Sensing the Forest

In the search for epistemological cross-pollination between forest research, HCI and SMC

Dr Anna Xambó Sedó | CHIME Seminar | October 25, 2023

Outline

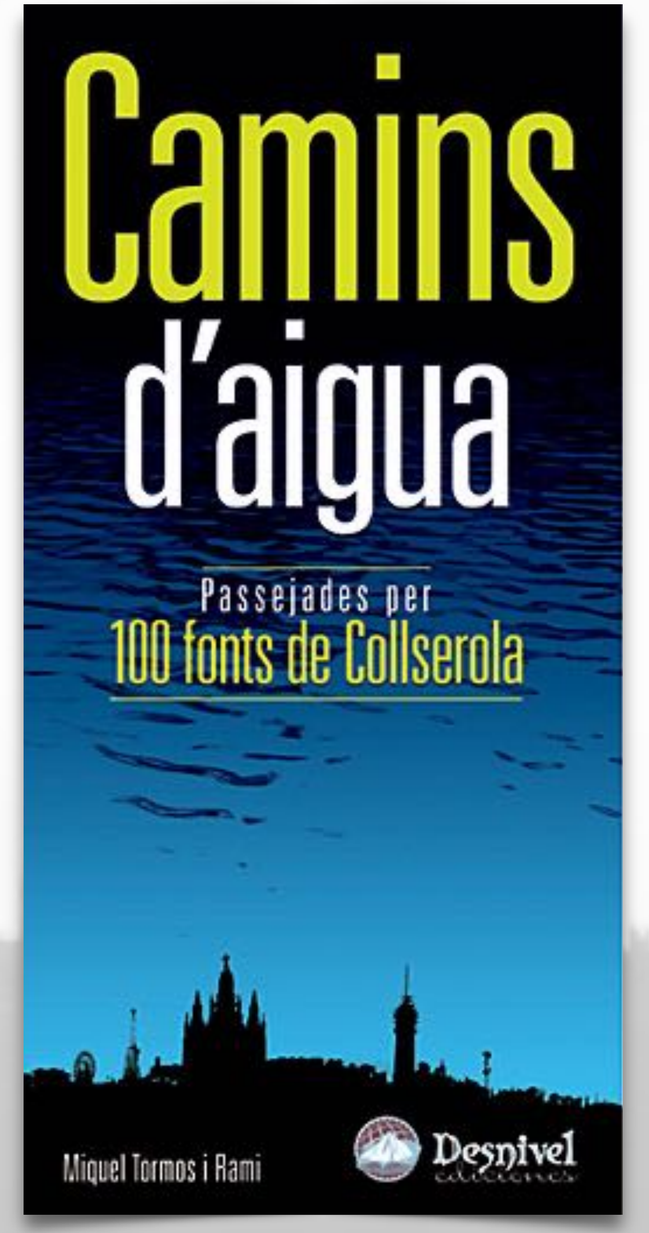
- Contextualisation
- The importance of a multi/interdisciplinary team
- Ongoing and future actions

