

SoundLab, first three years [studio report]

PerMagnus Lindborg, PhD
Ryo Ikeshiro, PhD

International Computer Music Conference
Chinese University of Hong Kong in Shenzhen, China
18 October 2023





School of Creative Media CityU HK

[https://
www.scm.cityu
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SCM / people / LINDBORG, PerMagnus

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KEYWORDS

Sound Art Music Composition Perception
Psychoacoustics Sonification Multimedia Soundscape

BACKGROUND

PerMagnus Lindborg, PhD, is a composer, sound artist, and researcher in sound perception. The first author of more than 150 scholarly publications, compositions, and media artworks.

He is a Fellow with *The Arctic Circle* (2023), *SCM Team Research* (2020-25), and *TBA The Current* (2016), and Principal Investigator for *Multi-Modal Hong Kong* (GRF 2023-25).. He was commissioned by or selected for *Asian Composers League* (New Zealand 2022), *ArtScience Museum* (Singapore 2021), *Osage* (Hong Kong 2021), *CubeFest* (Virginia 2019), *Berlin PianoPercussion* (2018), *Xuhui Museum* (Shanghai 2017); *Tonspur* (Vienna 2016); *National Gallery* (Singapore 2015); *Onassis Centre* (Athens 2014); *Moderna Museet* (Stockholm 2008); *Centre Pompidou* (Paris 2003), and more. Won multiple awards for films about music, e.g. Best New Director at *Cannes Short Film Festival*, *USA Awards* (2020), and for

SCM / people / IKESHIRO, Ryo

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IKESHIRO, Ryo 池城良

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KEYWORDS

Sonic Art Experimental Music Electronic Music
Sonification Ambisonics/Spatial Audio Field Recording
Sound Studies Sound Art Sound and Image
Visual Music Media Art Contemporary Art
Algorithmic/Generative Music Creative Coding

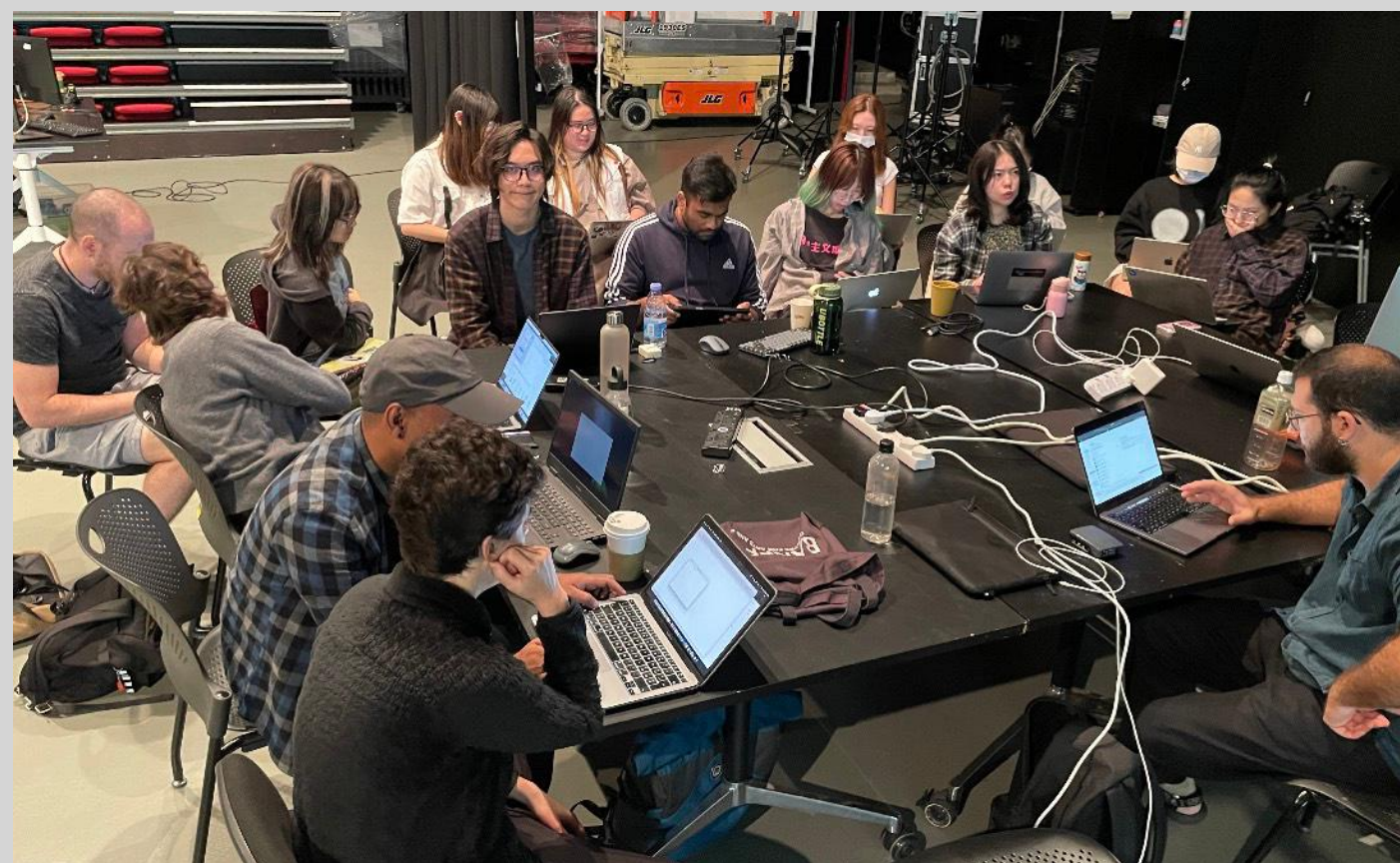
BACKGROUND

Ryo Ikeshiro is an artist, musician and researcher. His work explores the possibilities of meaning and context presented through sound as well as its materiality in relation to digital audio and audio technologies. His output includes installations and live performances in a variety of formats including immersive environments using multi-channel projections and audio, 360-video and Ambisonics, field recordings, interactive works and generative works.

