DIGITALONSTAGE

TRANSFORMATION OF PERFORMING ARTS

BRIDGING THE GAP WITH DIGITAL PERFORMING ARTS CAPACITY-BUILDING METHODOLOGIES

DIGITAL ON STAGE PROJECT

2025

TABLE OF CONTENT

Brief overview of the project missions and the Handbook's purpose

The general idea behind the DIGITAL on STAGE project is to innovate the performing arts sector across Europe, by fostering the production and promotion of digital performing arts, through the various technological developments. The digital performing arts consider an innovative approach towards the sector and alignment with the technological evolvements within the CCSs, since the artistic experience is elevated to the production by performers in real time with the aid of digital tools. Accordingly, the artist uses a variety of digital tools such as Virtual Reality (VR), Augmented Reality (AR), Artificial Intelligence (AI), 3D, etc., providing a real-time artistic experience to the audience, and concerns all fields of the performing arts. The project envisages a series of activities that will raise awareness and up-skill the representatives of the performing arts sector (including artists and performing arts stages representatives and programmers of such productions) regarding this digital transformation of the sector, as well as will practically support and fund digital productions and emerging digital performers across EU. The project seeks in this way to help the digital performing arts be spread, including to the audience and the innovative ways of engaging with the performances.

The DIGITAL on STAGE project is based on a three-pillar working methodology, comprising of a series of activities that aim to provide both solutions and actual deliverables of digital performances, that will both innovate the sector and serve as good example for future relevant initiatives. The pillar that we address here is called KNOW-HOW and deals with methodologies, guidebook, immersive workshops and mobilities. These activities form a basis that will consequently have an impact and result in the next two pillars, FUNDING (Cascade Funding Program, Open Calls for performances

Funding of 24 performances, Showcases of the productions) and NETWORKING (International workshops/info sessions, International Conference, Innovation Hub (Online Collaboration & Networking Forum).

Accordingly, the above-depicted three pillars of the project`s methodology concern the implementation of the necessary activities that will contribute both to the achievement of the project`s objectives, as well as the provision of solutions to the identified needs that the project seeks to address.

This Handbook is a continuation of the Guidebook "The Digital Realm" and combines 60 video tutorials, accompanied by 60 manuals or user instructions, which mentors/instructors can use in their workshop implementations.

Explanation of how the tutorials and their methodologies are intended to be used by the trainers

The objectives of the project Work Package 2 (of which this Handbook is also part of) can be divided based on a three-fold approach that target the capacity-building of traditional performing artists over the digital realm that can be adapted and applied to the performing arts sector. Namely:

▪ to develop a common and comprehensive understanding on new technologies and how they can be applied in the performing arts sector,

▪ to develop a comprehensive and elaborated capacity-building framework, tailored to the needs of traditional performing artists, and based on interactive methodologies, for the efficient transferability of skills and know-how to experts from the performing arts,

▪ to interactively empower professionals into becoming more proficient users of the digital tools for their creative expression, through immersive capacity-building activities that will transfer know-how to them on how they can embrace the digital transition into their sector.

Following the above mentioned guidebook that presented 120 good practices of using advanced technologies in performing arts sector throughout 6 partner countries, this Handbook presents 60 video tutorials and corresponding 60 teaching manuals and textual methodologies (all 120 elements are linked with individual QR codes). Including elaborated capacity building methodologies, to lead practical and immersive training experiences for traditional performing artists, project partners are presenting advanced technologies that can be applied to the performing arts with help of training handouts, methodologies (learning material, methods of teaching) and visualized tutorials, illustrating the application of VR, AR, AI and other technologies into the performing arts.

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INTERCULT

Sound 1 - Reactive Light and Image

Learn to design reactive graphics that respond to audio frequencies and amplitude. This tutorial covers coding techniques for creating visuals, methods for projecting onto three-dimensional shapes, and converting visual output into lighting control signals through DMX protocols for stage l lighting systems. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology
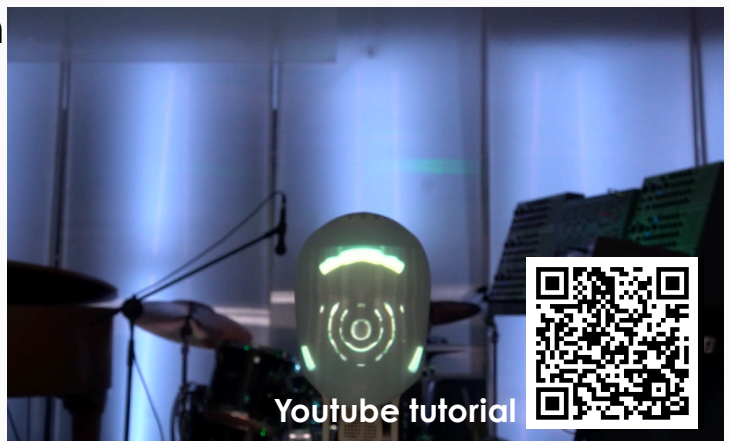
Youtube tutorial

Sound 2 - Voice & AI

Implement real-time speech recognition systems and AI-generated vocal synthesis for performance control. We cover prompting language models for live speech-to-text conversion, transforming spoken words into harmonic and rhythmic musical patterns, and integrating text-based triggers into real-time visual systems. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology

triggering
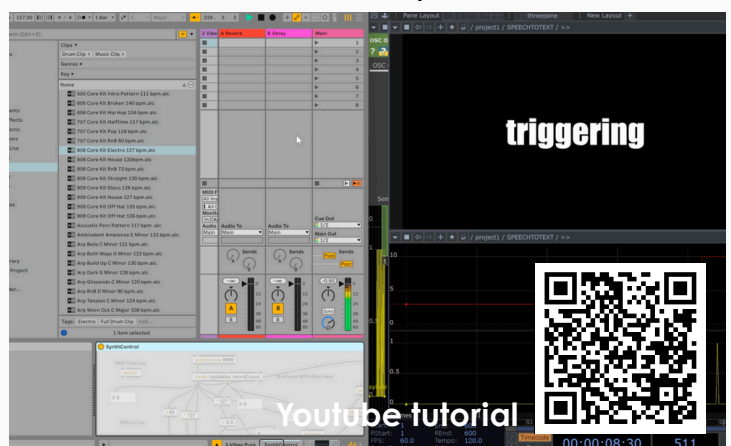
Youtube tutorial

Sound 3 - Image and Movement → Sound

Examine methods where visual information drives audio creation through computer vision analysis. We explore different approaches for analyzing video content, converting visual analysis into musical control data, and using this information to control music creation tools for responsive sonic environments. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology

Youtube tutorial
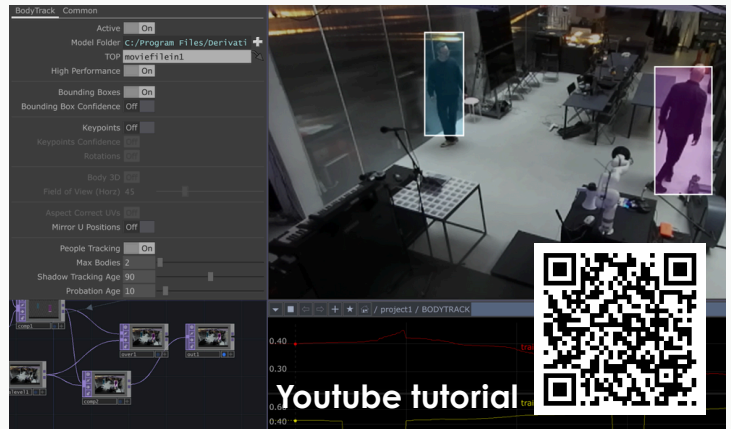
Movement 1 - Face & Hands

Build AI-powered tools to track facial expressions and hand gestures as performance instruments. Learn to construct custom tracking systems, process and shape control data, and design coded visuals that respond to captured movements for accessible performance interfaces. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology

Youtube tutorial
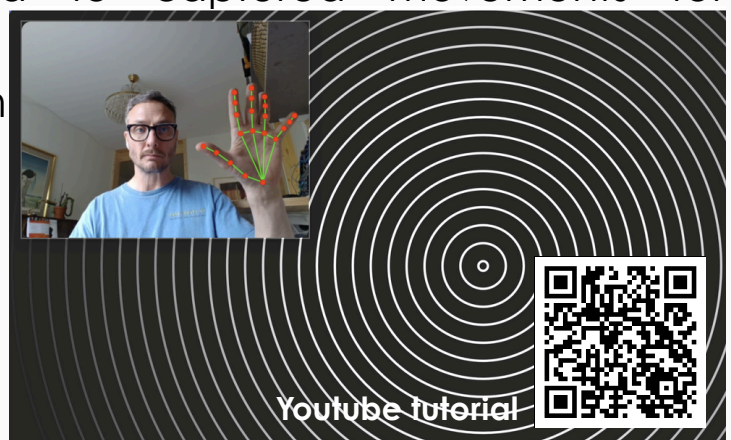
Movement 2 - The Body

Use depth camera sensors and pose estimation to translate full-body movement into digital instruments. We work with body tracking systems, iterate on movement-response relationships, and translate captured movement data into visual control systems for stage applications. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology
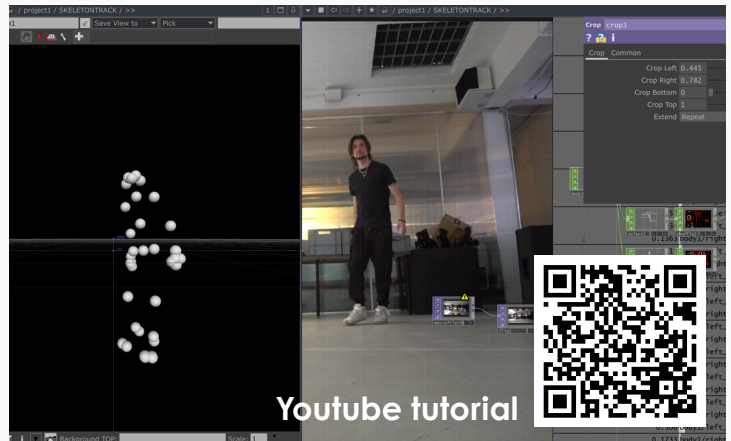
Youtube tutorial