sensing the forest

Contextualisation

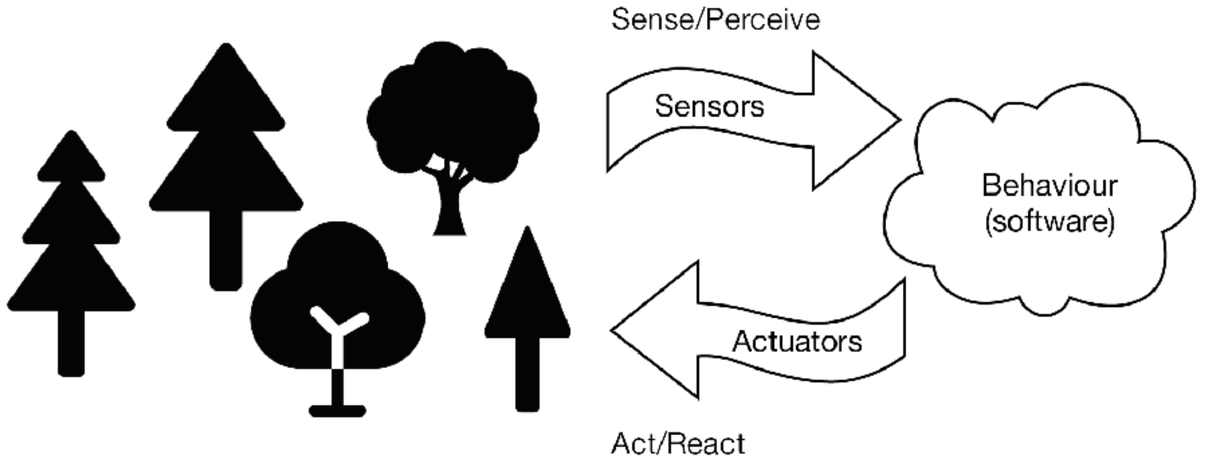
Camins de l’aigua / Water paths

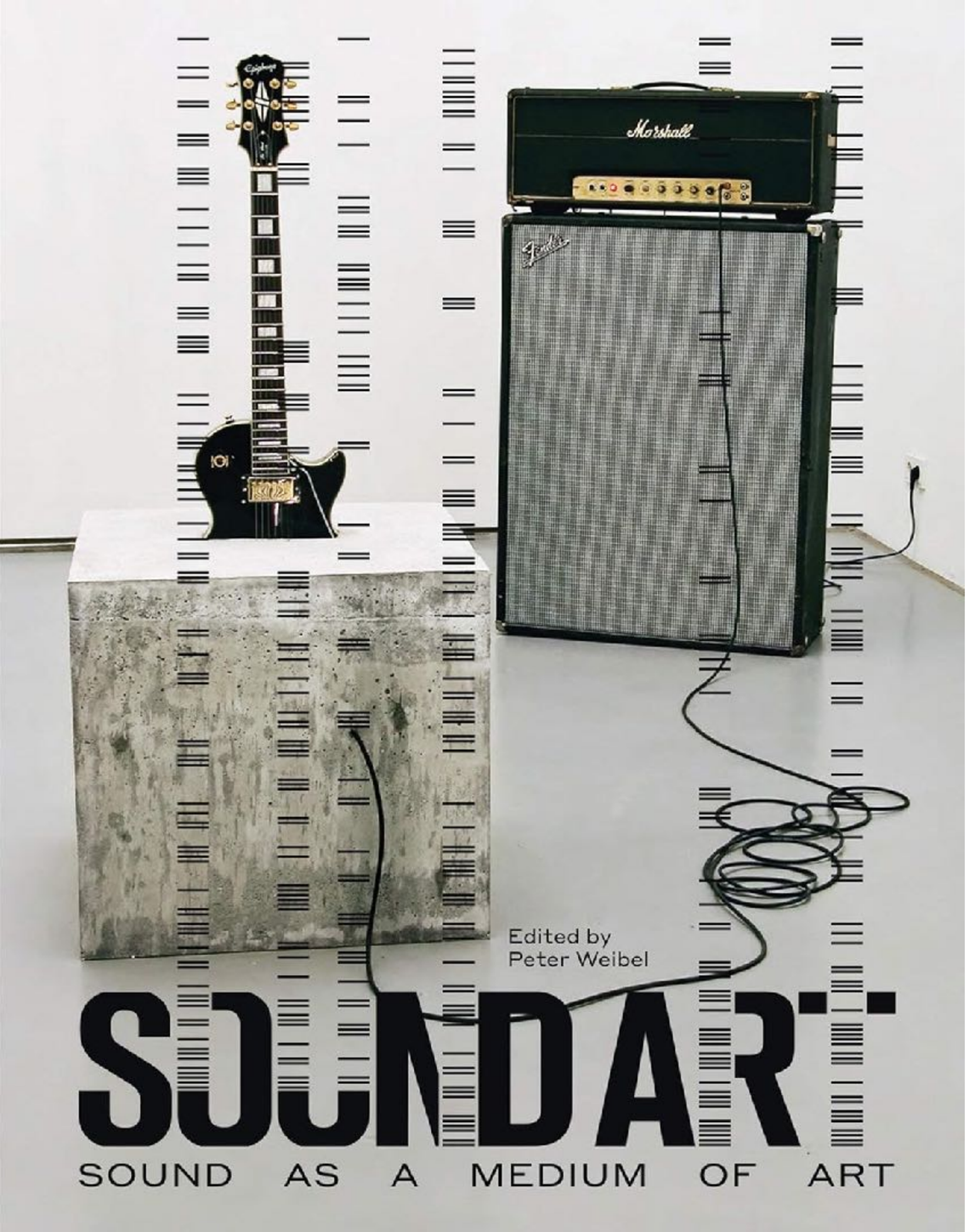
Passejades per 100 fonts de Collserola / Walks through 100 Collserola fountains



