
ABOUT4DSOUND
Spatial Audio
Technologies and Immersive
Experiences



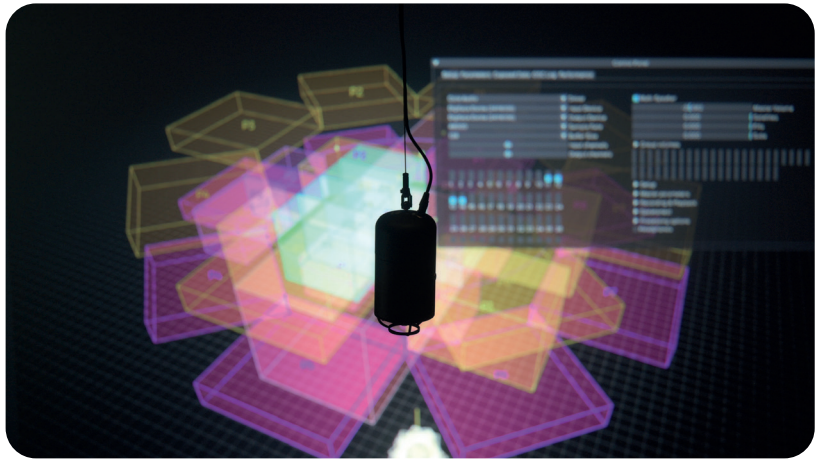
Table of Contents

02 About
06 Selected Projects
20 The Archive
24 Studios and Community
32 Education and Knowledge Sharing
33 The Technology
34 Selection of Collaborators, Funds, and Partners
36 Press and Testimonials

About

4DSOUND is an Amsterdam-based studio focused on spatial sound as a creative medium, pioneering the design of advanced spatial audio software and omnidirectional sound systems. Through the development of custom-made technology and close collaboration with innovative artists, the studio fosters a dynamic international network of creatives, engineers and institutions within the fields of music, art, education, and research.

With over a decade of research and development into spatial sound technology and immersive experiences, this is a project that follows on the path of groundbreaking sonic experimentation, from monophonic to stereo, to surround, and into the current vanguard of spatial audio.



Suzanne Ciani at Muziekgebouw

Over the last decade 200+ projects have been realised, and the technology is developing continuously



La Reina del Metal - Photo: Carlos Bonilla

Selected Projects

Stone Nest Residency, London, U.K.

The “4DSOUND in Residence” programme at Stone Nest, London, ran from April 21 to May 20, 2023, featuring live performances, listening sessions, workshops, panel discussions, and a five-day spatial sound course. A custom spatial sound system was installed in a beautiful Welsh chapel, weaving 32 omnidirectional speakers into a matrix that transformed the acoustic space. The room functioned as both a studio and a performance space, where artists created and spatialized new works. Performers included Kali Malone, Grand River, NikNak, Max Copper, Oren Ambarchi, and more.

Kali Malone

“The way in which you interact with the 4DSOUND software is extremely artistic, not just purely technical. I think that its potential for the creative and sensorial process is really magnifiscent.”



Credit:

Stone Nest
33-33
4DSOUND
Richard Thomas
Foundation
MONOM Studios
Lobe Studio
Amoenus
MESH
Bloomline Acoustics

Photo: Brian Whar

XTREME:
Mixed Reality Platform for Art & Culture

XTREME is an initiative under the EU Horizon 2020 programme (2024- 2026), which aims to revolutionize how art and music are experienced through a mixed reality (MR) environment. Led by the IT University Copenhagen, fourteen partnering organisations across Europe, including 4DSOUND, explore innovative alternatives to traditional ways of accessing cultural experiences, developing a human-centred MR solution that transcends physical barriers, allowing people to experience concerts and performances remotely. 4DSOUND's involvement focuses on integrating a high-performance and high-definition spatial audio engine combined with an intuitive interface for creation and cross-media interactivity.



