artist apparently voluntarily isolated and cut off from the rest of society with his voice becoming more and more re-enforced and literally bouncing back at him from his environment reflecting only him. I wanted to see what happened when my voice was looped over and over again into the outside world so that it combined with the sounds of the other people and the other species that I share space with.

In March and April 2020 the UK went into lockdown to try and slow the spread of the virus C19. The inner cities everywhere became quieter as traffic and planes decreased. The weather was unusually warm and sunny. Birds sang and insects buzzed. In my part of East London where the small gardens of terraced houses are divided from the neighbours gardens on three sides by fences, you could hear but not see the various activities of your often unknown neighbours at various points of the day and night. Many people no longer were allowed to go to work but worked in the garden, played with their children and enjoyed being outside.

All recordings Here We all Are (Lucier Mix) were made during the start of this time while sitting in the same position in my garden in Hackney, London in late March and April, 2020.

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originally recorded, 2020



Henriques, Julian. *Sonic Bodies: Reggae Sound Systems, Performance Techniques, and Ways of Knowing*. Continuum, 2011. © Continuum. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

Bloomsbury, 2011



SONIC DOMINANCE

VIBRATIONS

SOUNDING AS VERB
DUB AS RE-VERB

BASS CULTURE

KING TUBBY

THE DUBMASTER



presents

DUB FROM THE ROOTS



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"King Tubby: The Dubmaster presents Dub from the Roots." Total Sounds, 1975. © Total Sounds. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

Culture Press, 1974



Legs Eleven Sound System

@LegsElevenSoundSystem · Public figure

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Ask Legs Eleven Sound System

"Can you tell me more about yourself?"

[Ask](#)

"Can I learn more about your background?"

[Ask](#)

"Are you available to chat?"

[Ask](#)

"Where are you located?"

[Ask](#)

[Ask](#)

About

[See all](#)

[i](#) Legs Eleven (all female) Sound System



Create post



Photo/video



Check in



Tag friends

Pinned post



Legs Eleven Sound System updated their cover photo. ...

September 29, 2019 · 🌐



Some Sounds of the Covid-19 Pandemic



What does a pandemic sound like? For many of us at home, it's a heartbreaking silence.

By [Robin Givhan](#)

April 28, 2020 at 5:00 a.m. EDT



What does the coronavirus pandemic sound like? The voices of people struggling, secluding and surviving around the world

April 2, 2020 11:30pm EDT



COVID-19 Local updates Live video COVID-19 tracker Subscribe

As It Happens

What does a pandemic sound like? Artist maps audio from people's daily lives



Birds chirping, balcony music and applause for health-care workers among the sounds captured during COVID-19

CBC Radio · Posted: Apr 09, 2020 5:33 PM ET | Last Updated: April 9

'Sound of the Earth: The Pandemic Chapter'

An online art installation which records the sounds of the COVID-19 Pandemic.



"Over 500 people from around the world have submitted the sounds that they recorded—these include everything from ambulance sirens to waterfalls, as well as events specific to the Pandemic, such as the weekly 'Clap for Carers!'"

Credits for these images can be found on page 25.



Thread



DREW DANIEL
@DDDrewDaniel

HEY! Here is my "quarantine supercut"! 200 people, about 300 files, 12 channels but it's one collage about what our lives under quarantine sound like. Deeply grateful to TCI and all the contributors for trusting me with the sounds of their lives! You can listen here:

The Creative Independent @thecreativeindp · May 4

TCI IRL 1

We asked you to send us audio clips of your quarantine experience and now @DDDrewDaniel (Matmos, @xSoftPinkTruthx) has assembled them all into them all into one beautiful listen.

Released in conjunction with @kickstarter

→ indp.co/TCI_IRL



Your quarantine sounds,



Car horns mark 'amens' at drive-in church services, such as this one in Daytona Beach, Florida. Paul Hennessy/SOPA Images/LightRocket via Getty Images

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Coronavirus lockdown changed how birds sing in San Francisco



LIFE 24 September 2020

By Adam Vaughan

Soundscapes in the Pandemic

search locations...

by radio aporee:

How is the current covid-19 pandemic changing the soundscape around us?