The Future Research Leaders programme

2021-2022


Sense/Perceive
Sensors
Behaviour
(software)
Actuators
Act/React

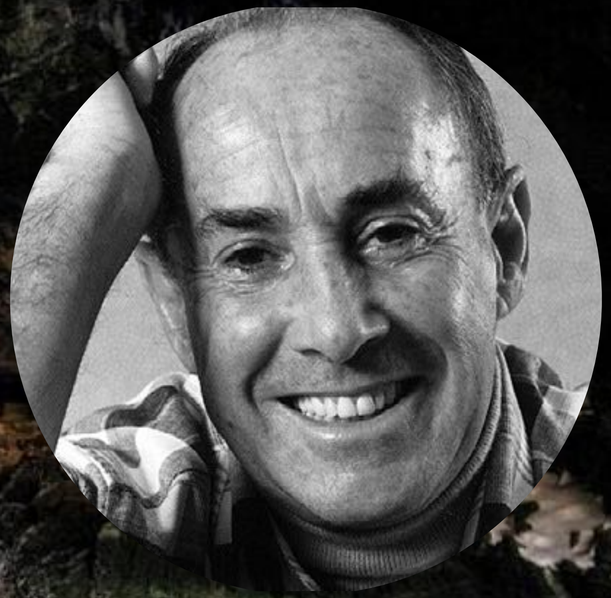


Peter Weibel

Sound Art | ZKM
https://zkm.de/en/exhibition/2012/03/sound-art

Sebastião Salgado &
Lélia Wanick Salgado

Instituto Terra
institutoterra.org



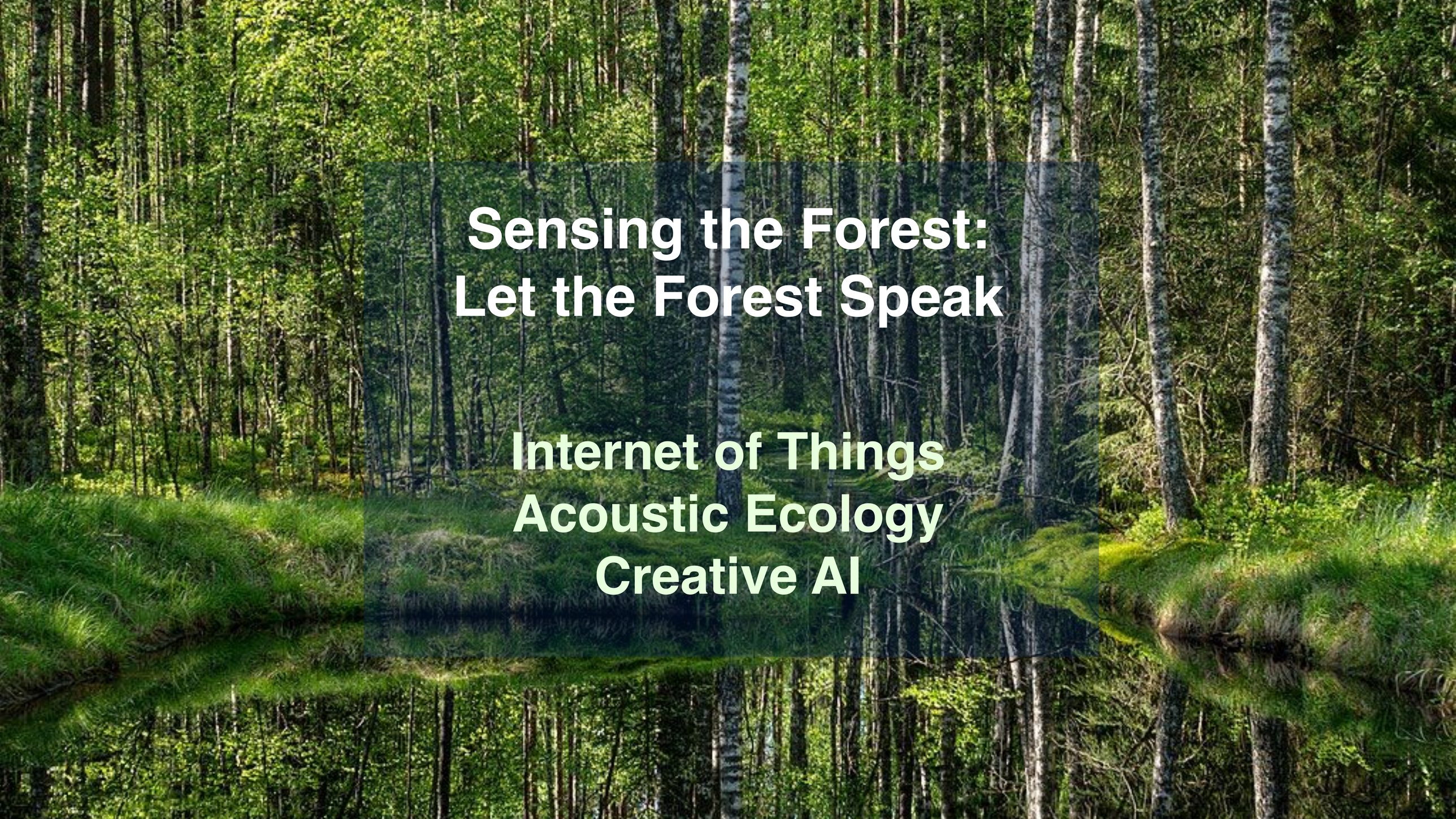
César Manrique

Jameos del Agua

Nature and artistic creation in harmony

César Manrique

AHRC Sensing the Forest
Designing inter/multi-disciplinary techno-artistic interventions


Sensing the Forest:
Let the Forest Speak
Internet of Things
Acoustic Ecology
Creative AI

AHRC Sensing the Forest

Research question

The overarching research question is, how can the use of **artistic and community science research methods** help to **inform and educate people about climate change**?

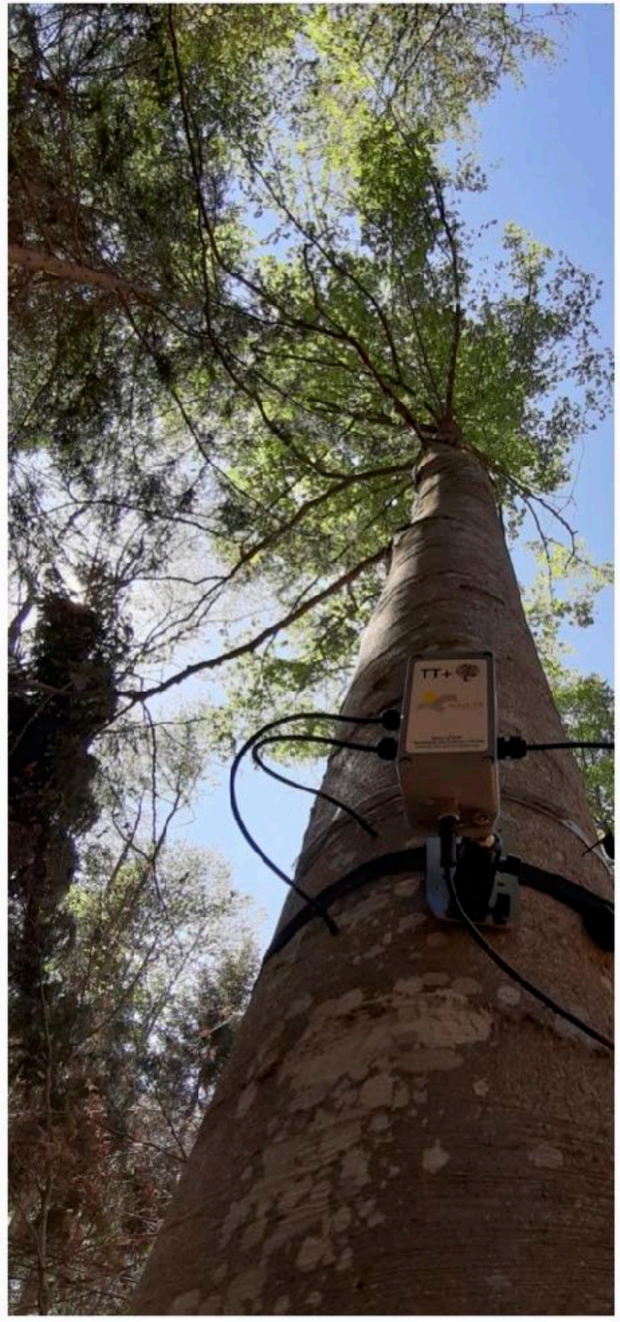
In particular, **what can we learn from using artistic and community science research methods** employing the **Internet of Things (IoT), Acoustic Ecology and Creative Artificial Intelligence (AI)** in relation to **monitoring forest behaviour** and **raising awareness about climate change**?