Partners:

IT University of Copenhagen (DK), University of Limerick (IRE), University of Twente (NL), Marionette (DK), Italian Institute of Technology (IT) MUNCH (NO), Leibniz University Hannover (GE), KHORA (DK), 4DSOUND (NL), AALTO University (FIN), Bolt Virtual (GRC), Immersive Stories (DK), University of Nottingham (UK), Finnish National Opera and Ballet (FIN)

"XTREME - Mixed Reality Environment for Immersive Experience of Art and Culture" is an EU-funded project which started in January 2024 and runs until December 2026. The project is financed via Horizon Europe: grant agreement No. 101136006.

XTREME

Funded by the European Union



The Robophone Ensemble: Münchener Biennale

At the 2024 Münchener Biennale, 4DSOUND collaborated with artists Parker Heyl and Mac Van Dam on the Robophone Ensemble, on a project merging sound and motion to redefine spatial audio. The ensemble, composed of robotic sound sculptures, explores the question, “what if a speaker had a body?” 4DS co-developed a custom spatial sound interface for the project, integrating physical robots as sound sources. Featuring compositions by Tamara Miller and Ted Hearne, the robots performed “In Passage,” a kinetic and immersive sound experience moving through Munich.



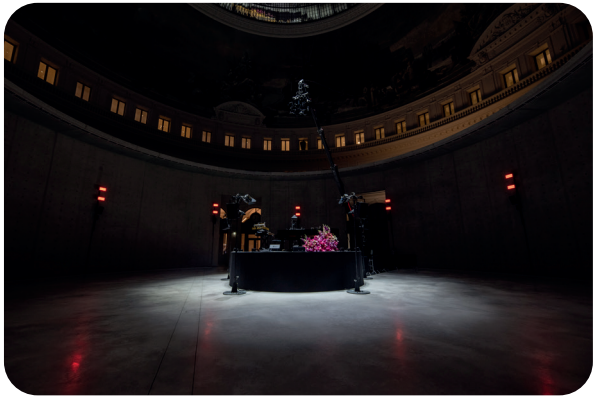
Credit:

Parker Heyl
Mac Van Dam
Tamara Miller
Ted Hearne
Het Geluid

4DSOUND
Poul Holleman
George Adamopoulos
Kirsten Schoetteldreier

Arca at the Bourse de Commerce and Park Avenue Armoury

In early 2024, 4DSOUND partnered with the iconic experimental multidisciplinary artist Arca for her solo show, “The Light Comes in the Name of the Voice”, at the Bourse de Commerce – Pinault Collection. Arca presented two improvisations on a magnetically resonating piano, spatialized live by Poul Holleman. This collaboration began the previous year during her successful “Mutant;Destrudo” performance at Park Avenue Armory, New York. 4DS provided a spatial sound playground and custom software for Arca to experiment and perform with.



Credits Bourse de Commerce

Arca
4DSOUND
Bourse de Commerce
Poul Holleman
BRONZE: Lex
Professor Andrew Macpherson
Vincent de Belleval
Matière Noire
Reference Studios

Credits Park Avenue Armory

Arca
Daito Manabe
Rhizomatiks
4DSOUND
Salvador Breed
Poul Holleman

Arca at the Bourse de Commerce - Photo: Ophélie Maurus

Finale Room:
Iris van Herpen Exhibition
at Musée des Arts décoratifs, Paris

4DSOUND featured in “Sculpting the Senses”, Iris van Herpen’s exhibition at Musée des Arts Décoratifs, Paris. Co-founder Salvador Breed collaborated with various artists to create a spatial sound arrangement that complements van Herpen’s couture artistry. The “Finale Room” showcases sixteen custom 3D-printed speakers, designed with architect Philip Beesley, which create sonic landscapes inspired in the cosmos.



Credits

Machinedrum
Gwyneth Wentink
Thijs de Vlieger
Yarck
Maarten Vos

Casimir Geelhoed
Nick Verstand
4DSOUND
Salvador Breed
Philip Beesley Studio

ANIMA

ANIMA is a sculptural installation by Dutch artist Nick Verstand, developed to explore the relationship between an object that seems to have a consciousness of its own and its surroundings. Responding to visitors with audiovisual expressions, it simulates an autonomous sensory identity, prompting reflections on our relationship with artificial intelligence. Using a hemispherical lens and metallic fluid-like visuals, ANIMA creates an immersive experience enhanced by a bespoke 4DSOUND composition. This installation investigates the boundaries between the material and immaterial, inviting audiences into a shared, transformative exploration of perception and emotion.