Markt 9, 37073 Göttingen, Germany

Jacobikirchhof 2, 37073 Göttingen, Germany

Frankfurt (Main) Flughafen Regionalbahnhof, Hugo-Eckener-Ring 1, 60549 Frankfurt am Main, Deutschland

Wind & Tide Playground

Hugo-Eckener-Ring 15, 60549 Frankfurt am Main, Deutschland

Rue Jules Tellier, 31100 Toulouse, France

Rue Jules Tellier, 31100 Toulouse, France

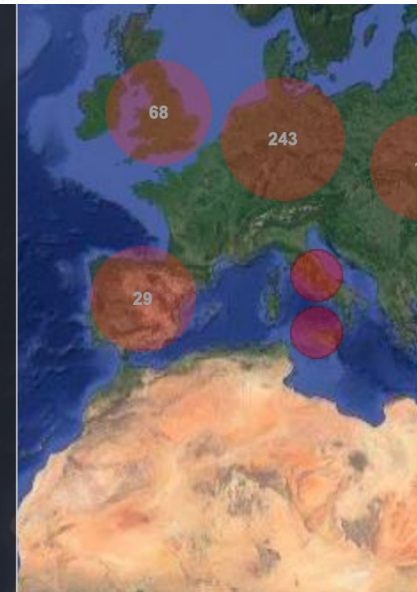
PLACES

Urban Auscultation; or, Perceiving the Action of the Heart

How we listen to the city is as important as what we are listening for.

SHANNON MATTERN

APRIL 2020



Credits for these images can be found on page 26.

Global quieting of high-frequency seismic noise due to COVID-19 pandemic lockdown measures

Thomas Lecocq^{1,*}, Stephen P. Hicks², Koen Van Noten¹, Kasper van Wijk³, Paula Koelemeijer⁴, Ra...

+ See all authors and affiliations

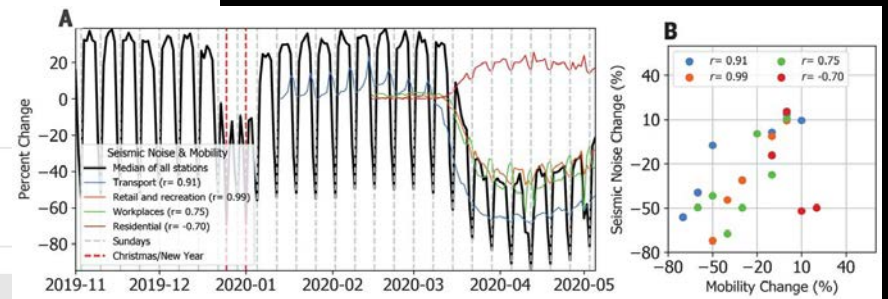
Science 11 Sep 2020:
Vol. 369, Issue 6509, pp. 1338-1343
DOI: 10.1126/science.abd2438

Article

Figures & Data

Info & Metrics

eLetters



The great seismic quiet period

Noise from trains, airplanes, industrial processes, and other sources is recorded on seismometers worldwide. Disentangling this noise is important for extracting out natural signals, but the noise can also roughly track population movements. Lecocq *et al.* compiled seismic observations around the world and found a substantial decrease in noise resulting from lockdown measures imposed in response to the coronavirus disease 2019 pandemic (see the Perspective by Denolle and Nissen-Meyer). These observations tightly correspond to when the measures went into effect and offer a way to track aggregate behavior. This quiet period also offers the chance to extract anthropogenic sources of noise from those of natural processes.