Ikeshiro has presented his works internationally in a wide range of contexts including exhibitions, festivals, concerts and screenings as well as academic conferences. He was part of the Asia Culture Center's inaugural exhibition in Gwangju, South Korea, and his TeleText art pages have been broadcast on German, Austrian and Swiss national TV. He is a contributor to *Sound Art: Sound as a medium* (MIT publication), and his articles have been published in the

<https://soundlab.scm.cityu.edu.hk/soundteam/>

<https://www.scm.cityu.edu.hk/people/faculty>



<https://soundlab.scm.cityu.edu.hk/soundteam/>

SOUNDLAB

High Spatial Resolution Audio :: Sound Art, Design and Perception Research



2024 · 📅

PhD in Creative Media, spec. Sound

25/09/2023 · BY PERMAGNUS

SoundLab at City University of Hong Kong, the School of Creative Media, offers PhD research positions, fully funded from the University or HK Govt grant schemes. Apply before the end...



2023 · 📅

Workshop with Open Ambisonics Toolkit

07/08/2023 · BY PERMAGNUS

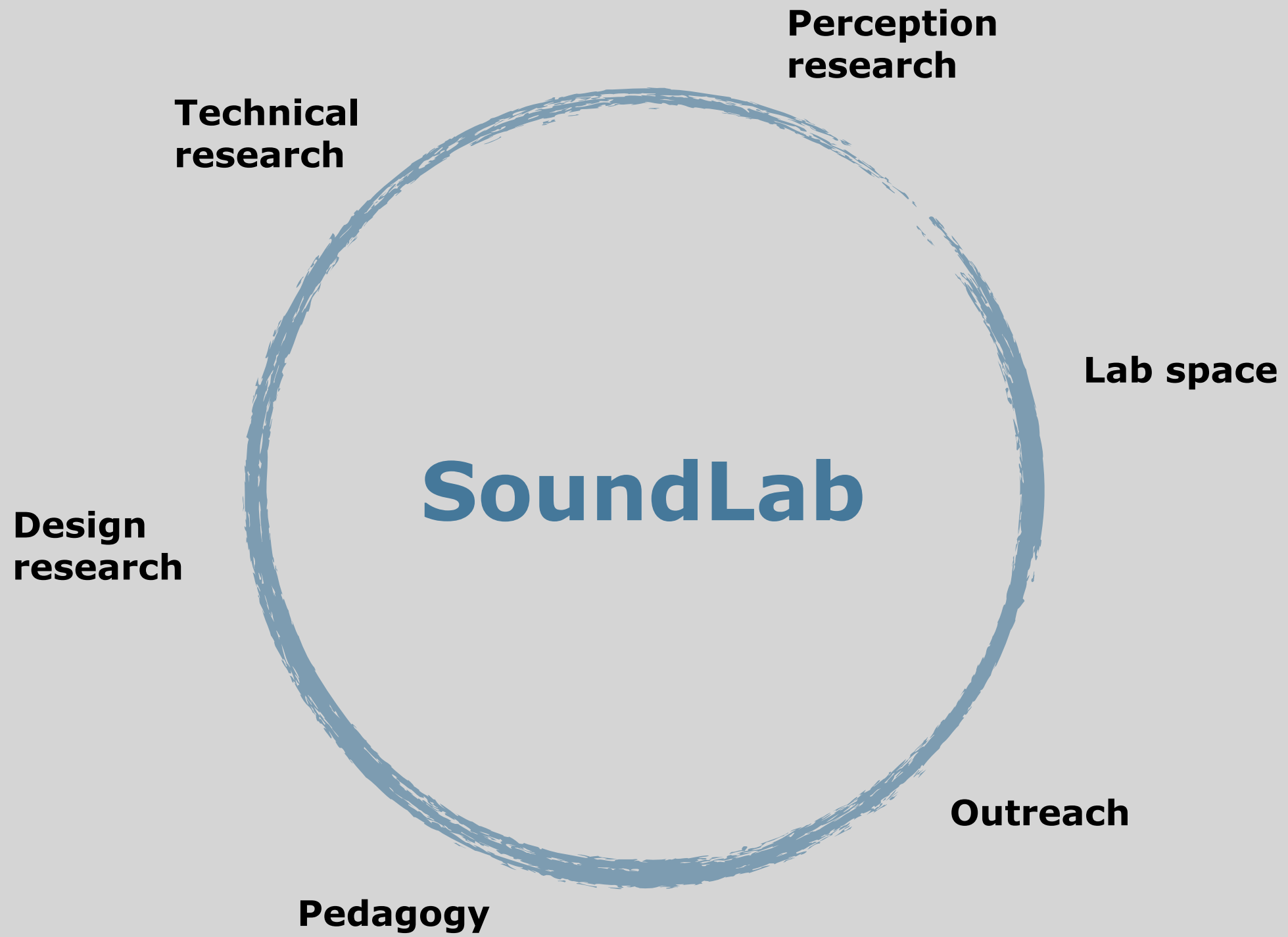
with Giuseppe Pisano, Norwegian Academy of Music & PerMagnus Lindborg, SoundLab Events About The increasing number of possible applications for spatial audio

TAGS

ACIM / AI / alumni / Ambisonics / audiovisual / BA / concert / conference / diaspora / electronics / EMSAN / event / field recording / film / GAN / guest lecture / Huawei / ICMA / installation / listening / loudspeakers / Manni Chen / Max / MIR / multimodal / music / music production / neural network / Open Ambisonics Toolkit / opportunities / performance / PhD / power / R / RA / Research Assistant / reverberation / SCM / sonic art / sonification / sound art / soundscape / spatial audio / streaming / workshop /