Movement 3 - Constellation

Examine group movement tracking and how spatial relationships between performers can be utilized as control input. We cover body tracking with multiple people, explore spatial relationships like proximity, stillness, and separation as performance parameters for controlling stage elements. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology
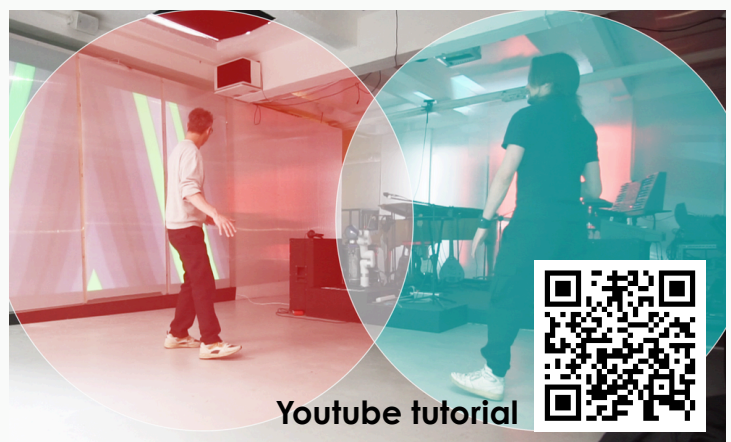
Youtube tutorial

Audience 1 - Mobile Control

Develop audience participation methods using mobile devices as performance tools. This tutorial covers web and mobile prototypes using AI, broadcast versus interactive modalities, and non-linear storytelling techniques for engaging audience participation in live performance contexts. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology
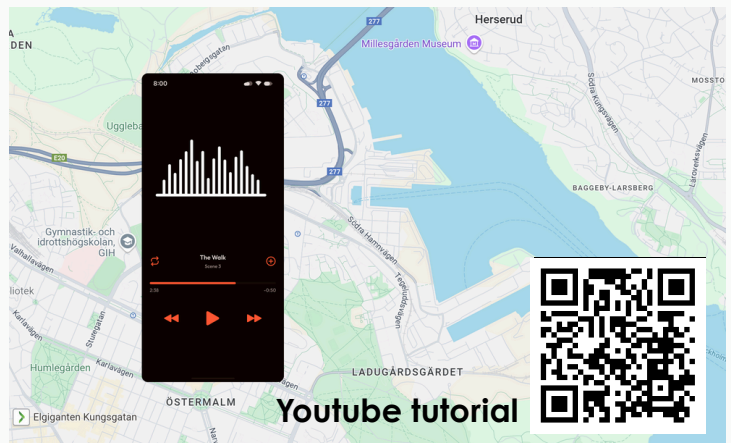
Youtube tutorial

Audience 2 - Movement & Voice

Incorporate audience sounds, voices, and movements into performance through computer vision approaches for crowd analysis. We examine spatial sound input techniques, using directional audio from audience members to trigger different performance elements and responses. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology
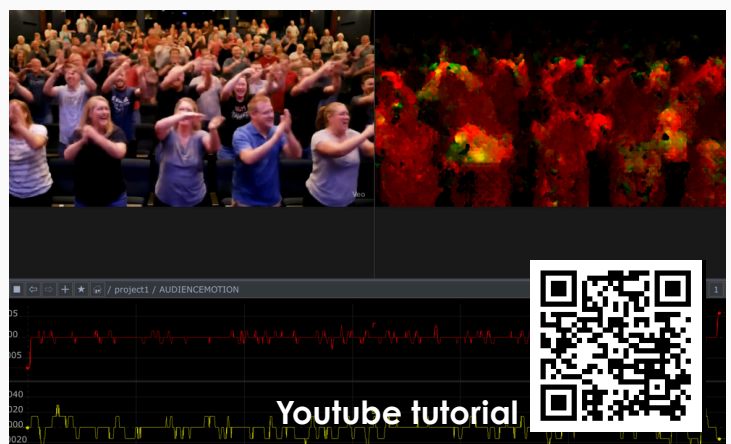
Youtube tutorial

Audience 3 - Distance & Hybrid

Create shared experiences for distributed audiences through connected web and mobile interfaces to stage visuals and lighting. We explore assigning different roles to various audience segments and managing hybrid live-remote performance experiences. Produced by Adam Wittsell, new media artist and creator from Sweden.


Training methodology

Youtube tutorial
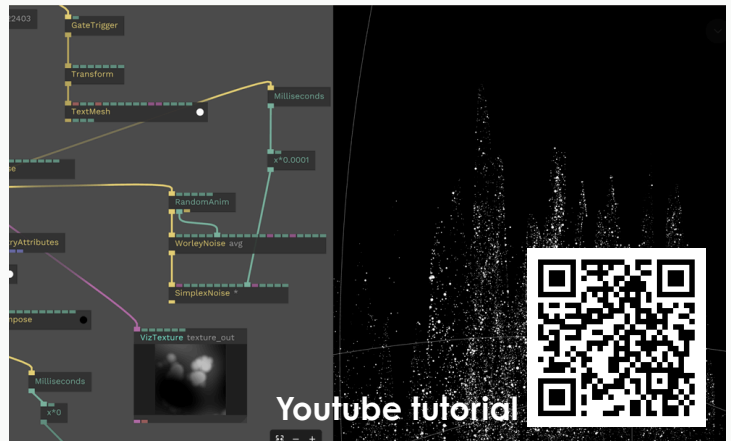
Connections 1 - Synergies

Learn to integrate different interactive techniques through communication protocols and standards. This tutorial covers orchestrating and connecting multiple inputs and outputs, creating synergistic relationships between different performance control systems for comprehensive interactive experiences. Produced by Adam Wittsell, new media artist and creator from Sweden.

Training methodology

Youtube tutorial

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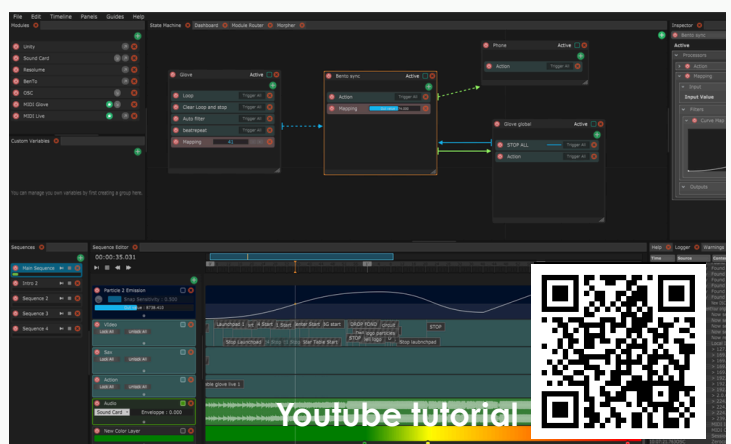
**CUBE**

Creative Writing with ChatGPT – From Idea to Dramaturgy

This tutorial introduces the use of ChatGPT as a creative partner for artists, writers, and theatre makers. Through a step-by-step approach, it demonstrates how to utilize the tool to generate ideas, develop characters, and structure short scripts or theatrical scenes.


Training methodology

Youtube tutorial
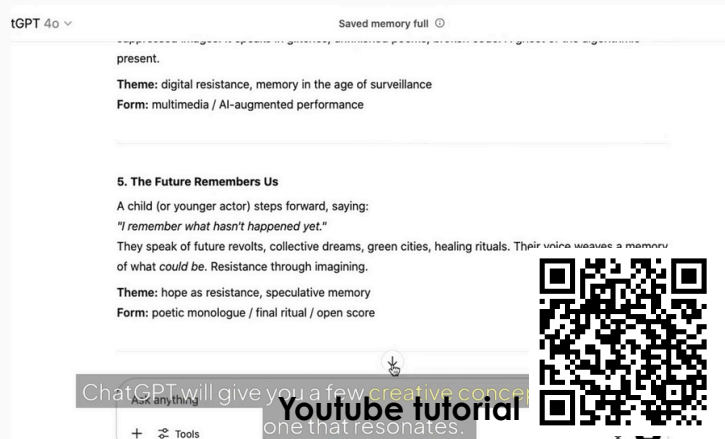
Digital Moodboard – Building the World of the Performance

This tutorial explores the creation of digital moodboards as a foundational step in developing a performance's visual and dramaturgical universe. Participants learn how to collect and organize visual references, keywords, textures, and inspirations using tools like Milanote and Canva.