Science, this issue p. 1338; see also p. 1299

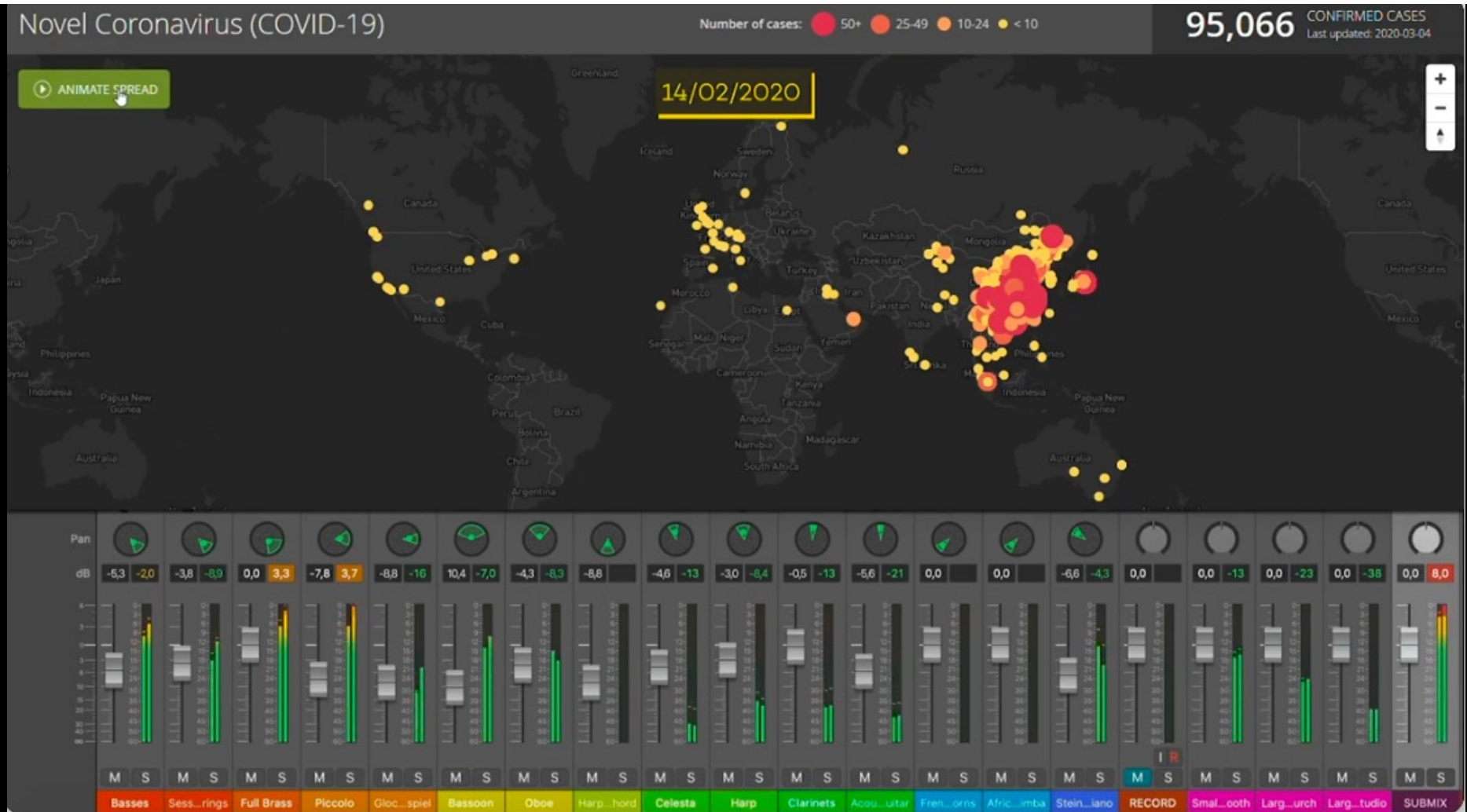
Lecocq, Thomas, et al. "Global Quietening of High-Frequency Seismic Noise Due to COVID-19 Pandemic Lockdown Measures." *Science* 369, no. 6509 (2020): 1338–43. © American Association for the Advancement of Science. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

Sonifying The Coronavirus Pandemic

Mar 9, 2020 • Rayam Soeiro, Paul Koenig, Simon Sandvik, Donho Kwak

Introduction

For this sonification project, our team chose to map the contemporaneous spread of the Coronavirus from China to the rest of the world. This is obviously a phenomenon that is ongoing, so being able to update the sonification as new data came in was an important consideration.