sensing the forest

The team in a nutshell…

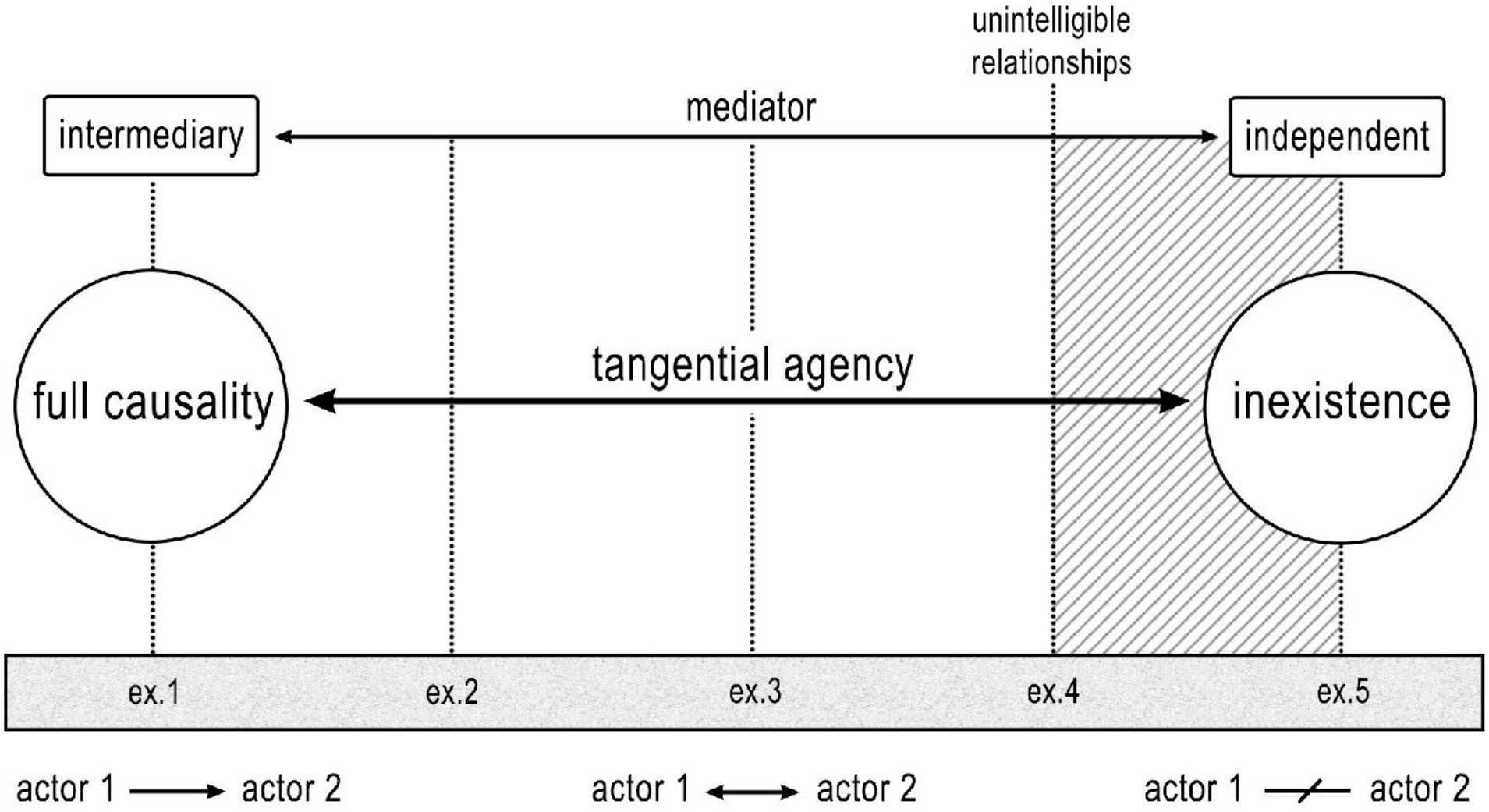
Dr Matthew Wilkinson (CI)
Senior Climate Scientist, Forest Research

Dr Georgios Xenakis (CI)
Senior Climate Scientist, Forest Research



Dr Peter Batchelor (CI)
Senior Lecturer in Music, Technology and Innovation, De Montfort University

Dr Luigi Marino
Research Fellow
in Sound and
Music Computing



Forestry England

Hazel Stone
National Curator of Contemporary Art, Forestry England

Nick Wardlaw
Recreation Manager, Forestry England

Danielle Grimsey
Site Manager, Alice Holt, Forestry England

Max Gravestock
Site Manager, Alice Holt, Forestry England

Dr Krishna Nama Manjunatha (CI)
Senior Lecturer in Micro and Nano Electronics, De Montfort University

Ashok Karavadra
Senior Technician, De Montfort University

Dr Anna Xambó
(PI)
Senior Lecturer in Music and Audio Technology, DMU

Advisory Board

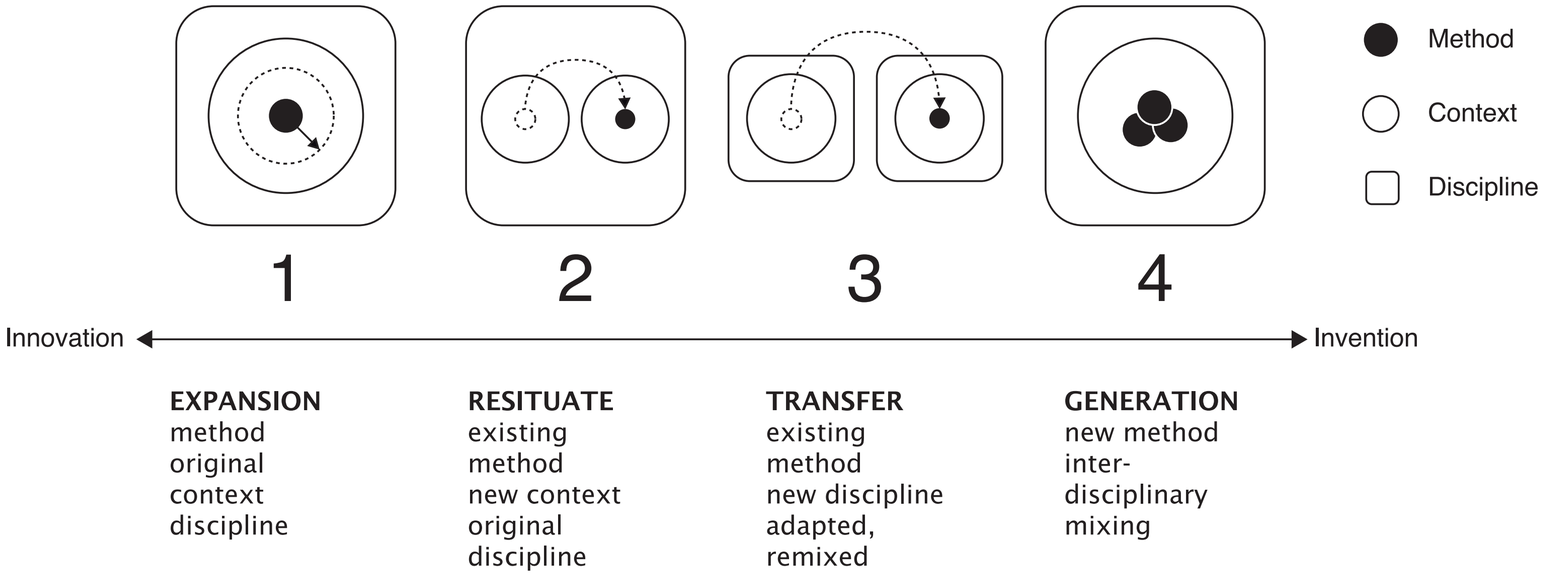
Prof Mark Plumbley
Professor of Signal Processing,
EPSRC Fellow in “AI for Sound”,
University of Surrey