Training methodology

Youtube tutorial

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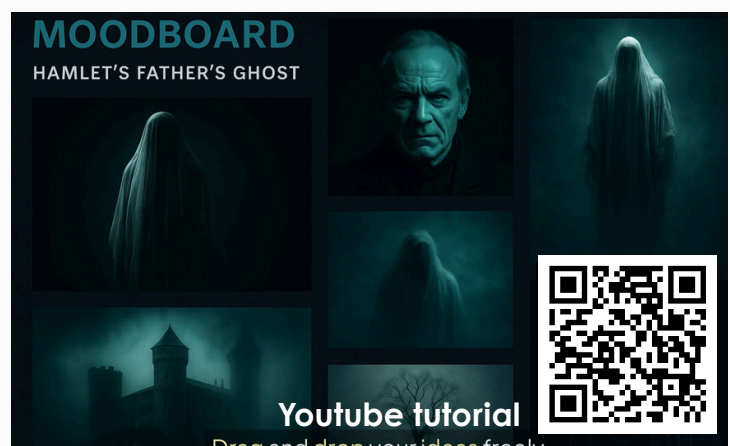
The Voice as a Digital Landscape

This tutorial focuses on using the human voice as raw material for creating digital soundscapes. Participants are guided through the process of recording vocal sounds - spoken word, breath, singing, or experimental vocalizations - and transforming them into audio loops using BandLab.


Training methodology
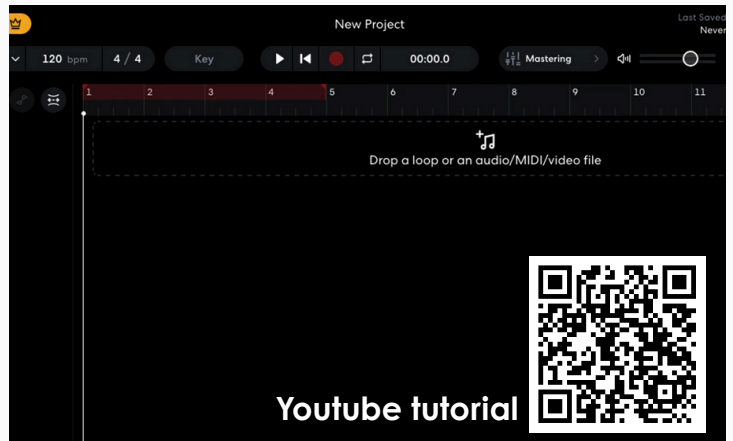
Youtube tutorial

Acting for the Screen – Self-Presentation on Camera

This tutorial introduces performers to screen-based acting techniques, with a focus on self-awareness and presence in front of the camera. Participants explore methods for recording themselves using a smartphone, editing their material with CapCut, and presenting live or recorded content through platforms like Zoom.

Stay with it. The camera doesn't want projection

Training methodology

**Youtube tutorial**

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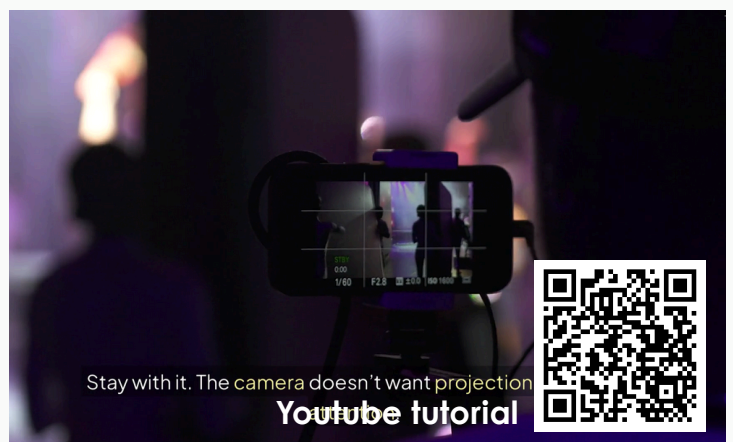
Zoom as a Digital Stage – Remote Rehearsals & Presentations

This tutorial explores the creative potential of Zoom as a digital stage for remote theatrical processes. Participants learn how to rehearse, collaborate, and present performances entirely online, using Zoom's features to simulate spatial relationships, choreograph interactions, and experiment with timing, framing, and digital presence.

Training methodology

Youtube tutorial
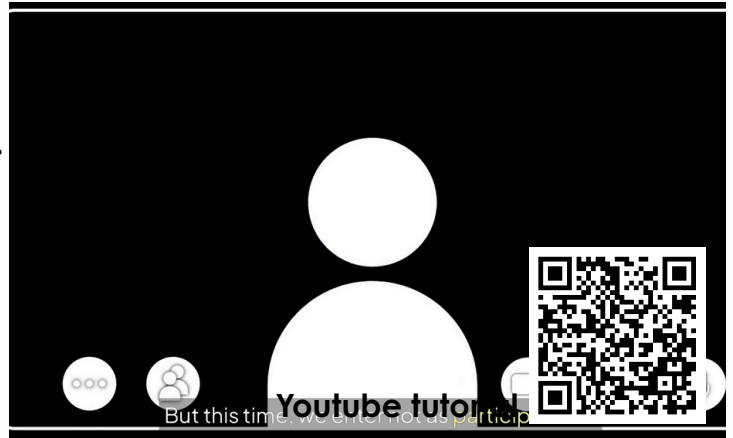
The Body and the Image – Basic Projection Techniques on Stage

This tutorial introduces foundational techniques for using projection in live performance. Participants learn how to project images onto the body, objects, or stage surfaces in ways that interact meaningfully with live action.

Training methodology

Youtube tutorial
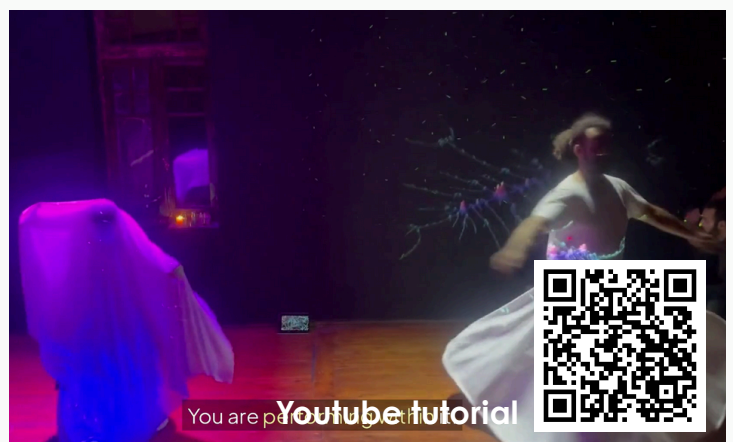
Adding Subtitles and Enhancing Accessibility

This tutorial focuses on making video content more accessible through the use of subtitles and clear visual guidance. Participants learn how to create and sync subtitles using CapCut, and how to refine accessibility settings and captions via YouTube Studio.


Training methodology

Youtube tutorial
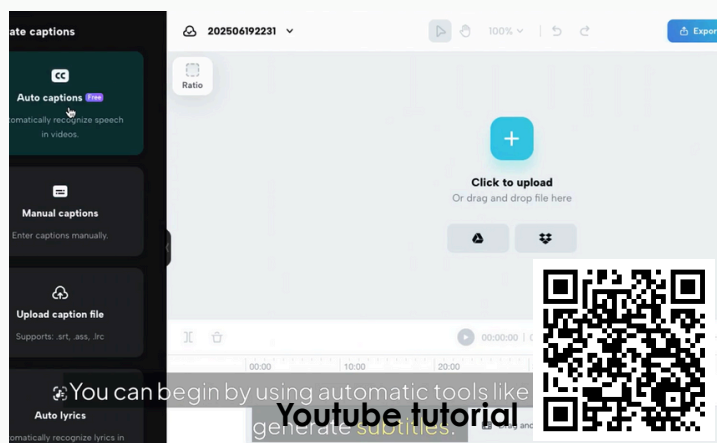
Participatory Theatre with Padlet – A Collective Dramaturgical Room

This tutorial introduces Padlet as an interactive digital platform for collaborative writing and participatory theatre creation. Participants explore how to use Padlet as a shared dramaturgical space where artists, educators, and audiences can contribute ideas, texts, images, and reflections in real time.


Training methodology

Youtube tutorial
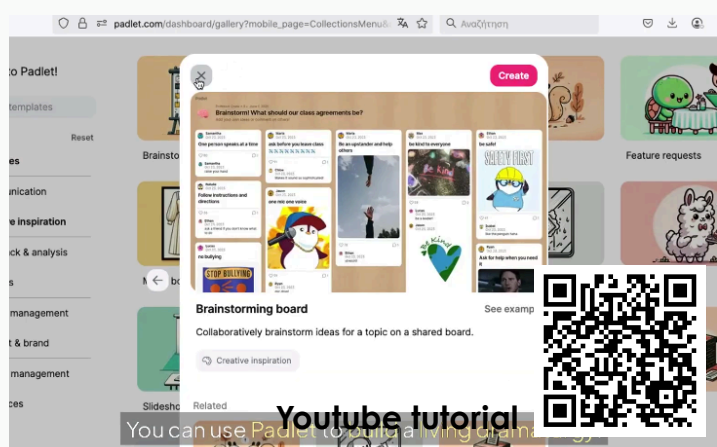
Creating an Avatar Performer with AI

This tutorial explores how AI-generated avatars can be used to transform written text into digital performance. Participants learn how to create a virtual performer that delivers scripted content through voice and facial animation, using tools like HeyGen or D-ID.