Visually impaired Scots get sonic help with Covid graphs

New website uses musical notes to create an audio map of infection rates or fatalities

- **Coronavirus - latest updates**
- **See all our coronavirus coverage**

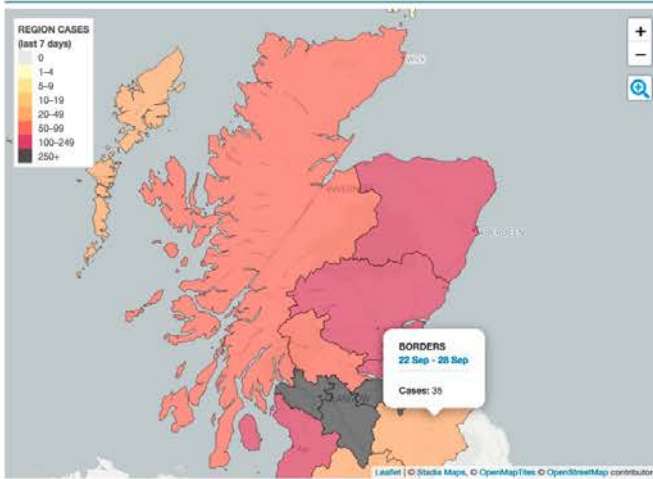


Summary Dashboard | Regional Insights

STA Scottish COVID-19 Statistics

Select boundaries:

Health Boards



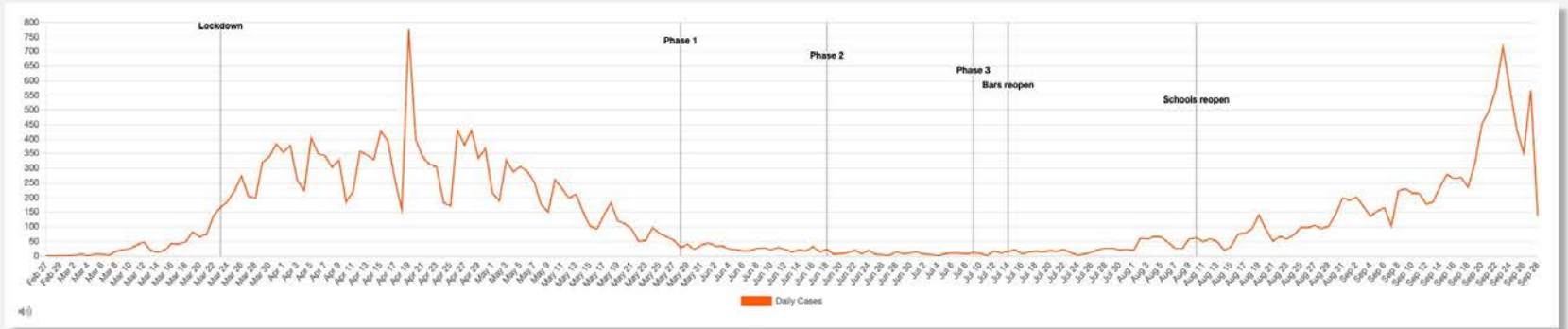
HEALTH BOARDS
14 Boards

Ayrshire & Arran	4791
Borders	23
Dumfries & Galloway	60
Fife	2515
Forth Valley	30
Grampian	
Greater Glasgow & Cly	
Highland	
Lanarkshire	
Lothian	
Orkney	
Shetland	
Tayside	
Western Isles	



Select Chart:

- Daily Cases
- Total Cases
- Daily Deaths
- Total Deaths
- % Tests Positive





PLAYLIST

Pandemic Songs

A playlist of songs related to the coronavirus pandemic created by Associated Press Music Editor Mesfin Fekadu.

Mesfin • 248 likes • 34 songs, 1 hr 55 min

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Remembering the sounds of COVID-19

Changing soundscapes

"Listen up: In these disquieting COVID-19 times, hushed cities are making a loud impression on our ears": Reflections on the changing soundscapes of Canada, as impacted by the pandemic.