CATEGORIES

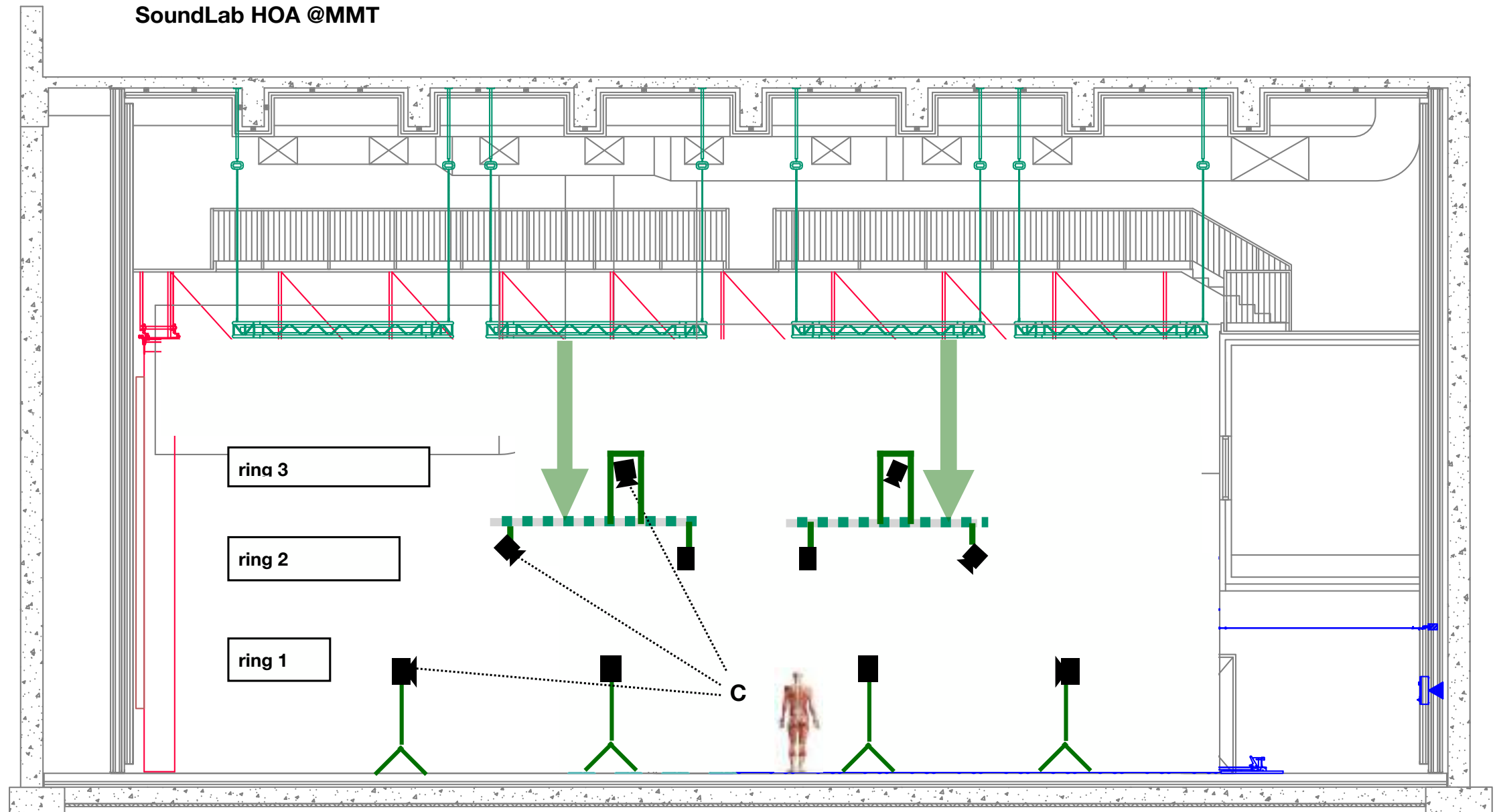
Select Category ▾



Lab space



SoundLab HOA @MMT



MMT TRUSS (8 descendable sections)