**Training methodology**

Youtube tutorial
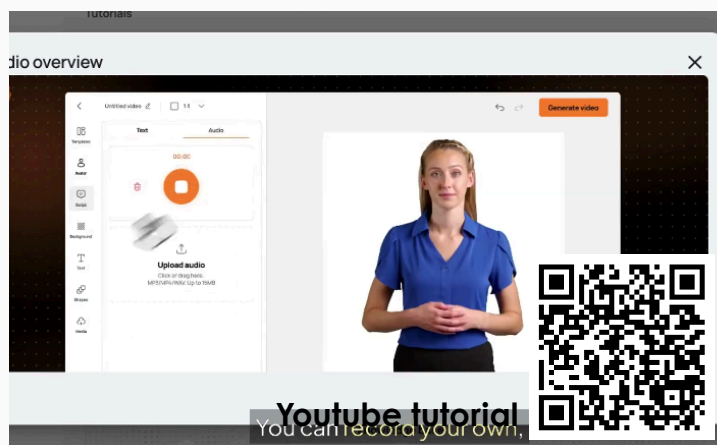
Designing a Digital Performance with the Help of AI

This tutorial presents a comprehensive workflow for creating a digital performance using a range of AI tools. Starting from the initial concept, participants are guided through the full creative process—developing ideas and scripts with ChatGPT, generating avatar-based performances with HeyGen or D-ID, designing visual elements with Canva, and editing the final piece in CapCut.


Training methodology

Youtube tutorial

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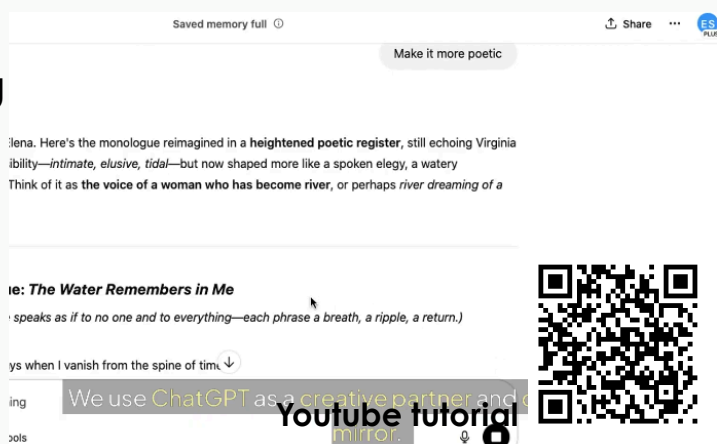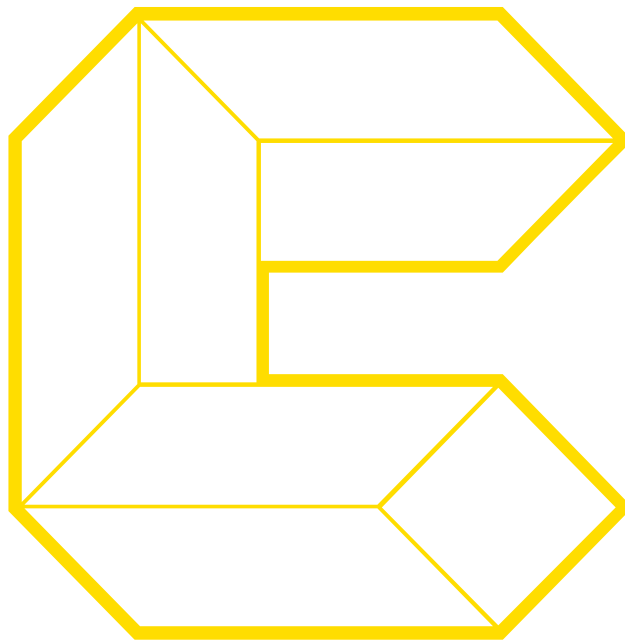
CULTUURCONNECT

Storytelling for Virtual Environments (1): Narrative Design Principles

This video and manual guides theatre-makers and performers who want to apply a narrative design in immersive virtual environments (XR, VR, hybrid). Traditional storytelling principles are discussed and adapted to virtual spaces where audience presence, agency and spatiality reshape narrative conventions.
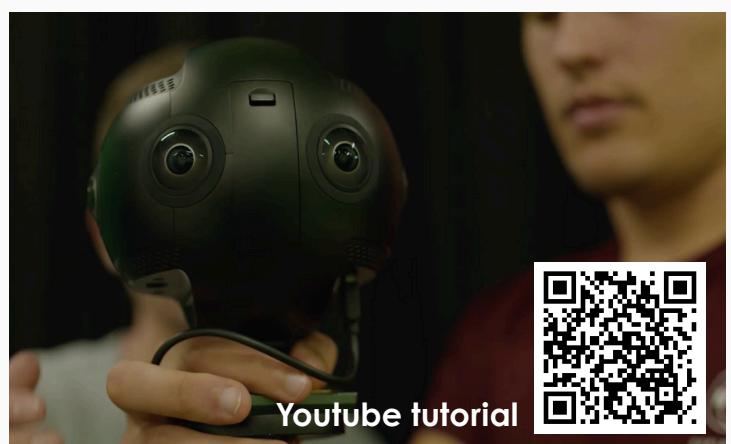

Training methodology
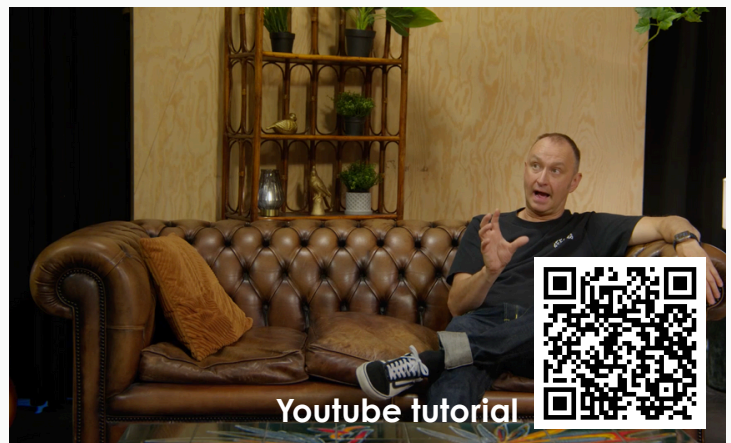
Youtube tutorial

Storytelling for Virtual Environments (2): Designing Audience Experiences

This tutorial discusses how to design meaningful audience experiences in virtual performance contexts, focusing on interaction, immersion and emotional engagement.

Training methodology

Youtube tutorial

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Scanning Spaces Using Gaussian Splatting

This tutorial explains how to scan spaces using Gaussian splatting to create highly detailed 3D models, emphasizing the real-world application in digital arts and performance contexts.

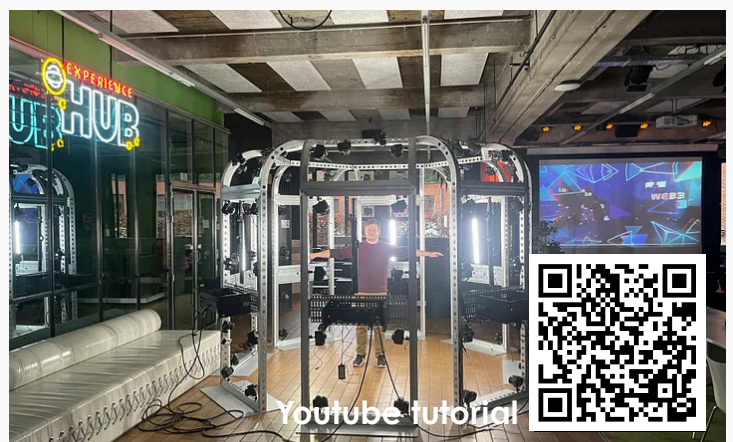

Training methodology

Youtube tutorial

Photogrammetry for 3D Modeling

This tutorial shows you step-by-step how to use photogrammetry technique to capture real world objects for 3D models.
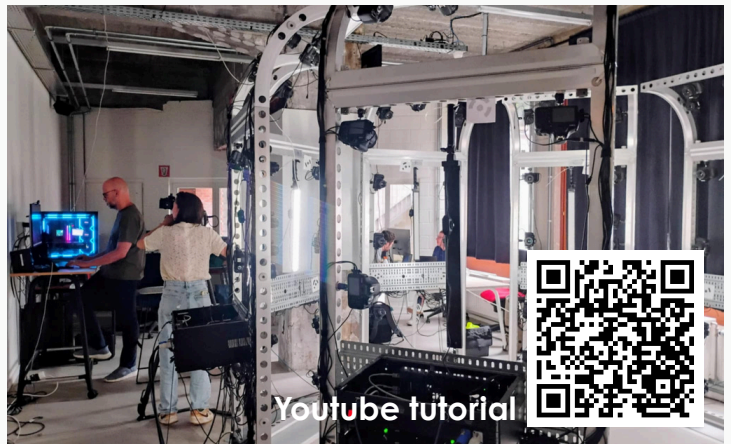

Training methodology

Youtube tutorial

Motion Capture

This tutorial gives you some practical knowledge of motion capture technologies and gives inspiration on how to use these in performance contexts. Professional-grade suits are compared with accessible smartphone-based options.
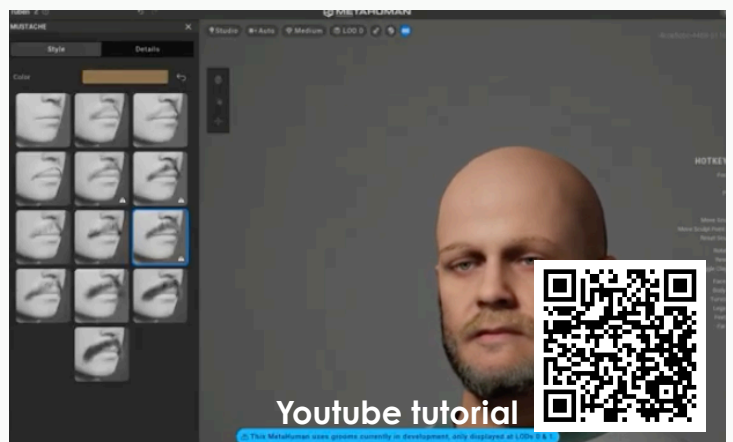

