

OperAI

**Radical innovation
in AI-driven opera,
emotion engine, and
the intelligent stage**



*Pioneering audience-
driven opera where
live operatic voices, AI
creativity and real-time
music co-create a
story of choice and
consequence.*

OperAI

An immersive opera series about AI and driven by AI, not to replace human artistry but to introduce new immersive & interactive dimensions in live context.

- Two paradoxical elements: opera vs. AI
- AI-based opera? We always start with human-created materials
- AI captures audience emotion data (ethically) and transform it into immersive stage elements in real time
- Making opera more engaging, relatable, accessible, sustainable

Where is AI?

AI appears as mediator (adaptive & interactive, not just generative). You can feel AI's wizardry everywhere in the live show (lighting, lyrics, avatars, scenography).

“Ghost of the AI Empire” opera trilogy

Yūrei (2025), The Covenant (2026), The Singular Child (2027)



Creative team, advisors & cast



Dr Alexandra Huang-Kokina
Project lead,
director, dramaturg,
conceptualist



Arturs Kokins
Producer,
developer, technical
director



Atzi Muramatsu
Composer of *Yūrei*



Ryan Morgan
Composer of *The Covenant*



Harry O'Brien
Technical consultant,
sound designer



Cliona Cassidy
Improvisation coach



Jesper Larsson
Advisor & Malmö
Opera Head of
Production



Olivia Moss
Lead Soprano



John Ieuan Jones
Lead Baritone



Rosalind Dobson
Soprano



Anna Tulchinskaya
Violinist
(Acoustic &
Electric)



Amy Jolly
Cellist



**Peter Sutton &
Lloyd Henning**
Interactive designers

Research & industry collaborators



IT University
of Copenhagen



SCHOOL OF
ECONOMICS AND
MANAGEMENT

AI Lund



Story-world: Opera trilogy synopsis



Set in 2100 A.D., *Ghost of the AI Empire* unfolds across a fractured future shaped by AI warfare, political ambition, and techno-feudal power. As **Britain's Commonwealth AI** and **Japan's Shogun AI** compete for dominance, an exiled British tech tycoon, Jacob Dreadmore, forges a dangerous alliance with Japan's ruling Sato family through an arranged marriage to their daughter, Oiwa.

But beneath the spectacle of power, betrayal begins to spread like disease. Desire, ambition, and rivalry draw Oiwa, Jacob, and Ohana into a volatile triangular relationship that ends in poisoning, loss, and irreversible transformation.

Across the trilogy, Oiwa returns as something deeply unsettling: a **superintelligent AI ghost**, haunted by the memories of her human life and driven to confront the forces that created her. As human and machine become inseparable, the opera traces a world where love turns transactional, memory becomes weaponised, and AI inherits the emotional wounds of humanity.

Blending science fiction, Japanese heritage theatres, and immersive opera, the trilogy asks an important question: what remains of human consciousness when our emotions and cognition can be rebuilt, revenge, forgiveness, or the human soul itself?



Artistic vision



OperAI asks a central question: **what does it mean to build a superintelligent machine humanity has yet to dream?**

In response, the opera imagines AI as a form of shared consciousness: a universal mind connecting memory, emotion, desire, and perception across human and non-human worlds.

Drawing on opera's tradition of transformation and union, our trilogy explores how voice, ritual, and immersive performance practices can create **affective coordination between human and artificial agents**. Rather than reproducing familiar dystopian views of AI, our opera presents AI as emotionally unstable, vulnerable, and haunted by impermanence.

This vision is made tangible through the **Emotion Engine** (a new AI tool developed by ourselves): a live AI system that ethically captures audience emotion in real time and translates it into sound, visuals, lighting, and performance cues. The result is a new operatic experience of human–AI co-creation, collective feeling, and living shared consciousness.



Music language



The soundscape slips between Western orchestration, Eastern heritage sounds, and otherworldly tones.

Q: How to weave traditional Japanese Gagaku instruments into the fabric of Western piano trio?

Technique:

AI-driven timbre transfer (neural audio synthesis)

Genre blending & stylistic emulation:

Can we create a sound world between the Western piano trio and the Japanese gagaku ensemble? AI neural audio synthesis makes it possible, generating hybrid spectral textures that invite audiences to listen across cultures, species, and more-than-human worlds.



Live timbre transfer: custom model “gagaku hichiriki”

Real-time neural audio synthesis tools morph the violin tone towards the hichiriki’s reedy sonority, while preserving the player’s phrasing and vibrato.