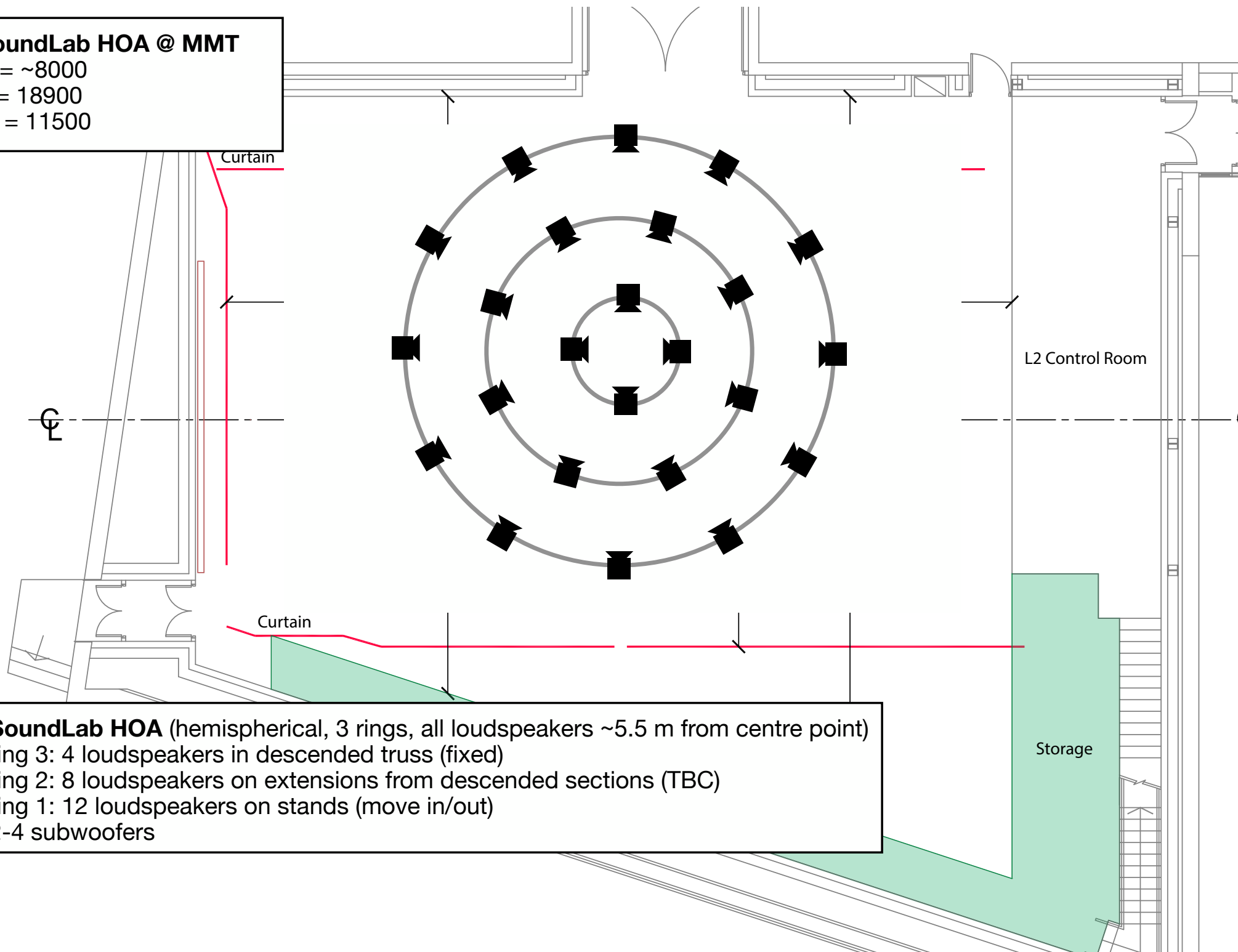
H = ~8000
L = 18900
W = 11500

SoundLab HOA (hemispherical, 3 rings, all loudspeakers ~5.5 m from centre point)

ring 3: 4 loudspeakers in descended truss (fixed)
ring 2: 8 loudspeakers on extensions from descended sections (TBC)
ring 1: 12 loudspeakers on stands (move in/out)
2-4 subwoofers

SoundLab HOA @ MMT

H = ~8000
L = 18900
W = 11500



SoundLab HOA (hemispherical, 3 rings, all loudspeakers ~5.5 m from centre point)

- ring 3: 4 loudspeakers in descended truss (fixed)
- ring 2: 8 loudspeakers on extensions from descended sections (TBC)
- ring 1: 12 loudspeakers on stands (move in/out)
- 2-4 subwoofers



Research

Design

Perception

Technical

Grants

2023

SCM Team Research Fellowship (PerMagnus Lindborg & Ryo Ikeshiro, Co-PIs)

[Strategic Research Grant \(CityU\)](#) (PerMagnus Lindborg, PI)

[General Research Fund \(GRF\)](#) (Ryo Ikeshiro, PI)

2022

[ACIM Joint Fellowship](#) (PerMagnus Lindborg & Ryo Ikeshiro, Joint PIs)

[Early Career Scheme \(ECS\)](#) (Ryo Ikeshiro, PI)

[General Research Fund \(GRF\)](#) (PerMagnus Lindborg, PI)

[Teaching Start-Up Grant](#) (PerMagnus Lindborg, PI)

[Teaching Start-Up Grant](#) (Ryo Ikeshiro, PI)

2021

[Cultural & Sports Committee Funding](#) (Ryo Ikeshiro, PI)

CityU Strategic Research Grant (Ryo Ikeshiro, PI)

[British Council Hong Kong SPARK2021 Funding](#) (Ryo Ikeshiro, PI)

2020



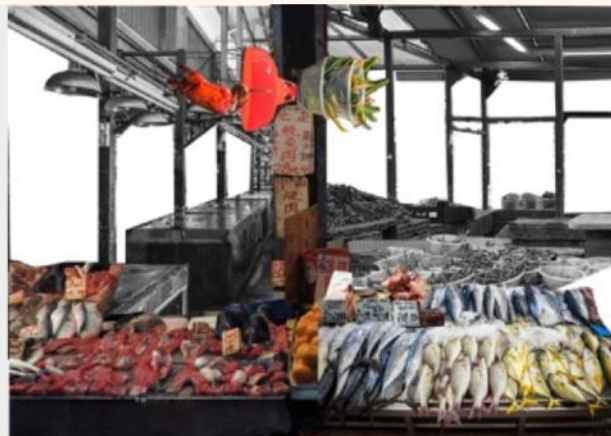
2023

@MMHK23 :: YouTube channel

APRIL 13, 2023 · BY PERMAGNUS

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READ MORE



2023

Exhibition :: The Dual City Multi-sensory Experience of Markets

APRIL 11, 2023 · BY PERMAGNUS

Multimodal HongKong and
Birmingham 'pilot exhibition' The
MMHK project looks at the sensory
cultural heritage, combining tangible

@MMHK23 :: YouTube channel

Exhibition :: The Dual City Multi-
sensory Experience of Markets

Symposium :: Inclusive design with
multi-senses

First field pilot

Chemistry Lab visit

2023

Announcement

Dissemination

Heritage

Outreach





Ambisonics Field Recording

**Exhibition: Friday 2nd – Monday 5th December 2022
(By appointment only)**

Finissage: 13:00 Monday 5th December 2022

**Current Plans
2F, 13 Wong Chuk St, Sham Shui Po**

Featuring Ambisonics (spatial audio) and video works by students from the

Publications

Publications

2023

Articles

Lindborg PM (2023, accepted). “迈向可持续的声音艺术实践，少些浮华，多些真实 [Towards Sustainable Sonic Arts Practices: Less Glitz, More Grit]”

Lindborg, PM, Lenzi S & **Chen M** (2023/01). “Climate Data Sonification and Visualisation: An Analysis of Aesthetics, Characteristics, and Topics in 32 Recent Projects”. *Frontiers in Psychology, section Human-Media Interaction*. doi: 10.3389/fpsyg.2022.1020102, <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1020102>

Chen, Manni & Lindborg, PM (2023/01) “Observations on Guitar Music Produced by AI Reverberation and Professional Sound Engineers”. *International Journal of Music Science, Technology and Art (IJMSTA)*, January 01; 5 (1): 1-7. DOI: <https://doi.org/10.48293/IJMSTA-93>

Concerts

Ikeshiro, Ryo (2023). *Prelude: To Listening 前奏曲：聆聽之* – Concert Version. Hong Kong New Music Ensemble Sounding Tomorrow Series. The Room, Freespace, West Kowloon Cultural District, Hong Kong, 23 November 2023.