"The Coronavirus Quieted City Noise. Listen to What's Left": Reflections on the changing soundscape of New York City, as impacted by the pandemic.

"Quiet Oceans: Has the COVID-19 Crisis Reduced Noise in Whale Habitats?": A discussion of how COVID-related quiet is affecting underwater sea sound levels.

Personal reflections

"The Sounds of Covid": Coronavirus lockdown poem written by a nine-year-old child in Cork, Ireland.

"There Is No Noise in a Covid-19 Emergency Room": First-hand account by a front-line doctor in New York City.

"How COVID-19 is unmasking my hearing loss": Personal reflection by an Ottawa resident on the impact of face masks for people with hearing loss.

Recordings and sound maps

"#StayHomeSounds": Collection of audio recordings uploaded by people around the world during coronavirus lockdown.

"Soundscapes in the Pandemic": Another collection of crowdsourced recordings, this one focused on documenting changing local and global soundscapes.

"COVID-19 Pandemic Soundscape": Recordings of residents sounding appreciation for healthcare workers from their condo balconies in Vancouver.

Medical sounds

"Sounds of Coronavirus (COVID-19) - Lung Sounds": Examples of different lung sounds produced by COVID-19.

"COVID-19 Sounds App": An app developed by University of Cambridge researchers to crowdsource sounds of people's voices, breathing, and coughing in order to inform the diagnosis of COVID-19.

"Coughvid": Another initiative to collect the sounds of coughs for research purposes, this one run by the Embedded Systems Laboratory at the Swiss Federal Institute of Technology Lausanne.

Data sonifications

"Viral Counterpoint of the Coronavirus Spike Protein (2019-nCov)": Musical sonification of the amino acid sequence and protein structure of the COVID-19 pathogen.

"The sounds of Covid-19": Another musical sonification of the DNA sequence of COVID-19.

Musical soundtracks and resources

"Golden Sounds of Covid-19": Compilation album of COVID-19-inspired songs, with proceeds donated to charity that provides relief for musicians affected by the virus.

"A Quarantine Playlist For Every Mood": Collection of playlists and live streaming resources for people to access under coronavirus lockdown.

ETHNOMUSICOLOGY

Faculty of Music, University of Toronto

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Listening to COVID 19



Critical Commentaries

The Future is Unwritten: Listening to the Rhythms of COVID-19

Brian E. Kumm, Joseph A. Pate & Callie S. Schultz

Received 22 Apr 2020, Accepted 13 May 2020, Published online: 26 Jun 2020



Kumm, Brian E., et al. "The Future is Unwritten: Listening to the Rhythms of COVID-19." *Leisure Sciences* 43, no. 1-2 (2021): 85-89. © Taylor and Francis Limited. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

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Masks curb COVID, but add barrier for deaf community

Mask-wearing makes communication near impossible for those who rely on lipreading to communicate.

Hilary Edwards • June 30, 2020



Edwards, Hilary. "Masks Curb COVID, but Add Barrier for Deaf Community." June 30, 2020. Healthing. © Postmedia Network Inc. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.



Contents lists available at ScienceDirect

Informatics in Medicine Unlocked

journal homepage: <http://www.elsevier.com/locate/imu>



AI4COVID-19: AI enabled preliminary diagnosis for COVID-19 from cough samples via an app

Ali Imran^{a,b}, Iryna Posokhova^{b,c}, Haneya N. Qureshi^a, Usama Masood^a,
 Muhammad Sajid Riaz^a, Kamran Ali^d, Charles N. John^a, MD Iftikhar Hussain^{b,e},
 Muhammad Nabeel^{a,*}

^a AI4Networks Research Center, Dept. of Electrical & Computer Engineering, University of Oklahoma, USA