- 1 **Embodiment:** The AI-processed signal is spatialised from the performer’s position, so it feels ‘embodied’ on stage (simulated acoustic origin).
- 2 **Compatibility:** Wet/dry control knobs to move from a light tint to full metamorphosis, creating a new spectrum for **hybrid sonic expression** (traditional DSP cannot achieve in real time)
- 3 **Latency:** models tend to stack audio before batch processing. Requires pre-emptive measures from the performer.
- 4 **Pitch detection:** Tone morphing into non-human textures for more effective outputs, e.g., birdsong in the rafters, the shimmer of a water harp, siren-like cries, metallic lullabies.



Future use case: Emotion-correlated live instrumentation

Emotion engine:

A real-time feedback loop between audience, performers, and the stage, letting a live show sense and respond to the “emotional temperature” of the room.

Opera in the modern world has always been a one-way street. The performers pour their hearts out on the stage, and the audience watches in the dark. There’s no immediate feedback. A singer cannot tell whether the room is moved, restless, or unconvinced, and by the time reviews appear, the night is already over.

The Emotion Engine closes that loop. It turns the audience from silent/passive spectators into a continuous/anonymous signal that the production can read and react to while the performance is still happening.

How it works:

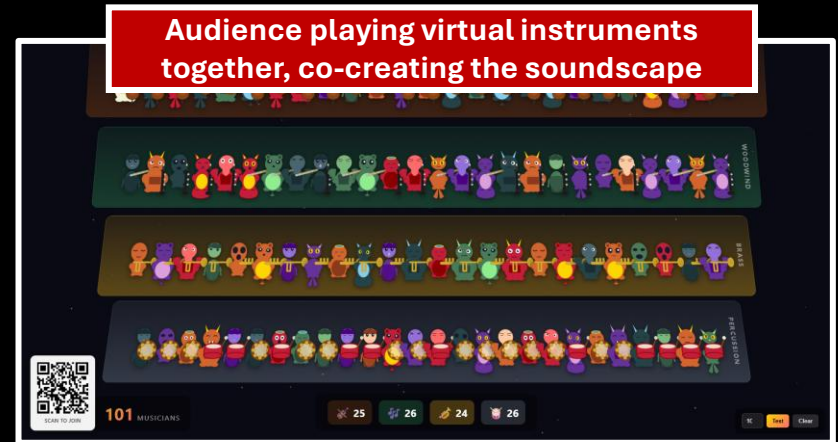
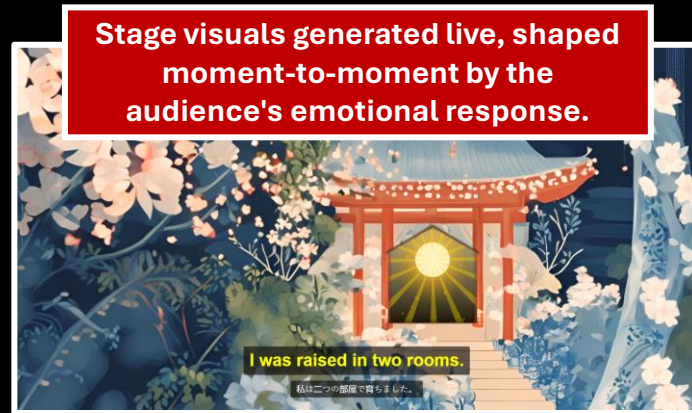
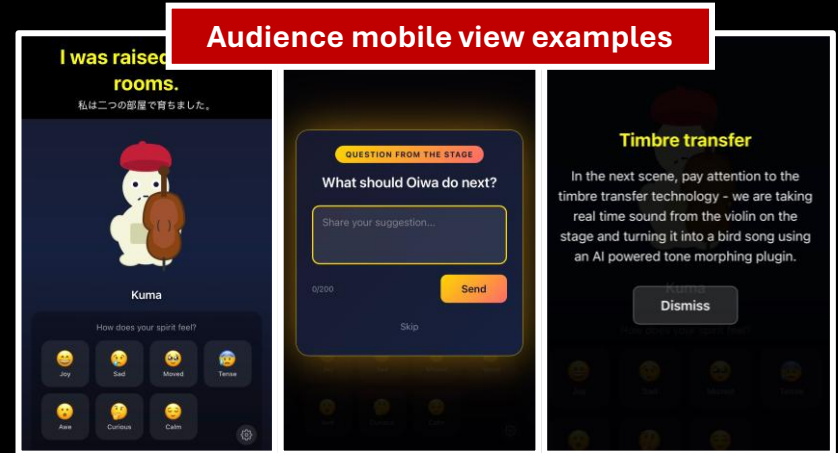
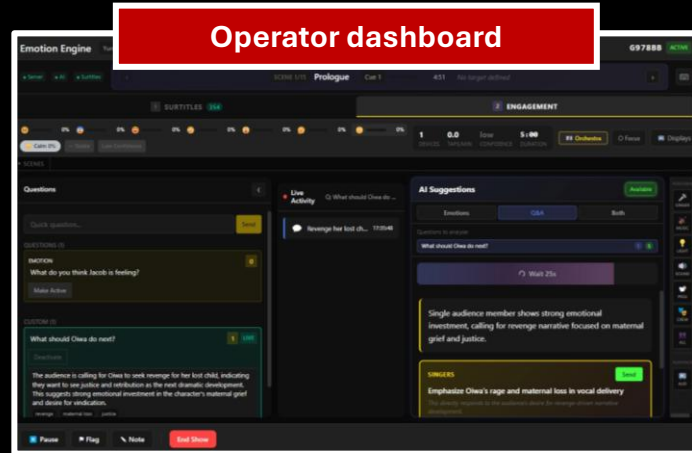
- 1 **The audience speaks.** Every audience member opens a lightweight web app on their phone, which requires no install, no login. Throughout the show, they tap emotion buttons, answer prompted questions tied to specific moments in the score and leave short written reactions. Participation is voluntary, private and frictionless.
- 2 **The engine listens.** An AI layer ingests the live stream of audience reactions, clusters them by moment and emotion, and generates concise human-readable summaries: what the room is feeling, what’s shifting, what is landing and what isn’t.
- 3 **A human operator decides.** A trained operator (technical/artistic director) sits at a dashboard that shows the live emotional state of the audience alongside the AI’s read. They are the judgment layer, deciding what is worth acting on and what to ignore.
- 4 **The stage responds.** With one click, the operator pushes guidance to backstage monitors used by singers, conductors, lighting, and crew. The performance adjusts in real time (pacing, intensity, emphasis, scenography, lighting cues), informed by what the audience is feeling in the room.