Training methodology

Youtube tutorial

Using Face Capture in the performing arts

This tutorial explores how to use face capture tools (via webcam or smartphone) and explores live applications of face capture in stage performance contexts.
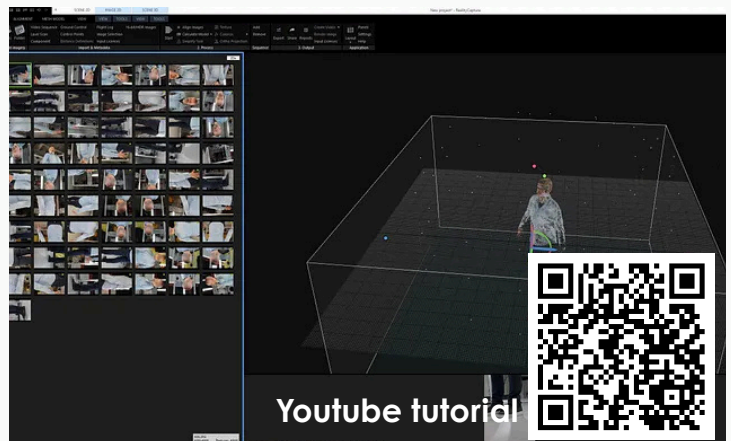

Training methodology

Youtube tutorial

3D avatars

Learn how to turn already captured photogrammetry data into functional 3D avatars that you can use in a digital or virtual performance.
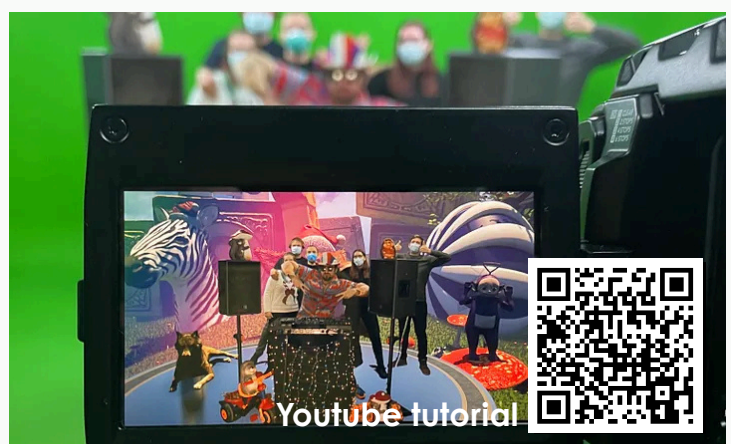

Training methodology

Youtube tutorial

Virtual Production – Basic principles

This tutorial discusses the principles of video recording in 3D virtual scenery and learns how to effectively perform basic virtual video recordings.

Training methodology

Youtube tutorial

Live AI Prompting & Visual Interaction in Performance

This tutorial teaches artists how they can integrate AI live during performances, visually and interactively, using real-time prompting tools and visual generation models.

Training methodology

Youtube tutorial
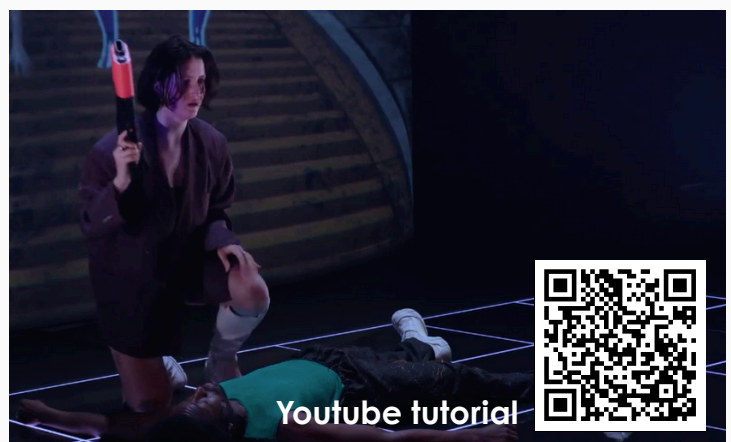
Integrating Videogaming in Theater Performance

This tutorial shows how to effectively integrate videogaming elements into live theater, enhancing interactivity, storytelling, and audience engagement.

Training methodology

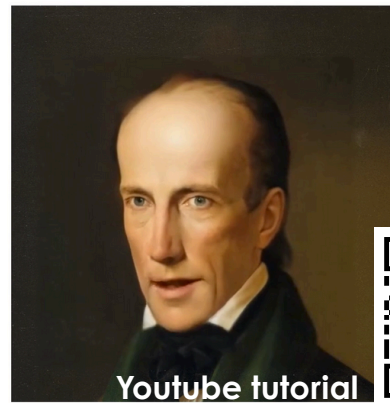**Youtube tutorial**

KIBLA

KIBLA

Archduke John, Father of Meranovo

This hybrid exhibition took us through the history of the estate in a different way. Through artistic processes and ambient installations, we explore and present these themes in new ways, from physical objects to the experience of the latest technologies. This tutorials leads us toward creation of mouth movements of an object without any AI tools.

Training methodology

Youtube tutorial

LutkAR

AR app at Maribor Puppet Museum is a fun and educational app that breathes life into the exhibition, just as a puppeteer breathes life into a previously inanimate object, a puppet, through his animation. Using this tutorial, you will address 3d modeling, photogrammetry, MOCAP and AR environment with only one purpose - how to create your own 3d doll and make it live in a virtual world.

Training methodology

Youtube tutorial

Stelarc: The Prosthetic Head

The Prosthetic Head is an embodied conversational agent – an automated, animated, informed and reasonably intelligent head that speaks to the person who interrogates it. This artwork gave us the inspiration for this tutorial that gives us more freedom to create. Tutorial explains the process from basic subject photos, software, modeling, animation, mapping, skin textures, rigs, painting, markers, preparation of an actor all the way to final polishing.

**Training methodology**

Stellarc

Youtube tutorial

EnKnap: Stage360

Stage360 means the establishment of a new type of postproduction in the form of virtualization of performances and a special (guided) viewing of performances with VR glasses, recorded with a 360° camera from the center of the stage. Iztok Kovač, artistic director, choreographer, dancer and conceptual father/inventor of Stage360, explains in this tutorial the set-up of a typical Stage360 show.

Training methodology
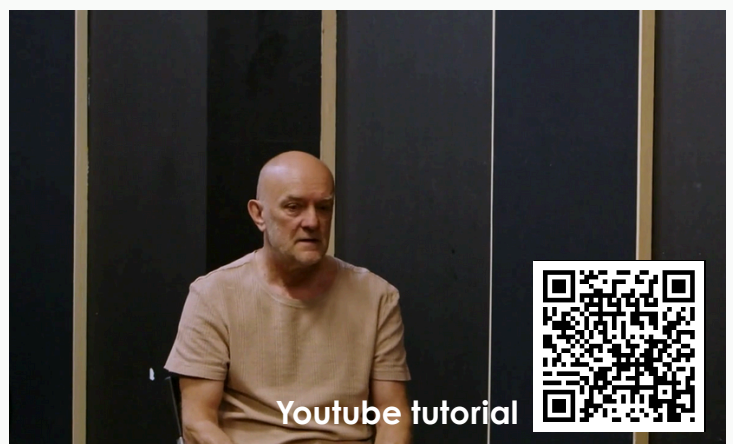
Youtube tutorial

Robovox

Inspired by RoboVox (artwork of Slovenian artist Martin Bricelj Baraga), we created a tutorial for an interactive sound installation, using SMS for general public interaction. The purpose of RoboVox is to serve as a tool for an individual, whose voice usually gets lost in the sounds of the mass. Upon receiving the SMS, RoboVox says out loud the declaration of love or whatever the message may read, thus lending its voice to the anonymous individual.


Training methodology

Youtube tutorial
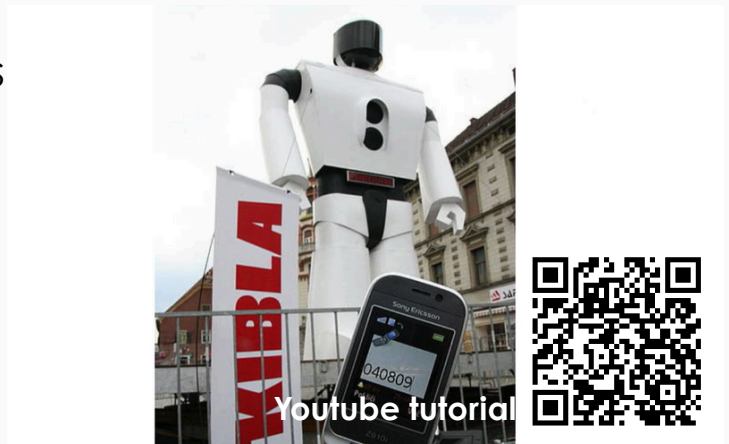
Hochschuh & Donovan: Empathy swarm / Empatholon

These artworks made by Katrin Hochschuh & Adam Donovan feature robot swarms. They narrate abstract versions of human-machine interactions in which movement functions as a mutual language. Together with them, we constructed this tutorial to present and to facilitate the creation of new swarms as social creatures, interacting with people. How to build a robotic fleet, from hardware to software.