Ikeshiro, Ryo (2023). Performance at the opening reception of the [Sigg Prize 2023 Exhibition](#), M+ Museum of Visual Culture, West Kowloon Cultural District, Hong Kong, 21 September 2023.



OPEN ACCESS

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SPECIALTY SECTION

This article was submitted to
Human-Media Interaction,
a section of the journal
Frontiers in Psychology

RECEIVED 15 August 2022

ACCEPTED 28 December 2022

PUBLISHED 25 January 2023

CITATION

Lindborg P, Lenzi S and Chen M (2023) Climate data sonification and visualization: An analysis of topics, aesthetics, and characteristics in 32 recent projects. *Front. Psychol.* 13:1020102. doi: 10.3389/fpsyg.2022.1020102

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Climate data sonification and visualization: An analysis of topics, aesthetics, and characteristics in 32 recent projects

PerMagnus Lindborg^{1*}, Sara Lenzi² and Manni Chen¹

¹SoundLab, School of Creative Media, City University of Hong Kong, Kowloon, Hong Kong SAR, China,

²Critical Alarms Laboratory, Faculty of Industrial Design Engineering, Delft University of Technology, Delft, Netherlands

Introduction: It has proven a hard challenge to stimulate climate action with climate data. While scientists communicate through words, numbers, and diagrams, artists use movement, images, and sound. Sonification, the translation of data into sound, and visualization, offer techniques for representing climate data with often innovative and exciting results. The concept of sonification was initially defined in terms of engineering, and while this view remains dominant, researchers increasingly make use of knowledge from electroacoustic music (EAM) to make sonifications more convincing.

Methods: The Aesthetic Perspective Space (APS) is a two-dimensional model that bridges utilitarian-oriented sonification and music. We started with a review of 395 sonification projects, from which a corpus of 32 that target climate change was chosen; a subset of 18 also integrate visualization of the data. To clarify relationships with climate data sources, we determined topics and subtopics in a hierarchical classification. Media duration and lexical diversity in descriptions were determined. We developed a protocol to span the APS dimensions, Intentionality and Indexicality, and evaluated its circumplexity.

Results: We constructed 25 scales to cover a range of qualitative characteristics applicable to sonification and sonification-visualization projects, and through exploratory factor analysis, identified five essential aspects of the project descriptions, labeled Action, Technical, Context, Perspective, and Visualization. Through linear

In review: Journal of the Audio Engineering Society (JAES)

A Meta-Analysis of Project Classifications in the Data Sonification Archive

- PerMagnus Lindborg, SoundLab, School of Creative Media, City University of Hong Kong, pm.lindborg@cityu.edu.hk (corresponding)
- Valentina Caiola, School of Creative Media, City University of Hong Kong
- Manni Chen, School of Creative Media, City University of Hong Kong
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Abstract

This systematic meta-analysis focuses on a corpus of 445 sonification projects currently available in the Data Sonification Archive (DSA). The DSA was created in a collaborative process involving researchers and creative communities, and has been online since early 2021. Projects are heuristically classified according to a theoretical framework, the Sonification Canvas, which is being developed in parallel. The classifications specify projects by several aspects, in particular their intended purpose, targeted users, subject matter, sonification method, and combination of media. In the present study, we introduce two computational classification methods, respectively based on k-means clustering of music information retrieval of sonification audio, and topic modelling of the descriptive texts accompanying projects. Correlation analysis between the six curatorial classifications and the two computational classifications, correspondingly sized, showed that the text-based automatic methods we employed might be more powerful than the audio-based

Charting the Scene(s) of Sonic Arts in Hong Kong

RYO IKESHIRO, DAMIEN CHARRIERAS and PERMAGNUS LINDBORG

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This article analyses recent developments of sonic art in Hong Kong. Based on a series of in-depth interviews with 23 local sonic art practitioners over the past six years, we discuss the contextual understanding of what constitutes ‘sonic art’ among local practitioners, along neighbouring terms such as ‘electroacoustic music’, ‘experimental music’ and ‘computer music’. We also give a description of the new generation of sonic art practitioners who emerged over the past ten years, contributing to a renewed sense of professionalism. These developments can be understood in relation to four aspects: a strong cluster of interrelated higher education institutions; a shift in public policy supporting ‘art and tech’ projects and cultural organisations; specific individuals, practitioners deeply invested in what we here define as sonic arts, acting as *passeurs*, connecting underground and academic milieux; and the international integration of Hong Kong-based sonic artists and promoters.

1. INTRODUCTION

This article analyses the development of sonic art in Hong Kong over the past decade. Recently there has been a renewed interest in the different forms taken by the sonic arts in Southeast Asia (Lindborg 2014; Fermont and Della Faille 2016; Lippit 2016) and East Asia (Battier and Liao 2018; Ikeshiro and Tanaka 2019). But little academic research has documented the sonic arts in Hong Kong (Lo 2014; Yraola 2020; Charrieras and Mouillot 2021). Electroacoustic music (EAM) made in Hong Kong is not widely known in the West (Battier and Liao

current understanding of sonic arts in the local communities with the descriptions that these practitioners have provided of their practice; the role of higher education institutions; a shift in cultural policy; the key role of *passeurs*; and the international integration of different generations of Hong Kong-based sonic artists. The analysis demonstrates how the sonic arts are happening in a dynamic ecosystem crossing different institutional levels, musical practices and people.