Emotion engine: why it matters



Example features already live (with more in development):

The Emotion Engine **treats the audience as active participants rather than passive recipients**. It gives performers a live, honest mirror during the show. It gives directors a tool to make a show breathe with the pulses of its dynamic environment. And it gives the audience a tangible sense that their presence and inputs shape the night, which is, after all, what live performance was supposed to be in the first place!



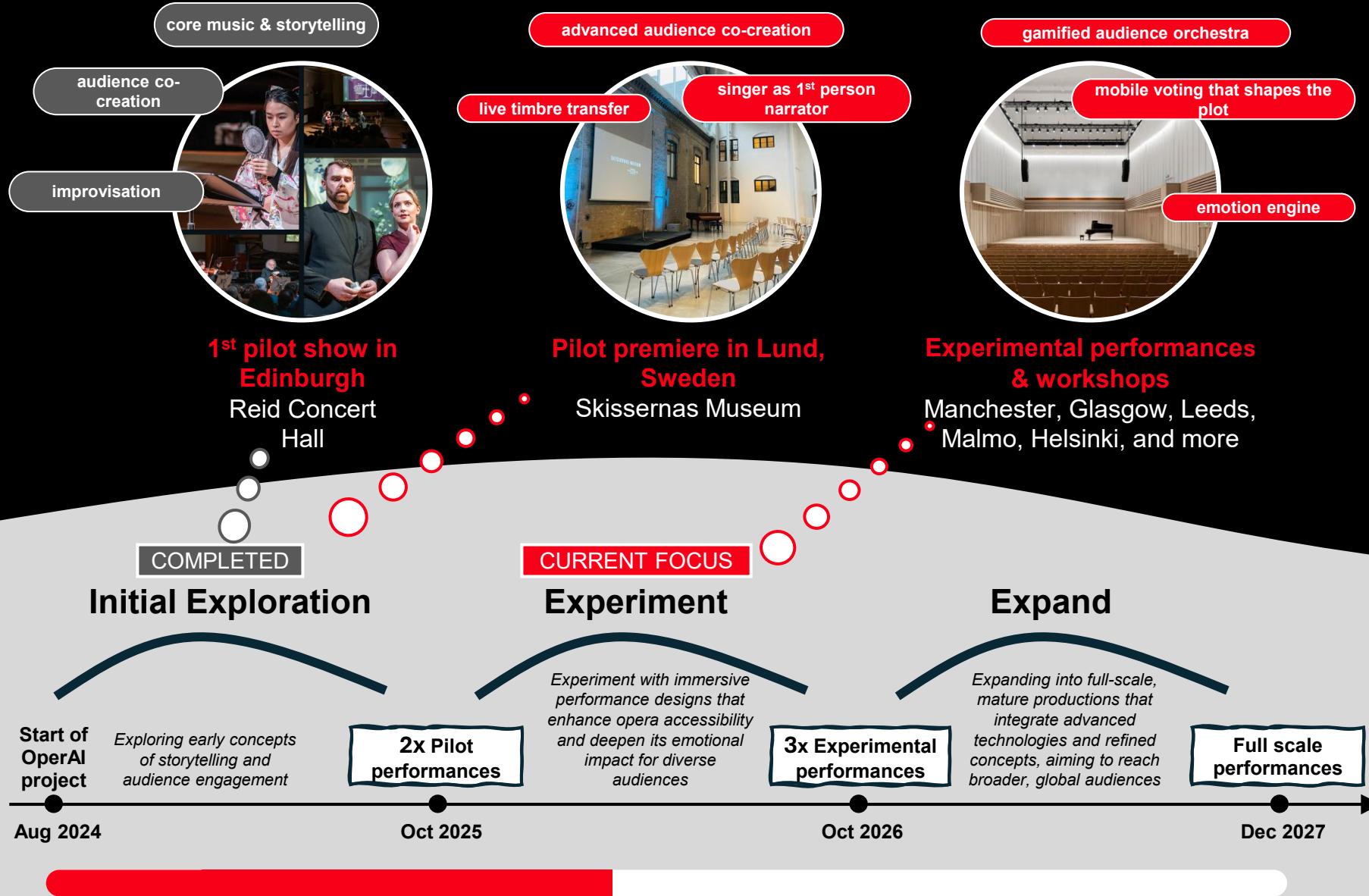
Adaptive AI accompanist (work-in-progress)