^b AI4Lyf LLC, USA

^c Kharkiv National Medical University, Ukraine

^d Dept. of Computer Science & Engineering, Michigan State University, USA

^e Allergy, Asthma & Immunology Center PC, USA

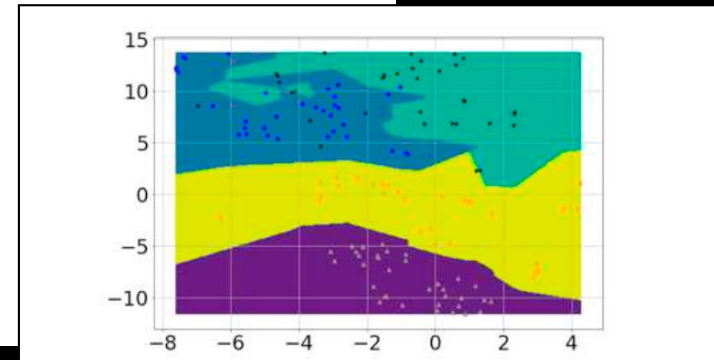


Fig. 1. Visualization of features for the four classes via t-SNE (gray triangles correspond to normal, blue circles correspond to bronchitis, black stars correspond to COVID-19 cough, and orange diamonds represent COVID-19 cough. (For the references to colour in this figure legend, the reader is referred to the web version of this article.)

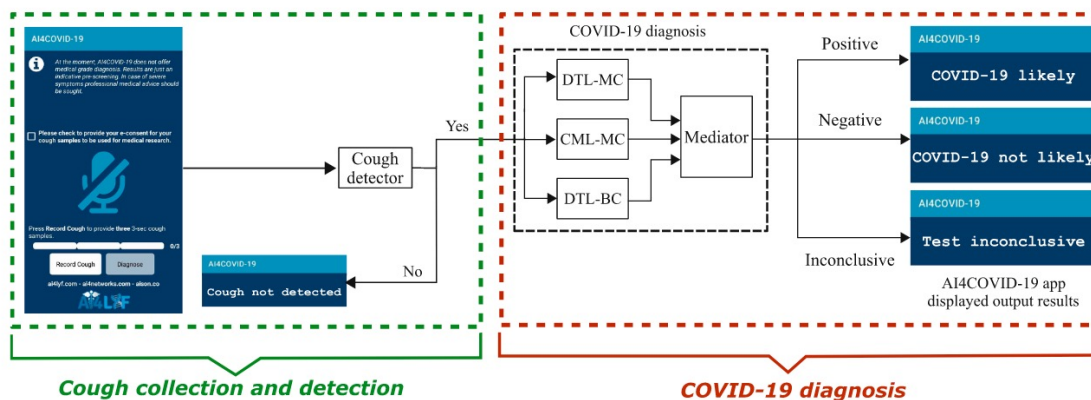


Fig. 2. Proposed system architecture and flow diagram of AI4COVID-19, showing snapshot of Smartphone App at user front-end and back-end cloud AI-engine blocks consisting of Cough Detector block (further elaborated in Fig. 4 and Section 2.3) and COVID-19 diagnosis block containing Deep Transfer Learning-based Multi-Class classifier (DTL-MC), Classical Machine Learning-based Multi-Class classifier (CML-MC) and Deep Transfer Learning-based Binary-Class classifier (DTL-BC) (further elaborated in Fig. 5 and Section 2.3).



Deep learning-based cough recognition model helps detect the location of coughing sounds in real time.

21.08.2020 • #CORONAVIRUS #DEEP LEARNING #INFECTIONS

COVID-19: Deep learning-based cough recognition

The Center for Noise and Vibration Control at KAIST announced that their coughing detection camera recognizes where coughing happens, visualizing the locations. The resulting cough recognition camera can track and record information about the person who coughed, their location, and the number of coughs on a real-time basis.

Credits for the images on page 15

Givhan, Robin. "[What Does a Pandemic Sound Like?](#)," *Washington Post*, April 28, 2020. © Nash Holdings. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

"[What Does a Pandemic Sound Like? Artist Maps Audio from People's Daily Lives.](#)" April 9, 2020. CBC. © CBC/Radio-Canada. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

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