2. EAM AND SONIC ARTS IN HONG KONG

The term *electroacoustic music* designates the confluence of the French and German traditions, that is, *musique concrète* and *elektronische Musik*, as well as subsequent developments (Emmerson 1986). As is well known, the ‘EAM approach’ began life at various national, state-funded radio broadcast stations. Most were to be found in the West, the one notable exception being Japan (Chadabe 1997; Fronzi 2018). As both form and aesthetic, it subsequently took root in academic institutions, often in their music department and consigned to some dusty corner where noises made by artificial means were safe from banishment. Meanwhile, the term *sonic art* describes a broader range of artistic practices involving sound. In the case of Hong Kong, it is used not only as a synonym for electroacoustic music, but also includes live electronics, soundscape composition, noise, sound in contemporary art – such as sound art, sound



Research Topic

Data Perceptualization for Climate Science Communication

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About this Research Topic

In 2017, the Secretary-General of the United Nations António Guterres stated unequivocally that climate change is an unprecedented and growing threat, and that the arguments for action are clear. Notwithstanding, it has proven a hard challenge to present complex science so that laymen and non-specialists are convinced. Without developing a deeper affinity towards and trust of science, climate denialism will remain prevalent. To date, climate science is most commonly communicated using texts and still images. Might we gain a deeper understanding and richer appreciation of the data that scientists use to describe large-scale climate change through other means?

Sonification and visualization are processes of data perceptualization that may have either an aesthetic or a utilitarian purpose, or both. Data art is the study, interpretation, and representation of scientific measurements in ways that excite and surprise. As in all human-computer interaction design, it is essential to involve evaluation of output in an iterative process. Multimodal perceptualization hinges on understanding sensory processing, cognitive load, and cross-modal correspondences. While science speaks through words, numbers, and diagrams, art communicates through movement, images, sound, and sculpture. While there is a lot of potential merging the two