Training methodology

Youtube tutorial
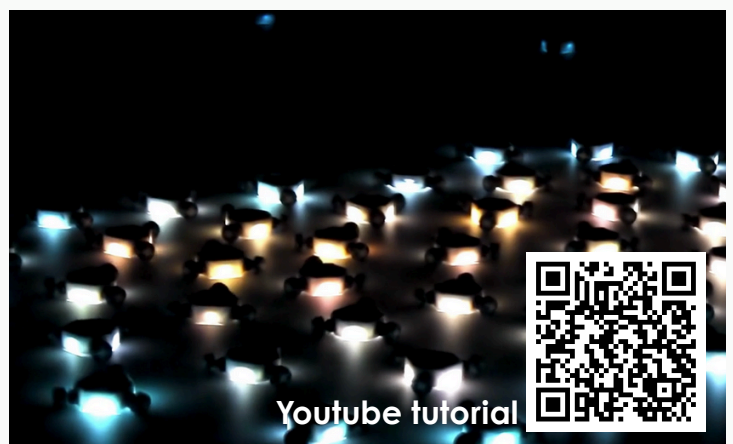
Rose

In one of the most representative rosaries in the world, we placed roses in a different way - we relocate them from their natural environment to an upgraded experience of XR/AR/hologram that simultaneously evokes a special experience in the real environment of the botanical park and in the metaphysical world of art. This tutorial shows the making of a holographic static display of a rose that appears to float.

Training methodology
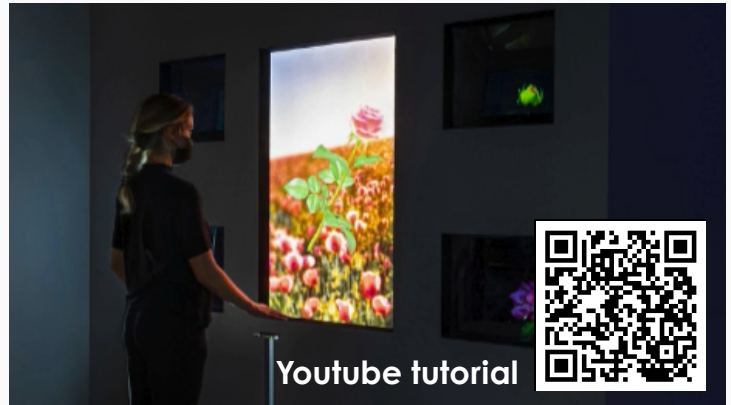
Youtube tutorial

Tanja Vujinović: AvantGardeTopia

Tanja Vujinović's practice is deeply rooted in the overlaps and in-between spaces of art, technology, and science. In her multi- and inter disciplinary projects, she intertwines virtual reality, principles of video games, storytelling, 3D modeling, AI, and electronic music. Using this tutorial, we wanted to outline the design of immersive VR environments, with several different phases, used tools, challenges, pros and cons of using AI etc.

Training methodology

Youtube tutorial

NOTA

None Of The Above is a kinetic AV performance and a transdisciplinary project that, with the help of modern technologies, addresses today's society's fascination with all-round progress, which is mainly based on the ever-increasing dictate of time. The trio uses an interactive table with pressure-sensitive plates that dancer can step on to control real-time audio and synchronized visual animations projected in the background.

Training methodology

Youtube tutorial

Hochschuh & Donovan: Curious Tautophone

Curious robot by Katrin Hochschuh & Adam Donovan is a solo "dancer" and "singer". No swarms. This tutorial explains his super power - he is capable of projecting focused sound and light beams in specific directions, rotate at the same time and redirect this projections dynamically. How to make a base, platform, light system, directional audio system, controls, sensors; how to synchronize everything and what are possible applications or use cases.
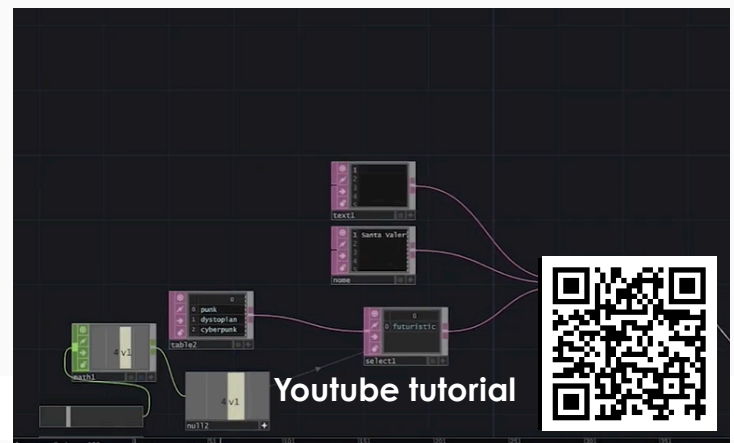
Training methodology
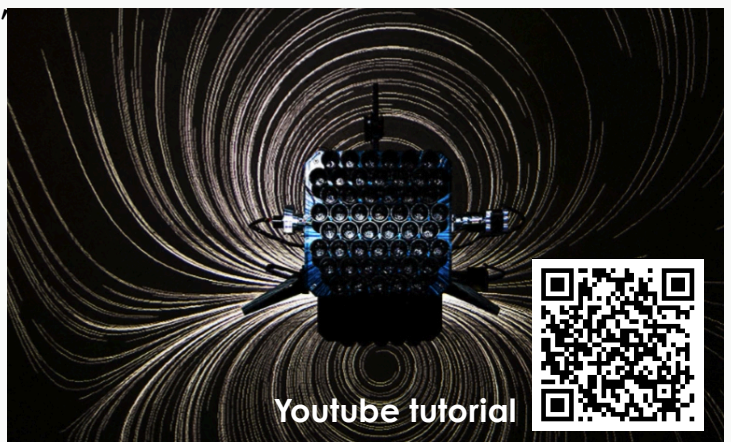
Youtube tutorial

CAPOTRAVE KILOWATT

Medieval Faith, AI, and the Eternal Display: Part One

The three tutorials by Professor Marcello Cualbu explore the intersection of seemingly disparate domains: medieval religious tradition, cutting-edge interaction design, and the pervasive influence of Artificial Intelligence (AI), drawing upon excerpts from an audio source detailing an interaction design project called "The Eternal Display". The videos and manuals review how a contemporary digital art project echoes ancient religious practices and how AI is shaping our understanding of art, creativity, and cultural archives.

Training methodology

Youtube tutorial

Medieval Faith, AI, and the Eternal Display: Part Two

The core ambition of the project by Professor Marcello Cualbu, born from an interaction design course, was to craft something eternal in our super fast moving digital landscape. In this second part he will go further into these aspects: data acquisition; interactive element; AI integration; AI image generation; historical roots; importance of relics.

Training methodology
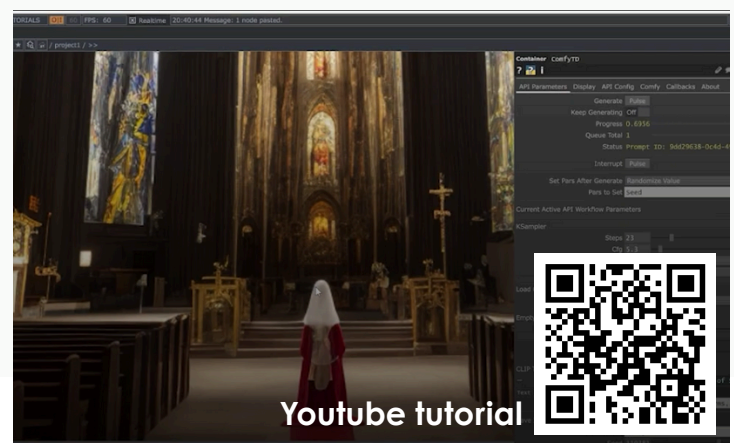
Youtube tutorial

Medieval Faith, AI, and the Eternal Display: Part Three

The third and final part of Professor Marcello Cualbu's tutorials will focus on these topics: local vs. universal devotion; civic authority and patron saints; integration into governance and daily life; warfare connection. By the end of the three tutorials the development of "The Eternal Display" project will be clear in its main parts.

Training methodology
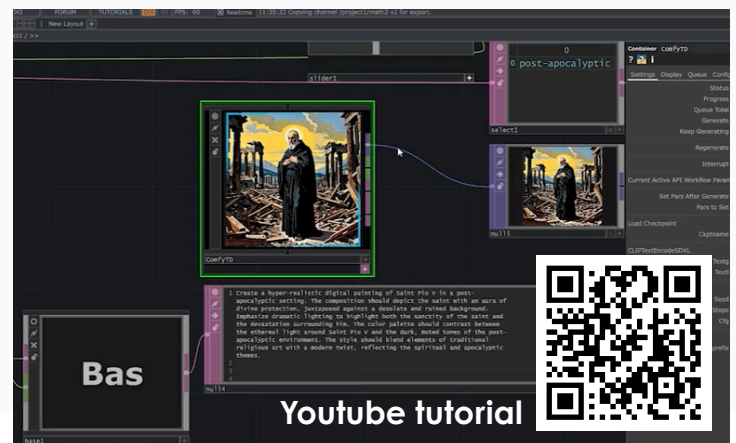
Youtube tutorial

Antidisciplinarity and creative speculation to develop new projects: Part One

In his three tutorials, artist Filippo Rosati presents tools and methodologies for designing cultural activities through an antidisciplinary approach and the practice of speculative design. The aim is to integrate emerging artistic and technological languages into innovative projects for cultural institutions, festivals and experimental spaces.
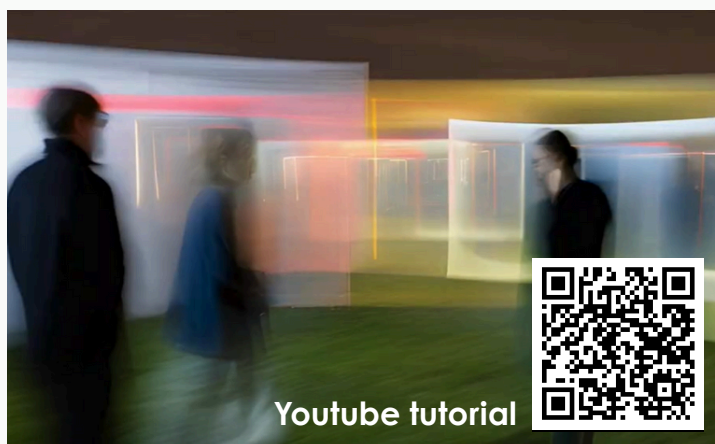

Training methodology

Youtube tutorial

Antidisciplinarity and creative speculation to develop new projects: Part Two

Artist Filippo Rosati, in his second tutorial, will explain how we can move from vision to execution. Effective cultural projects today must embrace the integration of artistic languages and emerging technologies. But vision alone is not enough; success requires a clear framework rooted in strategy, curation, and communication.