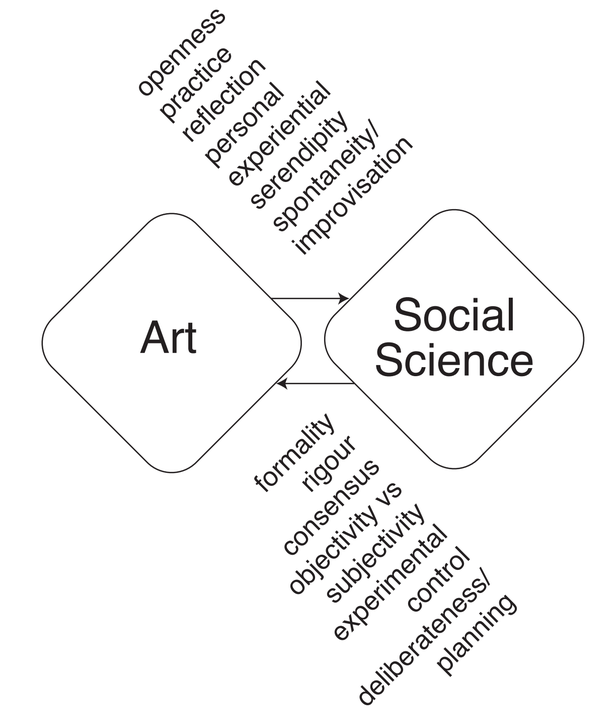
Louise Fedotov-Clements
Director of Photoworks,
National Curator at Forestry England

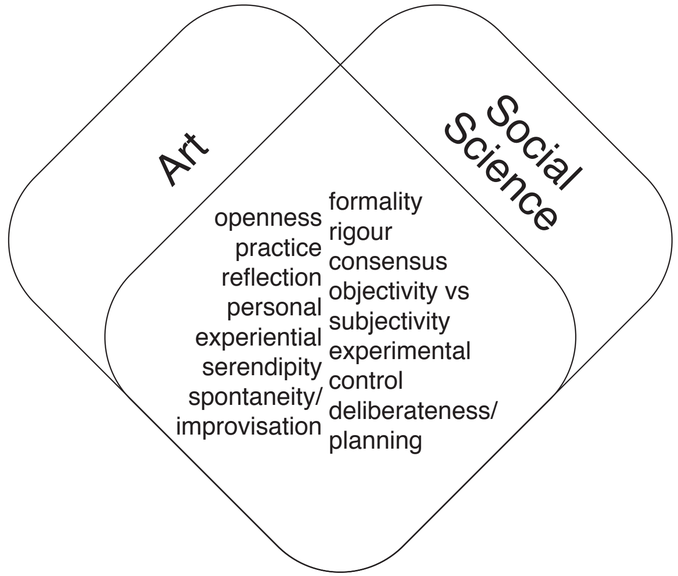
Prof Leigh Landy
Professor of Contemporary Music,
Director of MTI^2,
De Montfort University

