# Spectrum
Interactive Installation

Spectrum is an immersive, dynamic interactive installation that facilitates cross–dimensional communication with future lifeforms. Viewers engage with the installation, which responds via the NOEMA system—a symbolic language for visualizing consciousness that mediates information exchange between "future life" and "natural humans." These symbols serve as both dialogue records and traces of cognition–crossing exchange, yet they dissipate after approximately ten seconds. Through NOEMA's fluid symbols, participants experience communication beyond human linguistic logic. The work seeks to reconstruct traditional communication paradigms by fusing materiality, the body, and technology, simulating posthuman–era interaction and provoking reflection on the evolution of life and the expansion of cognitive boundaries.
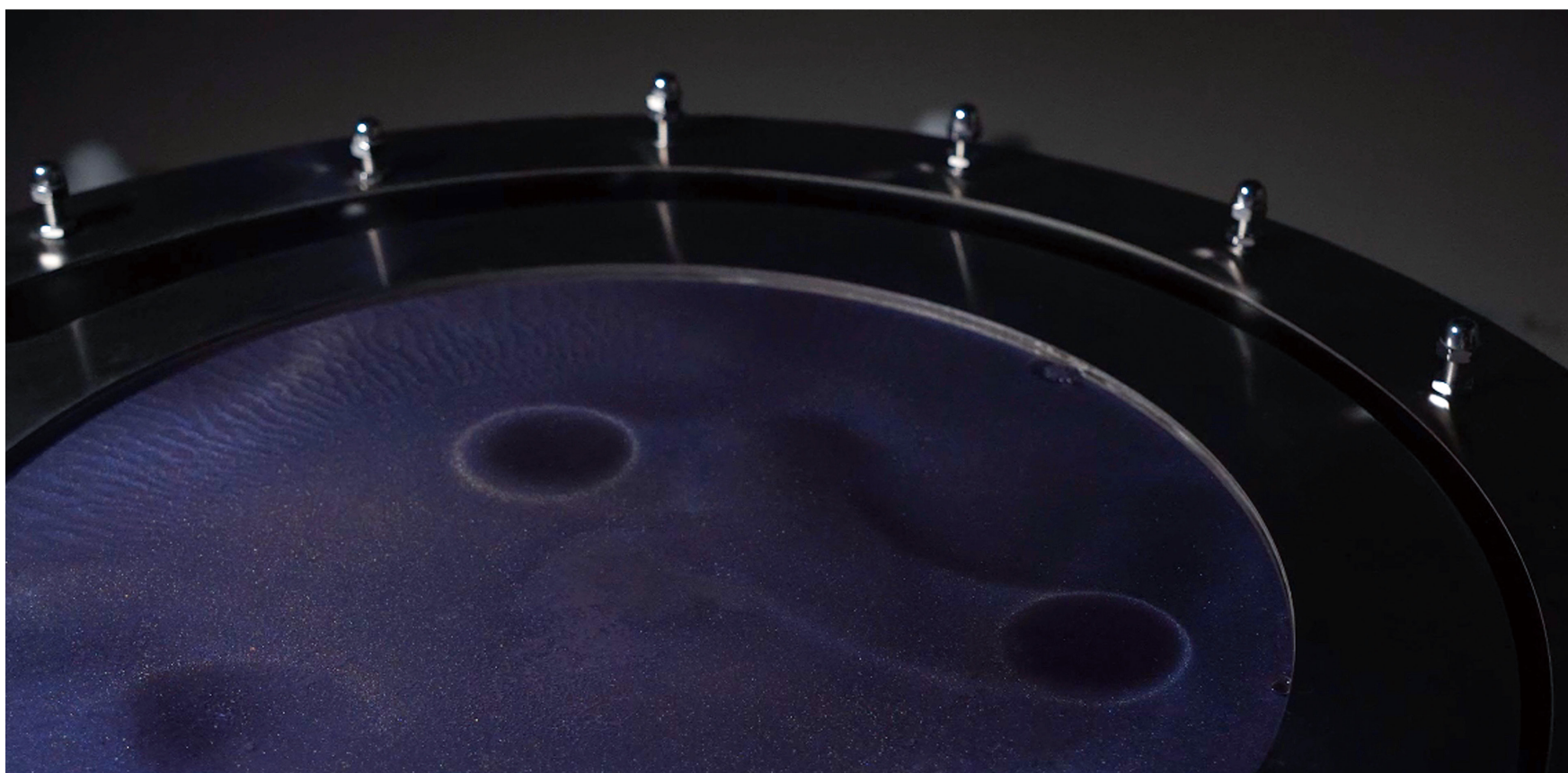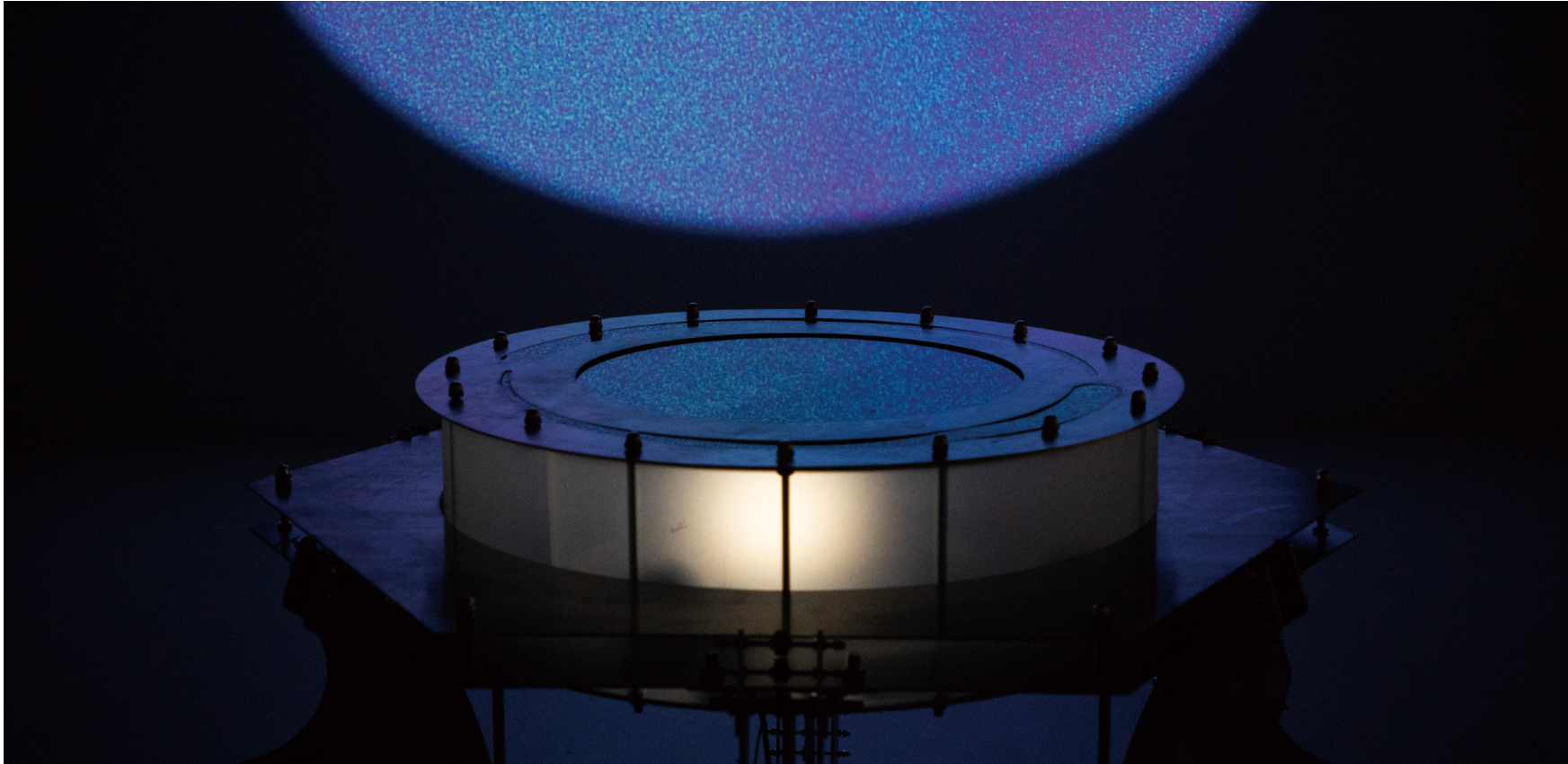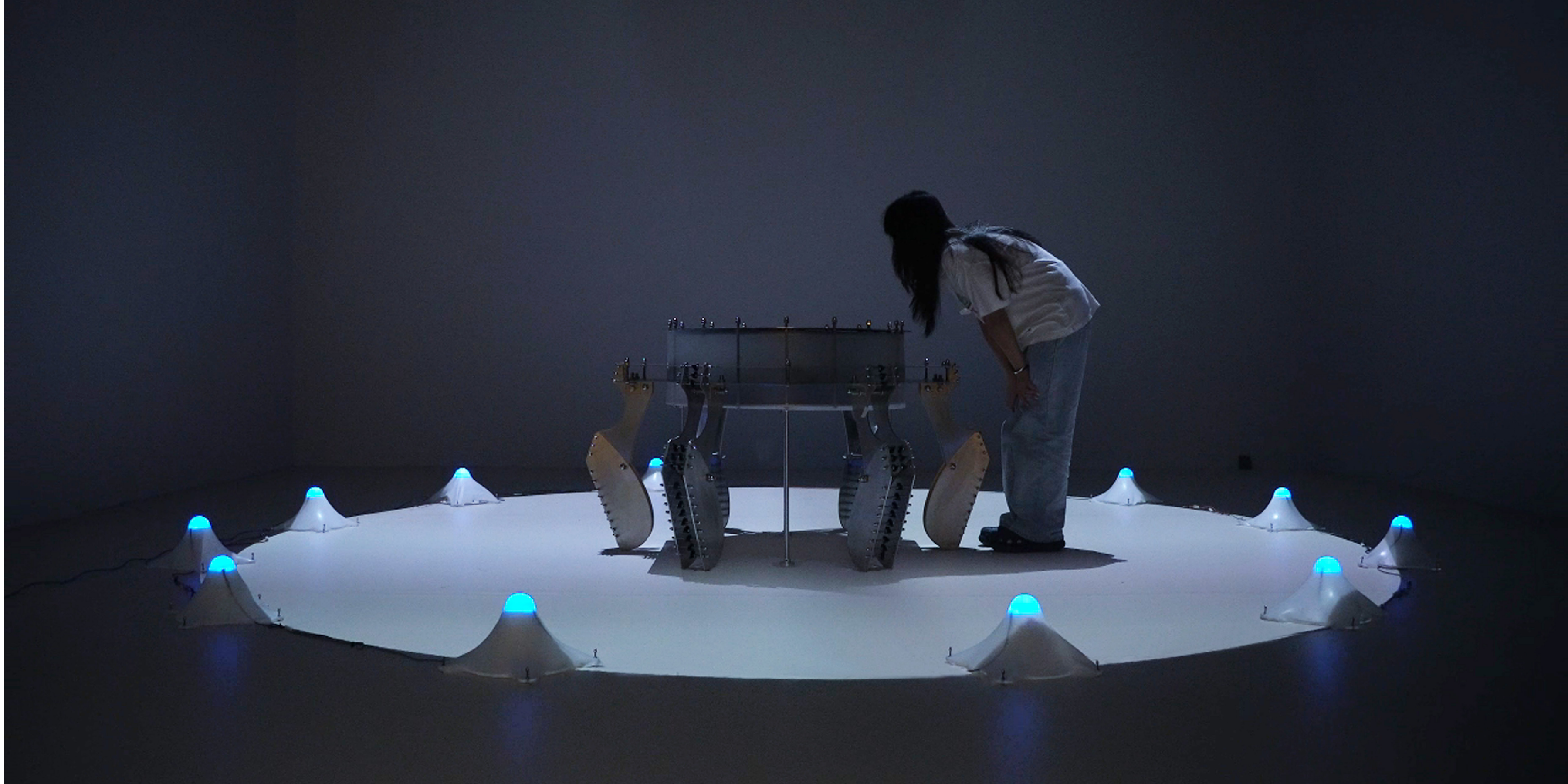
1 Worldview

In the year 3056, humanity enters the Era of Interconnected Consciousness, transcending sensory and media–based communication to evolve toward a fully conscious collective entity. Consciousness can now be transmitted instantaneously. Future life forms perceive all external information directly through pure existence. Yet, problems arise — memory contamination, data swamps, and communication gaps caused by class divisions between these "future beings" and "natural humans." In response, a new communication system evolves — the NOEMA System.