Training methodology

Youtube tutorial

Antidisciplinarity and creative speculation to develop new projects: Part Three

In the third and final part of his tutorials, artist Filippo Rosati will explain how cultural facilitators, especially those working in performance art and new media contexts, must also navigate specific risks. First risk is audience disconnection; the second one is technical unpredictability; the third is related to budget and logistics.

Training methodology
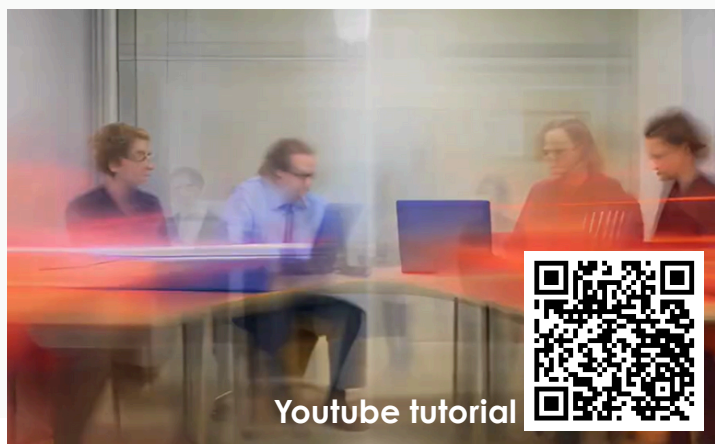
Youtube tutorial

Virtual Reality in the Performing Arts: Part One

In his two tutorials, Professor Marcello Carrozzino shows how virtual reality is increasingly being used in theatre to explore new forms of scenography and performance. XR (Extended Reality) stretches along a continuum from Augmented Reality (AR), through Mixed Reality (MR), to full Virtual Reality (VR), with increasing levels of immersion and interaction.

Training methodology

Youtube tutorial

Virtual Reality in the Performing Arts: Part Two

In the second part of his tutorials, Professor Marcello Carrozzino will go through some applications focused on virtual scenographies integrated into real-world settings. He will provide some examples from the performing arts field.


Training methodology

Youtube tutorial

Immersive storytelling for a world made of platforms: Part One

In his two tutorials, artist Martin Romeo offers an overview of case studies and practical tools related to the virtual sphere, helping to develop a critical perspective on immersive technology. Designing in the fields of design, art, communication and advertising requires interdisciplinary skills, just as today's world requires the ability to use multiple platforms simultaneously.

Training methodology

VIRTUAL DESIGN APPLICATIONS

Tilt Brush
by Google

Gravvity

Youtube tutorial
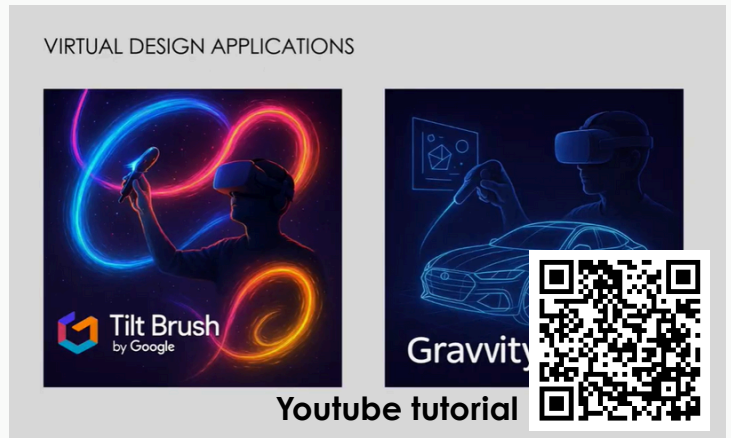
Immersive storytelling for a world made of platforms: Part Two

In the second part of his tutorials, artist martin Romeo will show how getting in touch with content through experience. He explains how mixed reality is emerging as a tangible and growing reality, capable of offering us a concrete glimpse of the future – a future in which digital experience will no longer be separated from the body and space, but will move through them, enrich them, and perhaps, make them more human at last.

Training methodology

LIVENESS IN VR
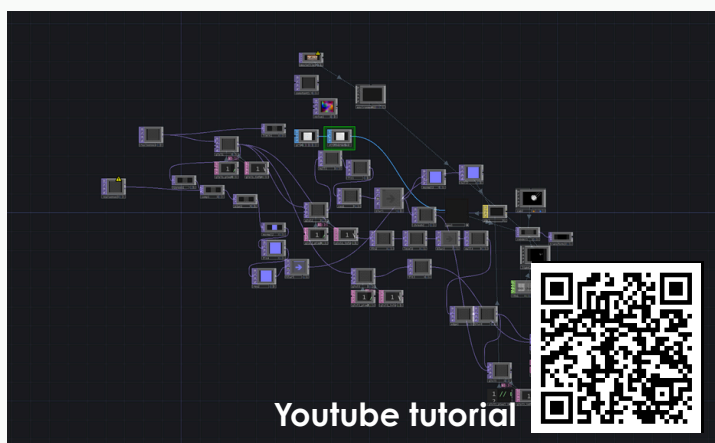
Youtube tutorial
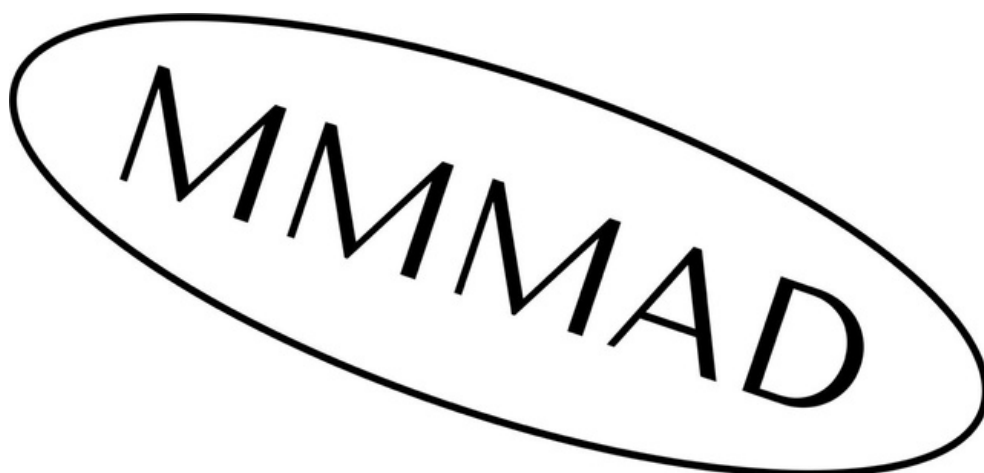
MMMAD FESTIVAL

Signal & Code (Part 1) - TouchDesigner Basics: A Creative Toolkit for Stage Artists

Get started with TouchDesigner, the powerful visual programming environment for real-time multimedia. This tutorial introduces the interface, explains how operators work, and walks you through building your first interactive visual project tailored for live performance settings.


Training methodology

Youtube tutorial

Signal & Code (Part 2) - Motion Tracking with Kinect v2 in TouchDesigner

Learn how to set up Kinect v2 with TouchDesigner to capture and respond to full-body movements in real time. We'll explore how this data can be filtered and used as either an aesthetic tool or to control visuals, trigger effects, and create more immersive stage environments.

Training methodology

Youtube tutorial

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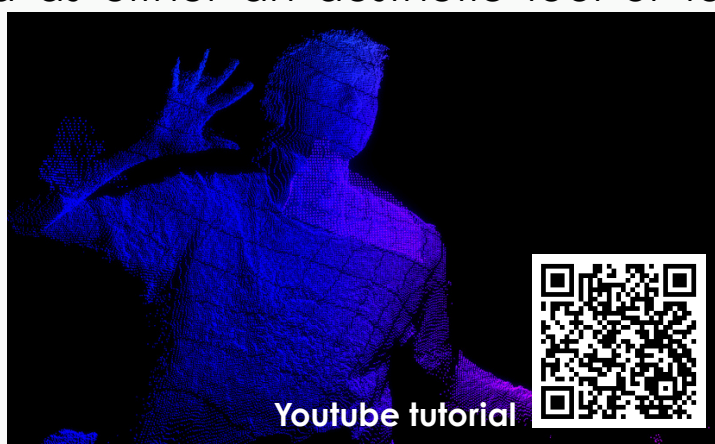
Signal & Code (Part 3) - Bodies and Data: Mediapipe Integration in TouchDesigner

Discover how to use Mediapipe's real-time pose tracking in TouchDesigner to use your body as a tool for interaction. You'll learn how how your hands, face, body or movements and their numerical representation can be extracted for interactive purposes.