Credits

Nick Verstand
Llum BCN
Pufferfis
onformative
wiwo.studio
Salvador Breed
Poul Holleman
4DSOUND


4DSOUND is artist-centred,
our ambition is to create
new expressions

The Archive

With over 15 years of innovation, 4DSOUND and its international partner studios have built a remarkable archive of spatial compositions, each piece offering a unique narrative in sound and space. This ever-evolving archive pushes the boundaries of immersive auditory experiences, serving as a bridge between artists, studios, and technicians, united by a shared mission to redefine how we experience sound and its relationship to the surrounding environment.

Selection of artists that have developed music for the 4DSOUND system

Arca
Abyss X
Ale Hop
Andrea Belfi
Aïsha Devi
Bendik Giske
Biosphere
Casimir Geelhoed
Caterina Barbieri
Charlotte Day Wilson
Croatian Amor
Drew Mc Dowell
Echo Collective
Evita Manji
Gaika
Grand River
Isabella Forciniti
James Blake
Jan Jelinek
Kali Malone
Lucrecia Dalt
Lyra Pramuk
Mac DeMarco
Max Cooper
Murcof
NikNak
NKISI
Oren Ambarchi
Pan Daijing
Puce Mary
Rakhi Singh
Robert Henke
Rrose
Soundwalk Collective with Patti Smith
Suzanne Ciani
Tanya Tagaq
Zoë Mc Pherson



NikNak performing in 4DSOUND at Stone Nest London - Photo: Brian Whar



Photo: Becca Crawford

4DSOUND studios facilitate project development, content creation, R&D, public events, knowledge transfer, and creative exchange through commissioned works, artist residencies, workshops, and partnerships with a wide variety of organisations and institutions

Studios and Community

The studios form a growing community of artists, technicians, creatives, makers, and researchers working in spatial sound. Each studio is equipped with tailored 4DSOUND systems and custom hardware designed for the studio's unique acoustic and functional needs, from performances and residencies, to research and education.

MONOM, Funkhaus Berlin

MONOM, located in Berlin's historic Funkhaus, is an experimental performance venue and spatial sound studio housing the first 4DSOUND system, originally designed in Amsterdam in 2012. It houses forty-eight omnidirectional speakers arranged vertically at three different levels. The setup, including subwoofers beneath an acoustically transparent floor, immerses up to 400 people in transformative sound experiences. Since becoming an official partner studio in 2017, MONOM has hosted over 150 artist residencies and public performances, pioneering spatial sound as a creative medium. This collaboration has been central to 4DSOUND's evolution.

www.monomsound.com



MONOM Studios – Photo: Becca Crawford

Lobe, Vancouver, Canada

Founded in 2020, Lobe is North America's first dedicated spatial sound studio with a permanently integrated 4DSOUND system. Designed for both artistic creation and presentation, its unique setup includes an array of ceiling and floor speakers paired with custom vibro-acoustic floor panels, offering a visceral listening experience where sound flows in all directions. Operated by Inscapes Spatial Sound, founded by Kate De Lorme and Edo Van Breemen, Lobe focuses on immersive sound art, meditative experiences, and exploring the healing potential of spatial sound.

www.lobestudio.ca



Photo: Asterios Moutsokapas & Edo Van Breemen

Mercer Labs, New York City

Mercer Labs, Museum of Art and Technology (MOAT) is an experimental institution located in the heart of New York City. Since early 2024, The MOAT houses a large-scale 4DS system equipped with a vibro-acoustic transducer floor. The room was conceived as a sanctuary for deep sound immersion, designed by 4DSOUND and MONOM Studios. In the room, sleeping masks are offered and the viewer-turned-listener is invited to recline on the carpet and dive deep into a virtual sonic reality experience.

www.mercerlabs.com



4DSOUND room at Mercer Labs, NYC

IT University Copenhagen

The IT University of Copenhagen (ITU) has launched a cutting-edge 4DSOUND spatial research studio as part of the EU-funded XTREME project, led by Associate Professor Sami Brandt. The lab serves as a hub for scientific and artistic research in spatial audio and mixed reality (MR). As XTREME's audio partner, 4DSOUND brings its spatial sound expertise and artistic platform to the project, laying the foundation for pioneering MR methods.

www.xtremeitu.dk



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XTREME

Funded by the European Union

Photo: Christian Sivertsen

Education and Knowledge Sharing

4DS delivers workshops, masterclasses, and courses that provide a deep understanding of spatial audio theory and design. This educational outreach intends to contribute to the development of the field by enriching, expanding and diversifying the landscape of creatives working with spatial sound.