Interdisciplinary methods

In the search for methodological innovation

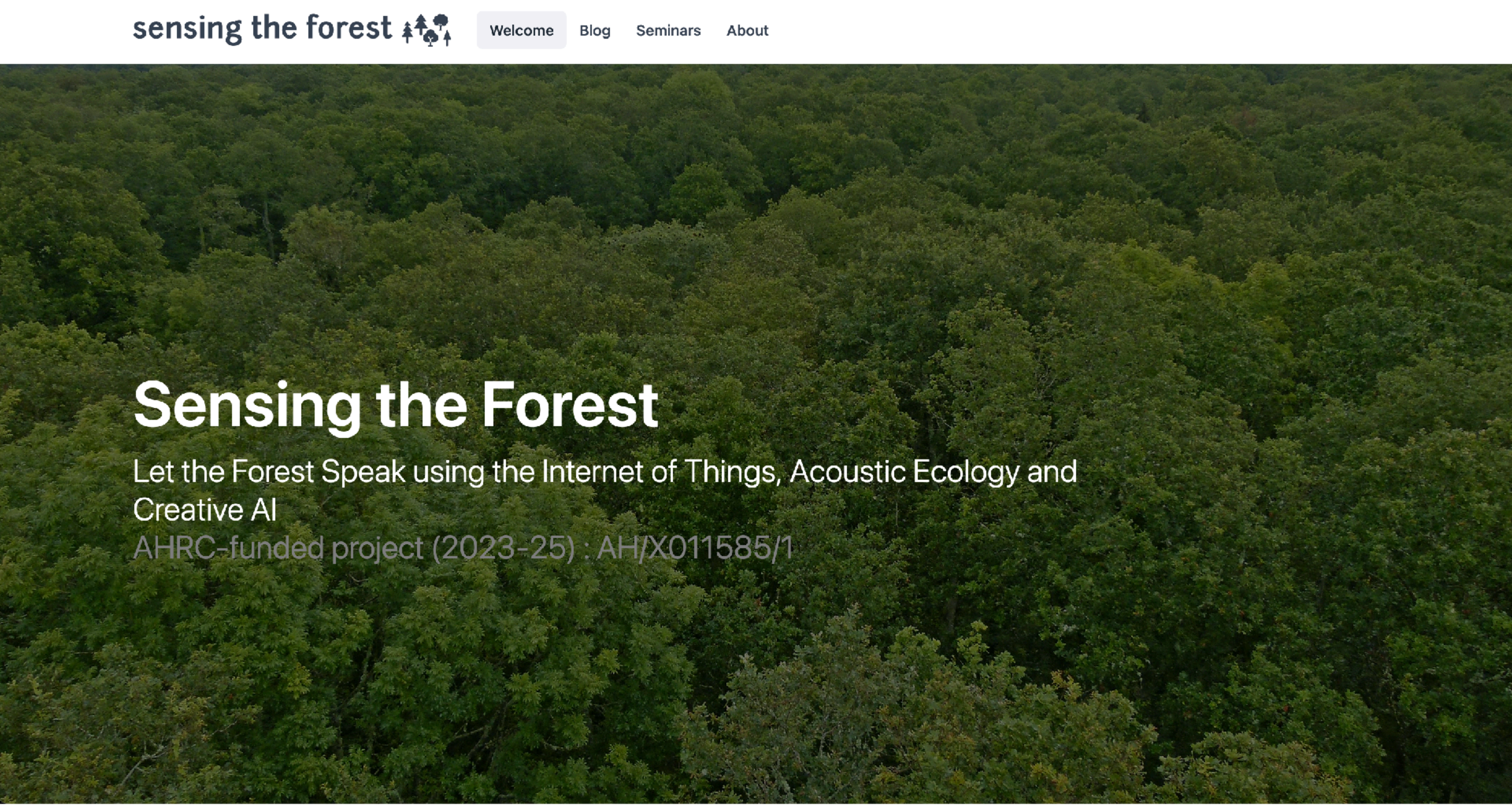






(Jewitt, Xambó & Price 2017)

AHRC Sensing the Forest
The actions



sensingtheforest.github.io

sensing the forest

sensing the forest

ONLINE SEMINAR TALKS

The AHRC-funded research project "Sensing the Forest - Let the Forest Speak using the Internet of Things, Acoustic Ecology and Creative AI" presents a series of 3 fortnightly online seminar talks with 6 experts related to artistic, social and scientific interventions in the forest or other natural landscapes with a special focus on acoustic phenomena. All welcome.

Wednesday, October 18th, 3pm (UK time)	**Semiconductor** semiconductorfilms.com	**Peter Sinclair** locusonus.org
Wednesday, November 1st, 3pm (UK time)	**Saloni Shah** salonishah.co	**Jones/Bulley** jones-bulley.com
Wednesday, November 15th, 3pm (UK time)	**Liz O'Brien** forestresearch.gov.uk	**Alice Eldridge** ecila.org

More info at: sensingtheforest.github.io

UKRI Arts and Humanities Research Council · De Montfort University Leicester · MTI² · Forest Research · Forestry England

Forest Intervention WP1

sensing the forest

DATA COLLECTION

Monitoring tower (weather/phenology data)