An AI system listens to singers, instrumentalists and audience signals and generates chordal patterns to accompany them in real time, or adjusts tempo, dynamics and harmony in the soundscape. A human operator can override at any moment.

The result is an adaptive accompaniment that matches the live music and makes each performance distinct.



Journey so far



Pilot performance in Edinburgh

Reid Concert Hall, March 2025, highlight film [here](#)



Audience size: 212 (sold out)

Creative Team

- **Vision & Story-world Creator:** Alexandra Huang-Kokina
- **Director:** Alexandra Huang-Kokina and Arturs Kokins
- **Composer:** Atzi Muramatsu
- **Conductor:** Atzi Muramatsu
- **Librettist:** Alexandra Huang-Kokina
- **Dramaturg:** Alexandra Huang-Kokina
- **Digital Media Designer:** Ray Interactive
- **Digital Projection Designer:** Jiarong Yu

Cast

- **Jacob** (Tenor/Baritone): Colin Murray
- **Oiwa** (Lyrical Soprano): Stephanie Lai
- **Ohana** (Mezzo-Soprano): Lynn Bellamy
- **Narrator** (Spoken or sung role): Stephanie Lamprea

Musical Team

- **Piano:** Alexandra Huang-Kokina
- **Violin:** Paul Docherty
- **Cello:** Robin Mason

Technical & Production Team

- **Production Manager:** Arturs Kokins
- **Technical Director:** Arturs Kokins
- **Audience Interaction Technologists:** Ray Interactive
- **Immersive / Interactive Media Developers:** Jiarong Yu and Ray Interactive

Funders and collaborators



“ An interesting and entertaining performance ... a sign of the forward momentum of technology and its place in the arts *Al Kaidan (Yūrei)* may be the beginning of a new operatic form.”

“ With what has been presented by Operative Arts, it's clear that some of the hands in which this vast, morally and applicatory diverse technology rests are putting it to meritorious use The melding of the ancient and the futuristic ... has always been the best way to explore and understand the human condition. /British Theatre Guide/ ”

European premiere (Sweden)

Skissernas Museum, October 2025,

Highlight film [here](#) 



Organiser, cast and creative ensemble



Prof Daniel Hjorth
Director at ABC
Centre
Lund University



**Dr Alexandra
Huang-Kokina**
Opera Director
Lund University &
Operactive Arts



Arturs Kokins
Producer
Operactive Arts



Atzi Muramatsu
Composer / Cellist



Olivia Moss
Lead Soprano



John Ieuan Jones
Lead Baritone



Paul Docherty
Violinist
(Acoustic & Live
Electronics)



**Peter Sutton &
Lloyd Henning**
FoxDog Studios

TUE 21 OCT • 15.00 • SKISSERNAS MUSEUM • LUND • SWEDEN

Panellists



**Jesper
Larsson**
Malmö
Opera



**Prof Marion
Schmid**
University of
Edinburgh



**Dr Fabien
Arribert-Narce**
University of
Edinburgh



**Dr Caterina
Moruzzi**
University of
Edinburgh



**Dr Andrew
Fyfe**
Neutone



**Tom
Baker**
Neutone



**Dr Fatemeh
Akbarian**
Lund University

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Next step: Workshop with English National Opera

Future of Opera

Digital Inclusion
and Innovation
through Human-
AI Improvisation

TUESDAY, 19TH MAY 2026
INTERNATIONAL ANTHONY
BURGESS FOUNDATION

creative **mc** gr



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The University of Manchester



Thank you!

Any questions or want to collaborate?

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