Topic Editors



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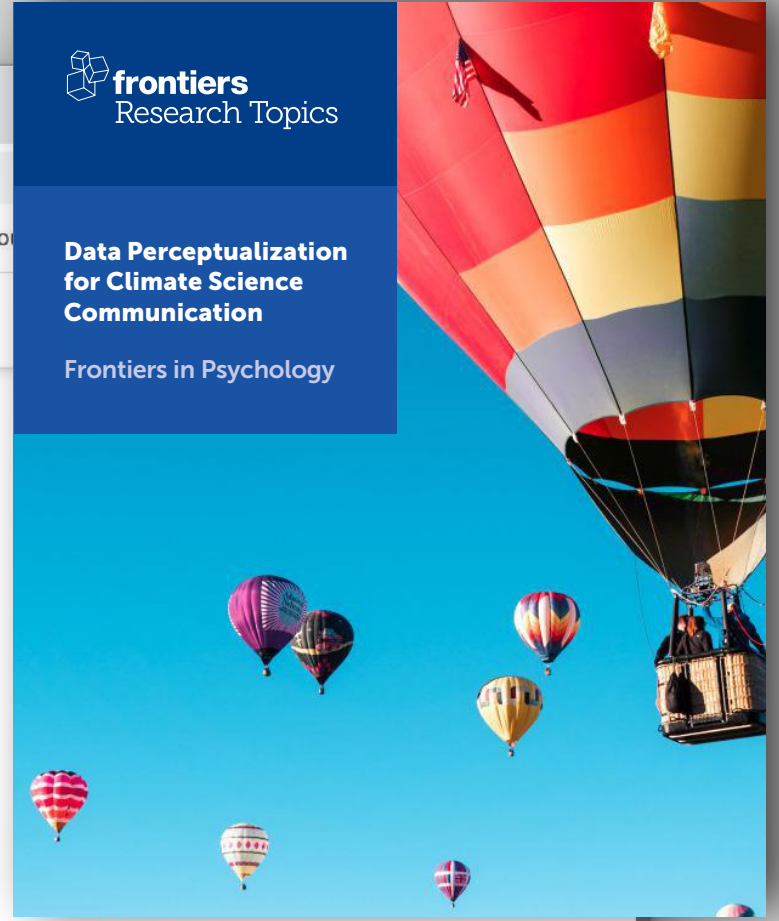
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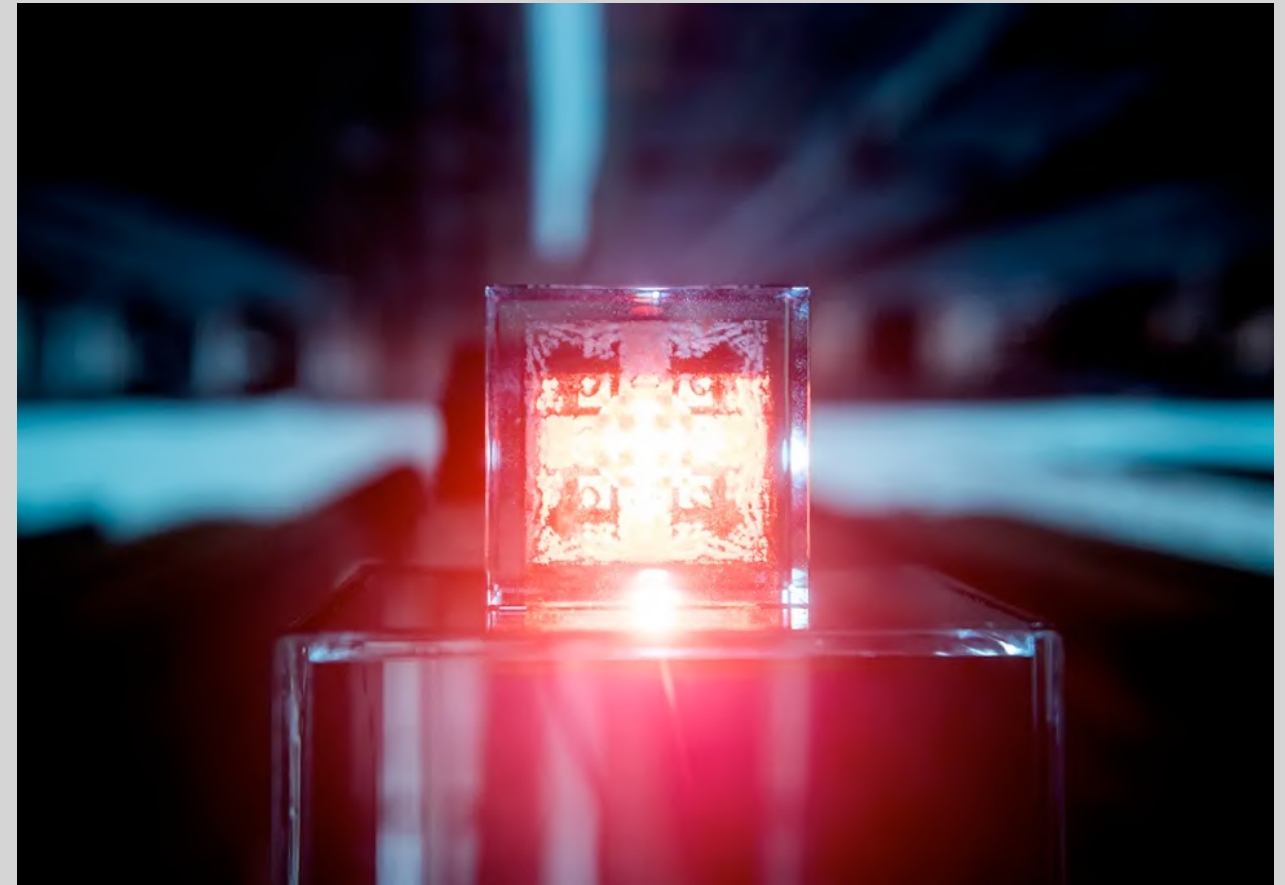
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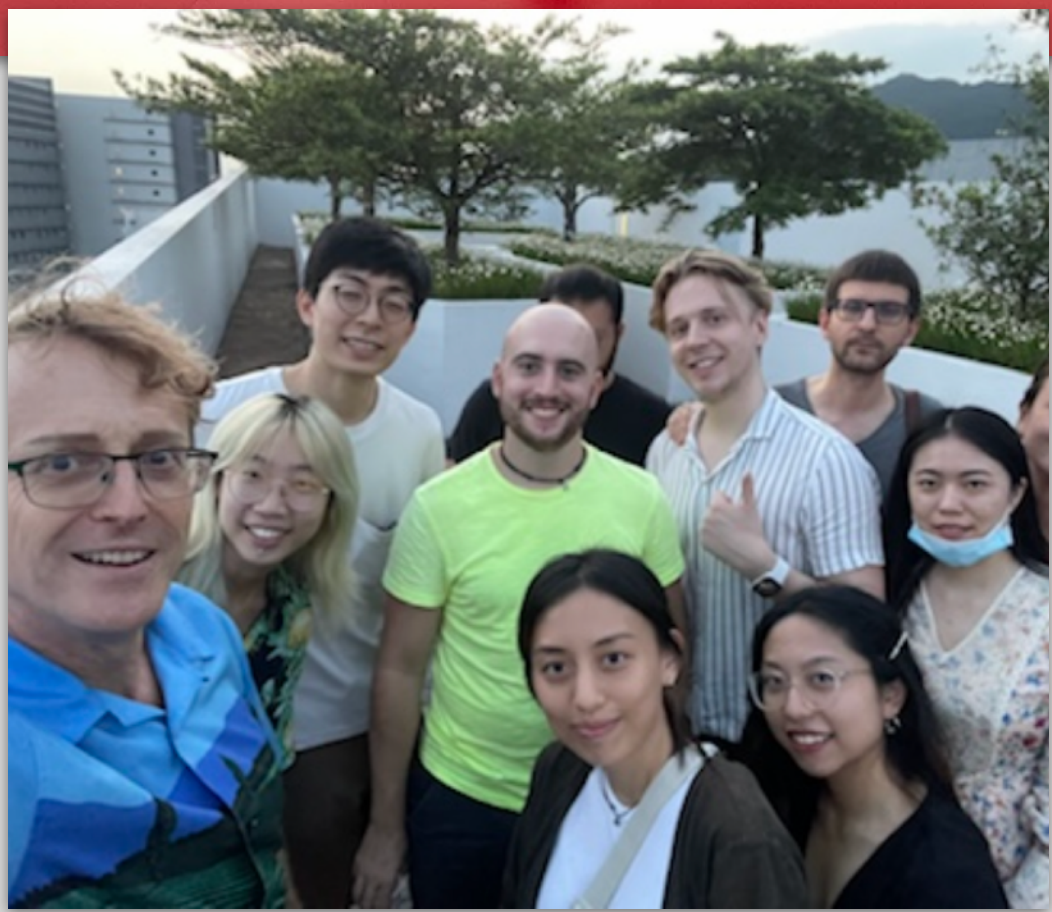


PerMagnus Lindborg (2021), Loki's Pain



Ryo Ikeshiro (2020), Pika! Ppeonjjeog, Pika!
Ppeonjjeog / PPiikkaa!! PPppeeoonjjjjeeoogg

Pedagogy



Workshop on Open Ambisonics Toolkit



<https://soundlab.scm.cityu.edu.hk/2023/08/07/workshop-with-open-ambisonics-toolkit/>

SoundLab presents Sascia Pellegrini



<https://soundlab.scm.cityu.edu.hk/2023/02/10/soundlab-presents-sascia-pellegrini/>

Workshop on Spatial Audio



<https://soundlab.scm.cityu.edu.hk/2022/11/16/spatial-audio-workshop/>

Data Art for Climate Action



<https://dataclimate.org/>

Outreach

DATA ART FOR CLIMATE ACTION

dual-hub conference :: Hong Kong + Graz + Internet :: 12-15 January 2022 ::