Alice Holt forest

Solar-powered audio streambox

EXHIBITION

Sound installation + solar-powered audio streambox

Alice Holt forest

Kinetic phenology sculptures
One-off in-the-wild live coding

Visitors

Internet

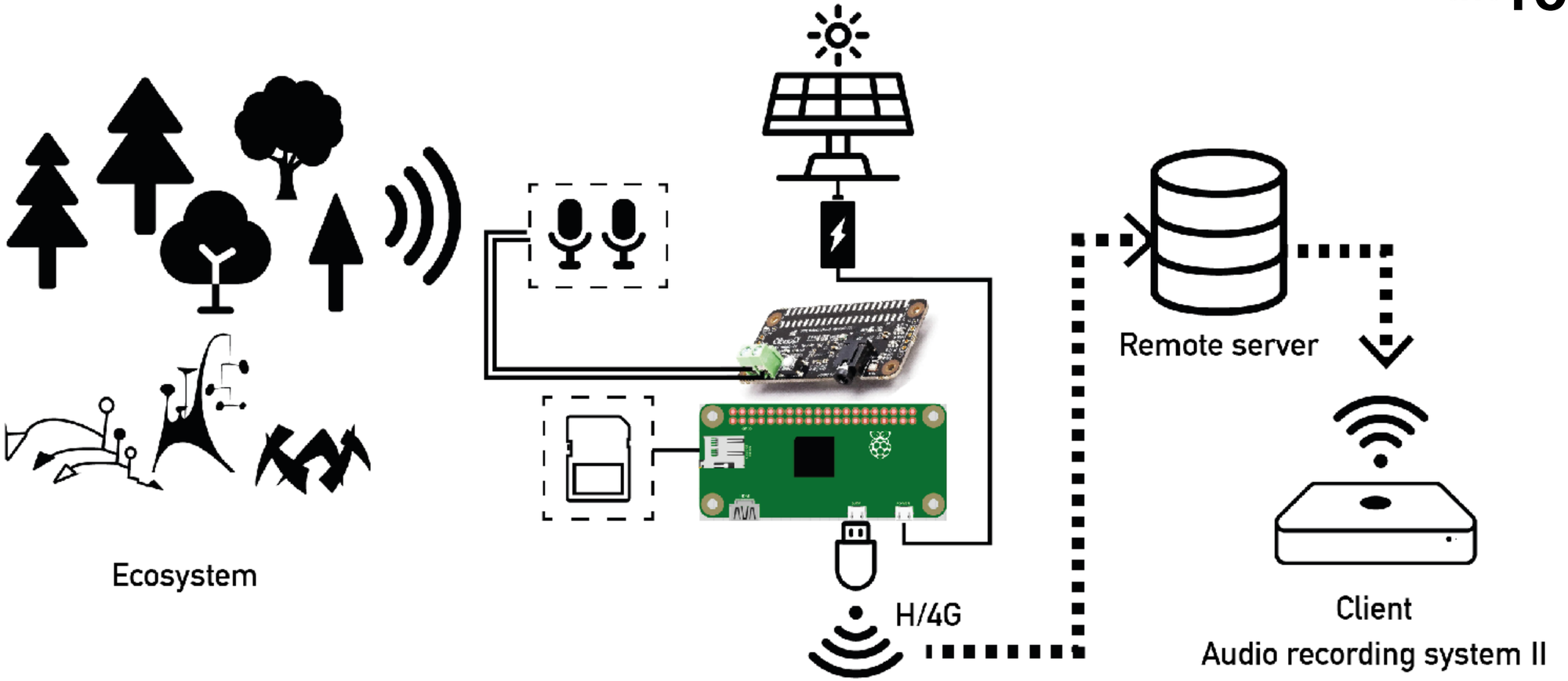
Off-site exhibition

Live soundscapes + sound recordings

Clients

Live-coding composition & performance with AI

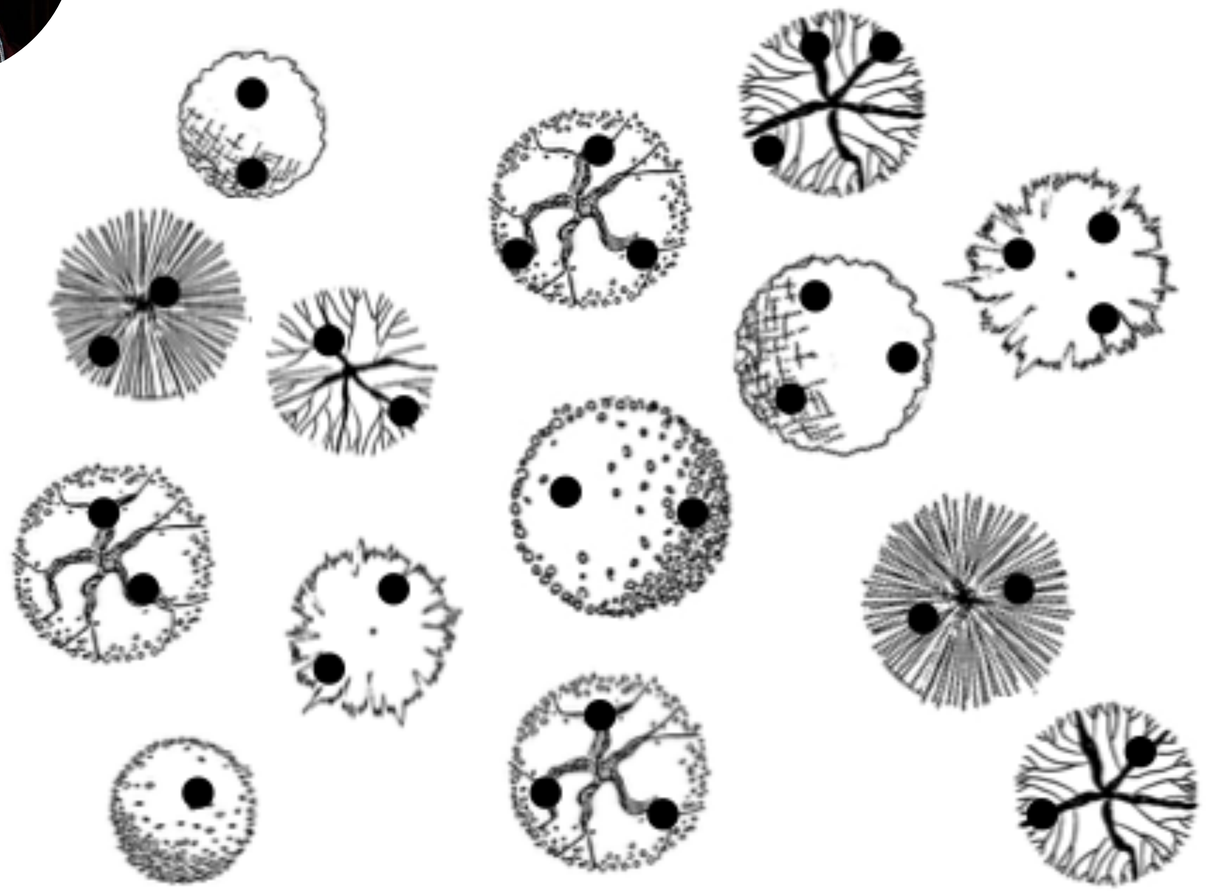
sensing the forest

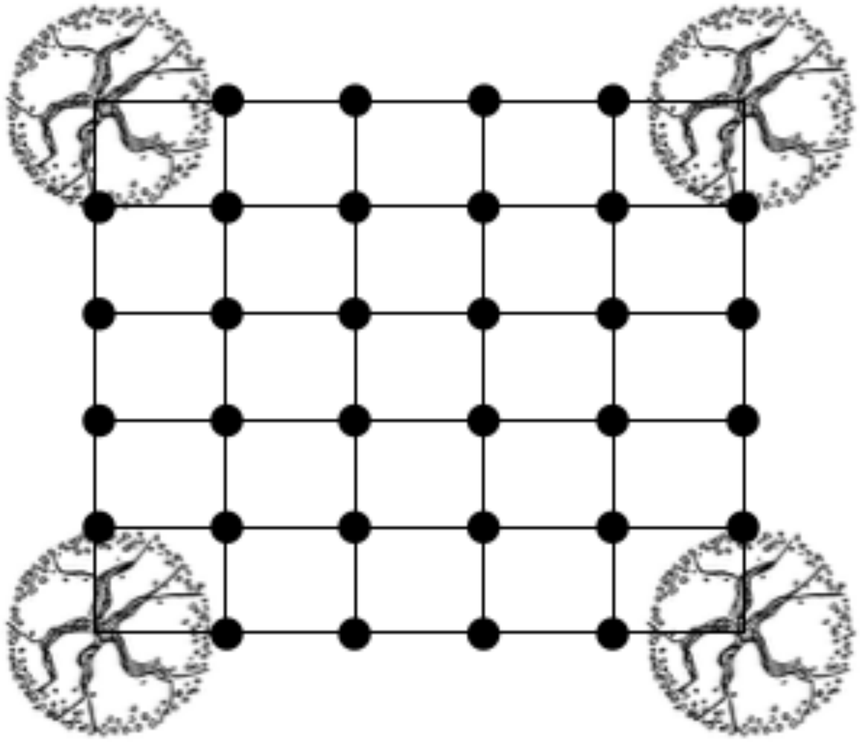


Autonomous monitoring unit
Audio recording system I & audio streamer

sensing the forest

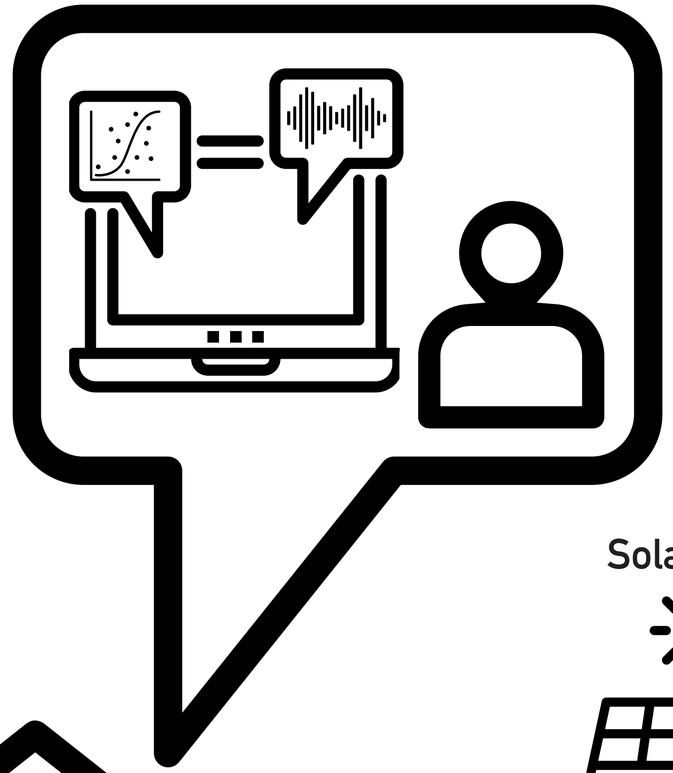
sensing the forest

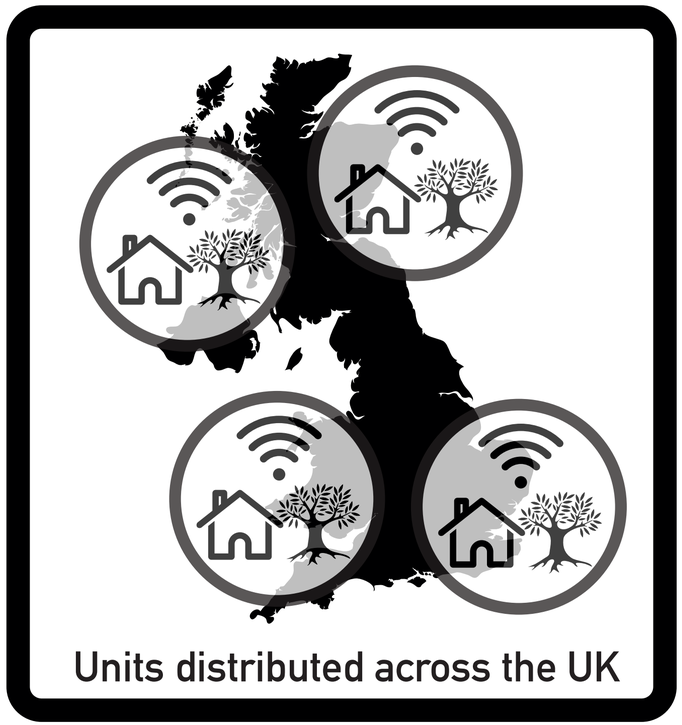




Prototype WP2

Dedicated web app (analysis, visualisation, sonification)