In addition, the studio collaborates with a wide range of partners, exchanging knowledge and projects across disciplines worldwide. These include research networks like XTREME and SANE (Spatial Audio Network Europe, led by ZiMMT), Universities like ITU Copenhagen, University of the Arts Utrecht (HKU), and TU Delft.





The Technology

The 4DSOUND Suite empowers artists to design immersive spatial audio experiences, providing tools for spatializing performances, compositions, and interactive installations. Its intuitive interface supports various workflows, from detailed composition to live, on-the-fly spatialization, seamlessly transitioning productions from studio settings to large-scale public events without requiring sound adaptation.

4DS technology enables the creation of vivid “sound holograms” with exceptional spatial depth and dimensionality, expanding the possibilities of spatial sound as an emerging creative field.



Selection of Collaborators, Funds, and Partners

Amsterdam Dance Event
Aural Spaces
Bavarian State Opera
Berlin Atonal
Bloomline Acoustics
Bourse de Commerce
Broedplaats Contact
Concertvrienden
Creative Europe
CTM Festival
Da-Capo Orchestral Audio
De Singel
Emergence Delft
EU Horizon 2020
FIBER Festival
Flamenco Biennale Amsterdam
Frankfurt Book Fair
Fuchsbau Festival
Google I/O
Het Geluid
Het Muziekgebouw
Indiana University
IT University Copenhagen
La Biennale di Venezia
Living Architecture Systems Group
Llum BCM
Lobe Studio
Mercer Labs
MONOM Studios
Musée des Arts Décoratif
Münchener Biennale
NAP Labs
OFF Projects
Park Avenue Armory
Red Bull Music Academy
Richard Thomas Foundation
SANE
Spatial Sound Institute
Stimuleringsfonds Creative Industries
Stone Nest
STRP Festival
Studio WiWo
The Royal Concertgebouw Amsterdam
Today's Art
TU Delft
Utrecht School of the Arts
Waterloo University
ZiMMT
ZKM Karlsruhe



Echo Collective at Aural Spaces 2022 - Photo: Sabine van Nistelrooij

Press and Testimonials

Grand River

“By trying and listening and testing I really got to know the potential of the system and what was possible. I started to understand that there was a whole new dimension to sound, which I was not aware of before. It opened my eyes completely.”

Karima el Fillali

“It felt out of this world to combine the ancient old mystical poetry of Mansur Al-Hallaj and Ibn Arabi, with cutting-edge spatial sound technologies. The transcendence in the poetry, and in the music of tarab, the play between form and emptiness. Acoustics and immersivity always played a vital role in houses of worship, and it was such a joy to reapproach these themes for this concert.”

Max Cooper

The 4DSOUND system literally adds an extra dimension to music categorisation, with the addition of space to this list. This opens a whole new world of composition possibilities, as well as a lot of challenges as to how best to create music in this new format.

Suzanne Ciani

“Music is in motion, it’s rhythm, it’s time. It is movement in time. So we need to be able to have the spatial sound move integrated with the music. That sounds so simple, but you have to design for it.”

The Royal Concertgebouw Amsterdam

"We thought we knew everything about acoustics - but wow - this was something else! At least 41 speakers were spread throughout the recital hall during Aural Spaces for a 4DSOUND experience. Moving around in music made possible!"

Fast Company:

“The 4DSOUND system literally adds an extra category of three dimensional spatiality to the list of what music is. Each piece of music turns into a physical entity that can be explored and interacted with, as it envelops and moves around you.”

Vice:

“The emotional impact is so much greater with 4DSOUND than with a normal stereo system, it’s very impressive. You can easily get scared or shocked, but also simply re-experience a sawtooth as something great.”

For more information,
requests, or collaborations:
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Instagram:
@4dsound