CONFERENCE ▾ PEOPLE ▾ CALLS & DATES ▾ INFORMATION ▾



ANNOUNCEMENT · 📌

Lina Simon, DACA Exhibition Co-



ANNOUNCEMENT · 📌

Meet Lillian Song Zijing :: DACA Best Student Paper Award

2021-11-18 · BY PERMAGNUSORG

Follow Zijing's research via the DACA proceedings and Frontiers

RECENT POSTS

Lina Simon, DACA Exhibition Co-Curator

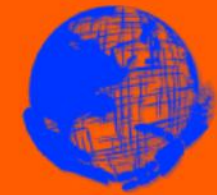
CLIMATE FICTION FOR SOCIAL PURPOSE

Meet Lillian Song Zijing :: DACA Best Student Paper Award

Data Art for Climate Action Conference 2022: Student Workshop

Radio podcast for COP26

DAT/ACT



DATA ART FOR CLIMATE ACTION GALLERY

Curated by
Ryo Ikeshiro and Lina Simon

Production Assistant
Gui Ren

Location
Singing Waves Gallery
L3, Run Run Shaw Creative Media Centre
18 Tat Hong Avenue, Kowloon Tong
Hong Kong

23/2 — 22/5/2022

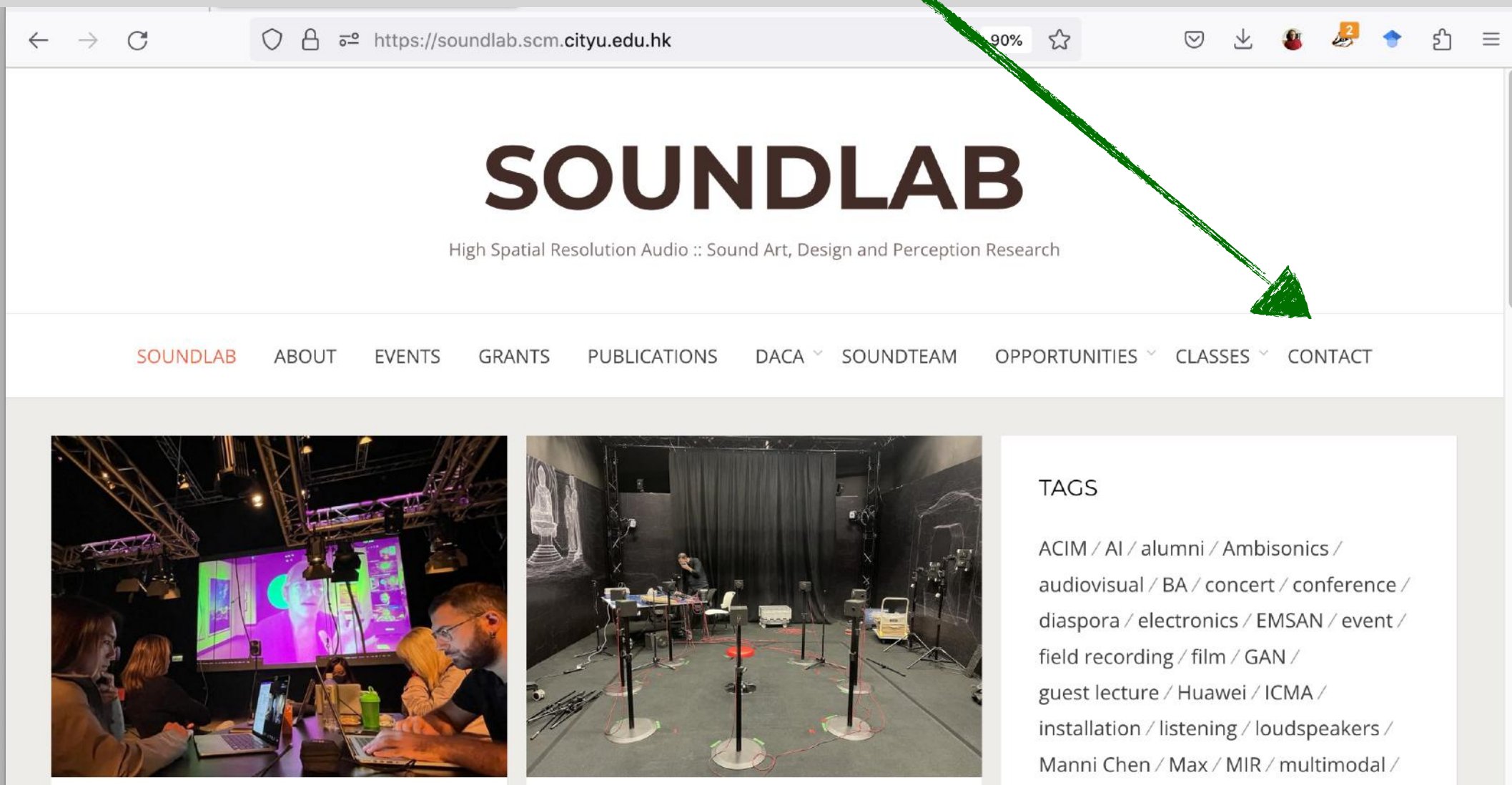
Please note that DAT/ACT Data Art for Climate Action Gallery is currently only open online. To view the works, scroll down or click below.

[View virtual exhibition >](#)

Come visit us in Hong Kong!

Sign up for the SoundLab updates!

PerMagnus & Ryo



The screenshot shows a web browser window displaying the SoundLab website. The browser's address bar shows the URL <https://soundlab.scm.cityu.edu.hk>. The page features a large, bold title "SOUNDLAB" and a subtitle "High Spatial Resolution Audio :: Sound Art, Design and Perception Research". A navigation menu is located below the title, with "SOUNDLAB" highlighted in red. The menu items are: SOUNDLAB, ABOUT, EVENTS, GRANTS, PUBLICATIONS, DACA, SOUNDTEAM, OPPORTUNITIES, CLASSES, and CONTACT. Below the navigation menu, there are two images: the left one shows a group of people working at a table with laptops and a large screen displaying a colorful visualization; the right one shows a studio setup with several microphones on stands in a room with black walls and curtains. To the right of the images is a "TAGS" section with a list of tags: ACIM / AI / alumni / Ambisonics / audiovisual / BA / concert / conference / diaspora / electronics / EMSAN / event / field recording / film / GAN / guest lecture / Huawei / ICMA / installation / listening / loudspeakers / Manni Chen / Max / MIR / multimodal /