Training methodology

Youtube tutorial
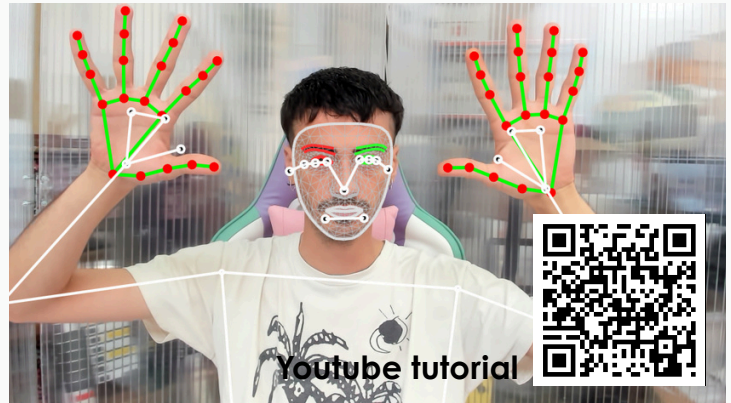
Signal & Code (Part 4) - Visual Storytelling with Stream Diffusion in TouchDesigner

Explore how to integrate Stable Diffusion models and the Stream Diffusion pipeline into TouchDesigner to create evolving, dreamlike visuals. This tutorial walks through basic setup, style control, and applications in performance storytelling.

Training methodology

Youtube tutorial
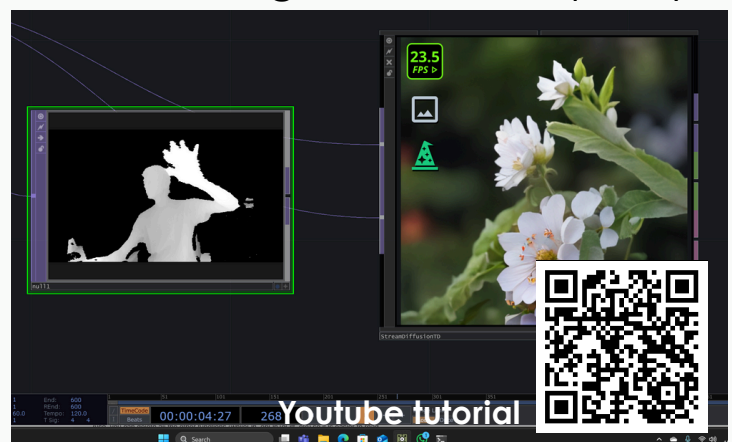
Signal & Code (Part 5) - Projection Mapping Made Easy: Kantan Mapper in TouchDesigner

Dive into Kantan Mapper, TouchDesigner's intuitive projection mapping tool that lets you align digital content with physical stage elements. We'll guide you through creating mapped visuals that can adapt to different shapes for an immersive experience.


Training methodology

Youtube tutorial

Form & Matter (Part 1) - Building Illusions: Introduction to Holographic Projection Techniques

Discover the tools and techniques used to create holographic effects on stage, using video projection on tulle fabric. We'll explore creative strategies to give digital performers and effects a haunting, ethereal presence.

Training methodology
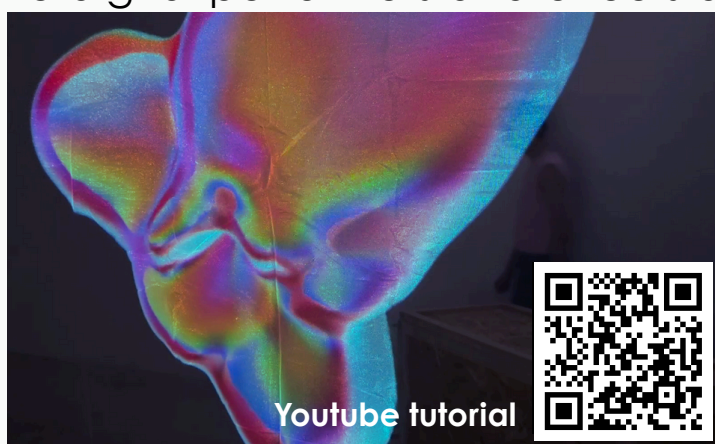
Youtube tutorial

Form & Matter (Part 2) - From Space to Stage: Photogrammetry and LiDAR for Performance Design

Learn to capture real-world objects and environments using photogrammetry and LiDAR, and convert them into 3D assets for your stage design. This tutorial covers scanning workflows, cleanup, and integration into live visual systems.

Training methodology

Youtube tutorial

Form & Matter (Part 3) - Rapid Stage Props: 3D Printing for Performative Objects

Understand how to design and produce physical stage elements using 3D printing, from costumes to sculptural props. This tutorial covers modeling basics, choosing the right print settings, and finishing techniques for the stage.

Training methodology
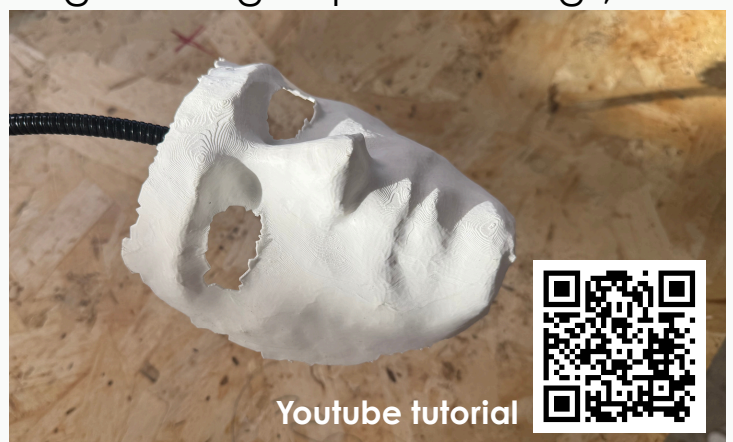
Youtube tutorial

Form & Matter (Part 4) - Touch Board: Physical Interaction for reactive sound performances

Learn how to use the Touch Board as a responsive interface for triggering sound, through touch. We'll walk you through building interactive setups that turn the performer's body or props into live controllers using this device as a MP3 player or MIDI controller.

Training methodology
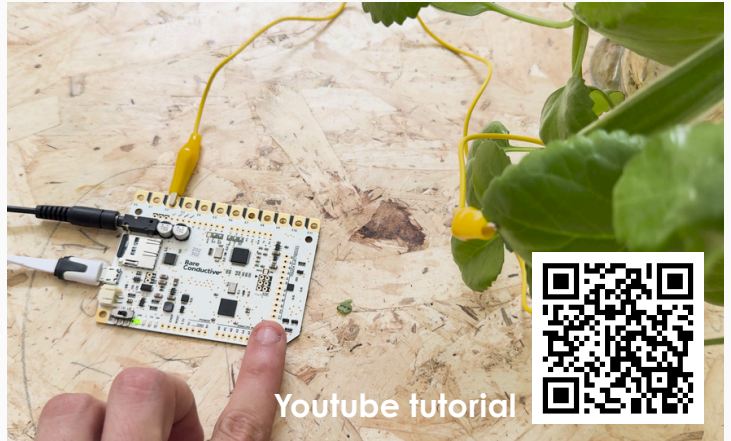
Youtube tutorial

Form & Matter (Part 5) - VR Stages: Integrating Full Body Tracking in VRChat

In this tutorial, we explore how to set up full body tracking in VR Chat to create immersive virtual stage performances. You will learn what equipment is needed, how to calibrate your setup, and how to embody digital avatars with expressive, real-time movement.

Training methodology

Youtube tutorial

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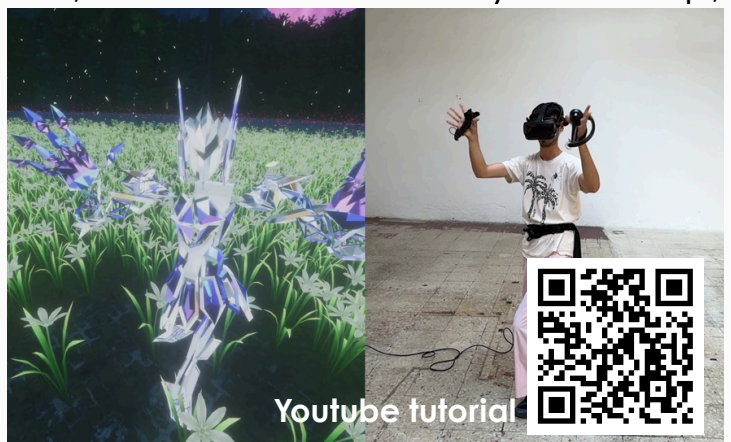
ACKNOWLEDGEMENTS

This handbook is the result of work by several people who were included by the consortium partners in the preparation and creation of manuals and tutorials. These people are:

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Iwona Preis, Karin Johansson, Hanna Granlund
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Adam Witsell
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Noah Hellwig, Håkan Lidbo, Lisa Färnström

CUBE staff:
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Production:
Elena Stamatopoulou, PhD.

Cultuurconnect staff:
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Production:
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Thomas More University (Tom Rumes, Dries Van Craen, Ruben Van Kimpen, Bruno Koninckx), Ilja Van Autreve (Kopergietery), Stef de Paepe

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Kilowatt staff:
Lucia Franchi, Ilaria Maria Longo, Mattia Panicucci, Vanessa Zecchi
Participating artists/professionals:
Marcello Carrozzino, Marcello Cualbu, Filippo Rosati, Martin Romeo

---

MMMAD staff and production:
Cristóbal Baños Hernández
Diego Iglesias Gómez

A very special "THANK YOU!" to all other persons that are maybe not mentioned but were involved by project partners to these processes of creating content for this Handbook.

SOCIAL MEDIA CONTACTS

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**A full translation of this Handbook is available in:
Swedish, Slovene, Dutch, Greek, Spanish and Italian.**

To access the translations, go to the DIGITAL on STAGE website.

2025