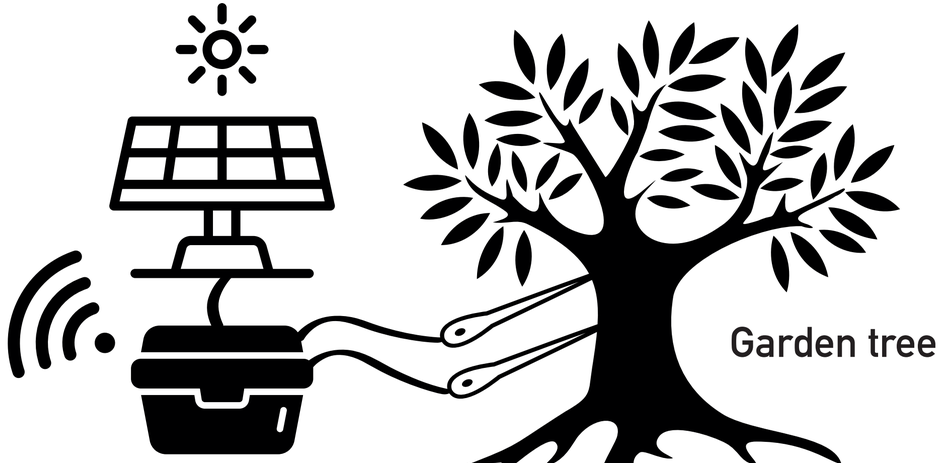




Units distributed across the UK

Solar panel

Household with Wi-Fi extender/powerline adapter



Box with RPi and sensors
(air temperature, soil moisture, sap flow)

Garden tree

sensing the forest

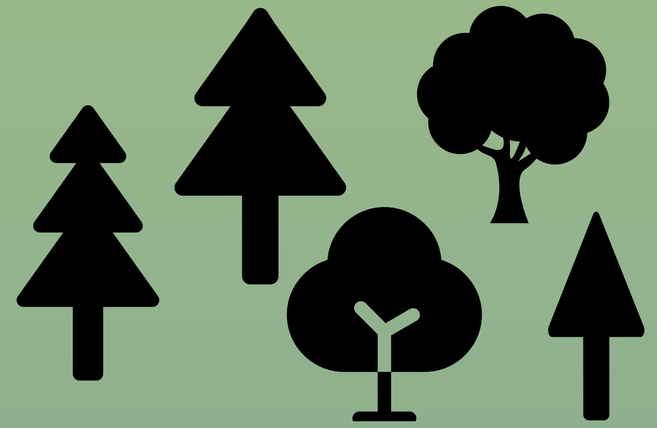
sensing
the forest

Summary

- Discussed the meaning of artistic intervention when working with nature.
- Discussed the potential of combining and reimagining research methods when working in inter-multidisciplinary teams.
- Showcased the present and future actions of the AHRC Sensing the Forest project.

sensing the forest

Thank you!



UKRI Arts and Humanities Research Council

DE MONTFORT UNIVERSITY LEICESTER

MTI² INSTITUTE FOR SONIC CREATIVITY

Forest Research

Forestry England