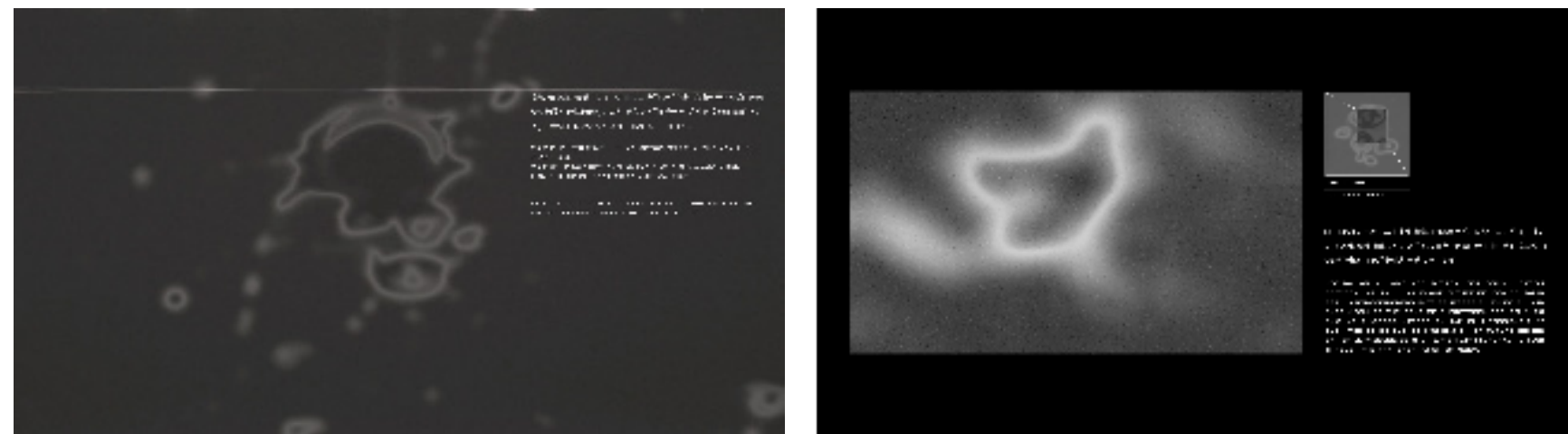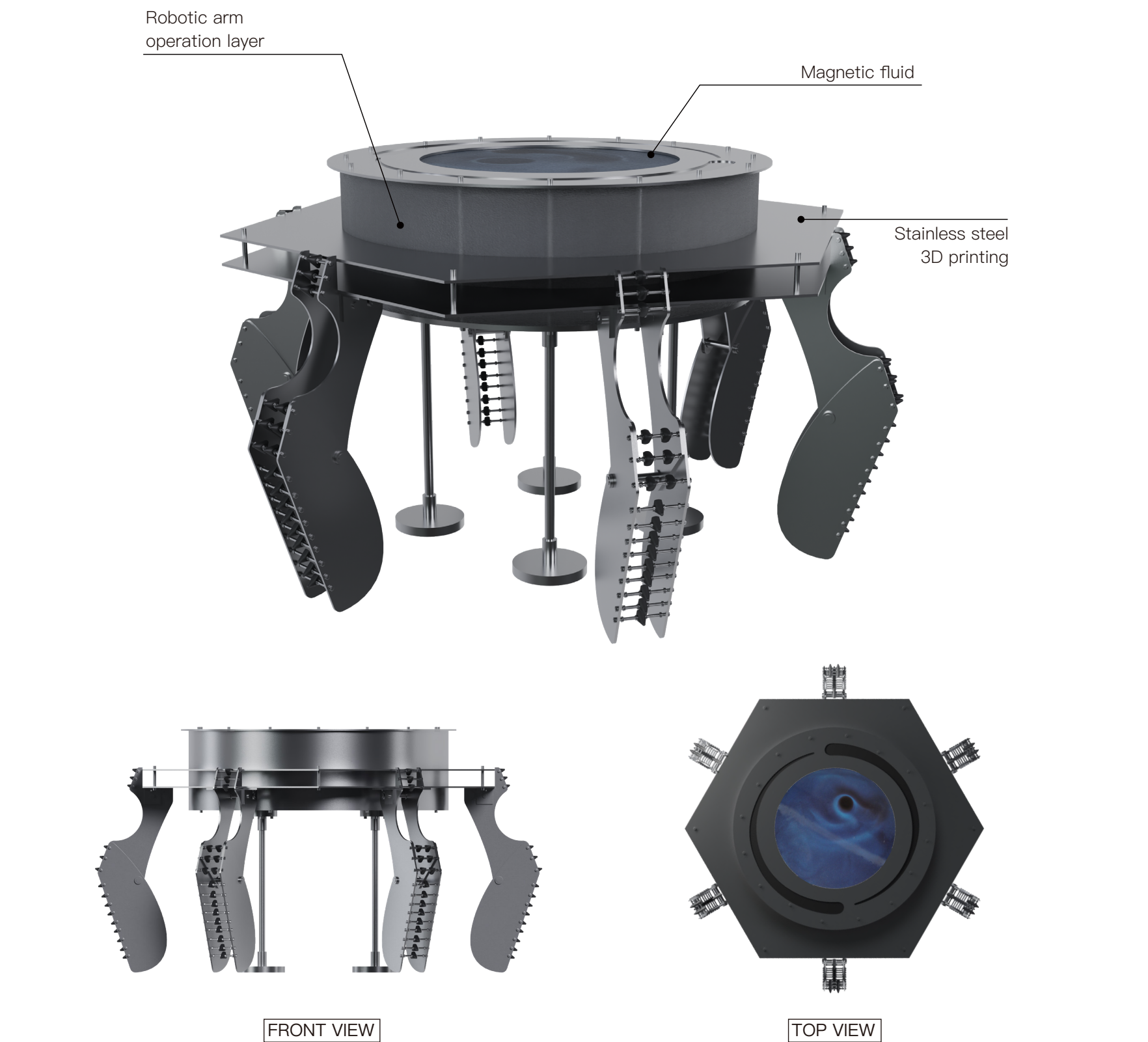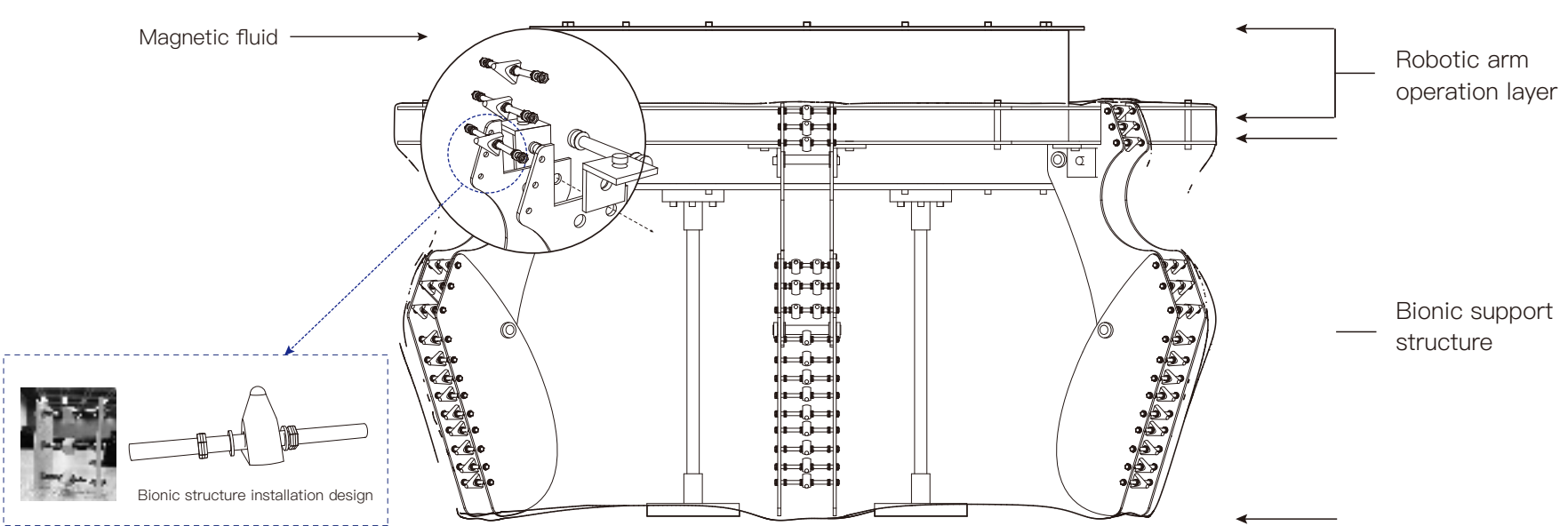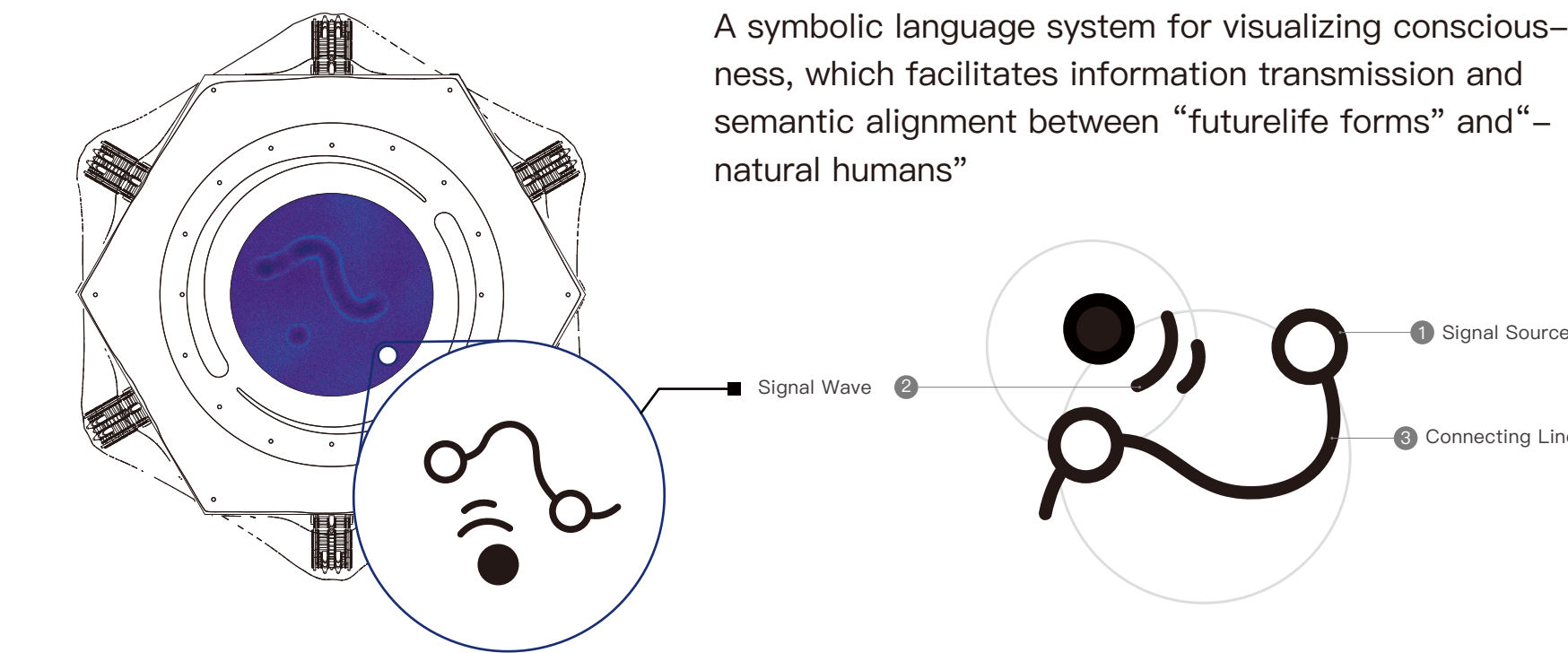

Speculative diagram

2 Conceptualization

The envisioned life form has no fixed physical appearance. To grant it a perceptible presence, the artist designed a communication portal and a symbolic language system through which the audience can engage in dialogue with it.
The portal takes the form of a biomimetic metallic structure resembling an artificial skeleton. On top sits a transparent container filled with a mixture of magnetic powder, medium–flow sand oil, and fine pigment particles. Within this fluid interface, the language symbols are materialized and visualized.
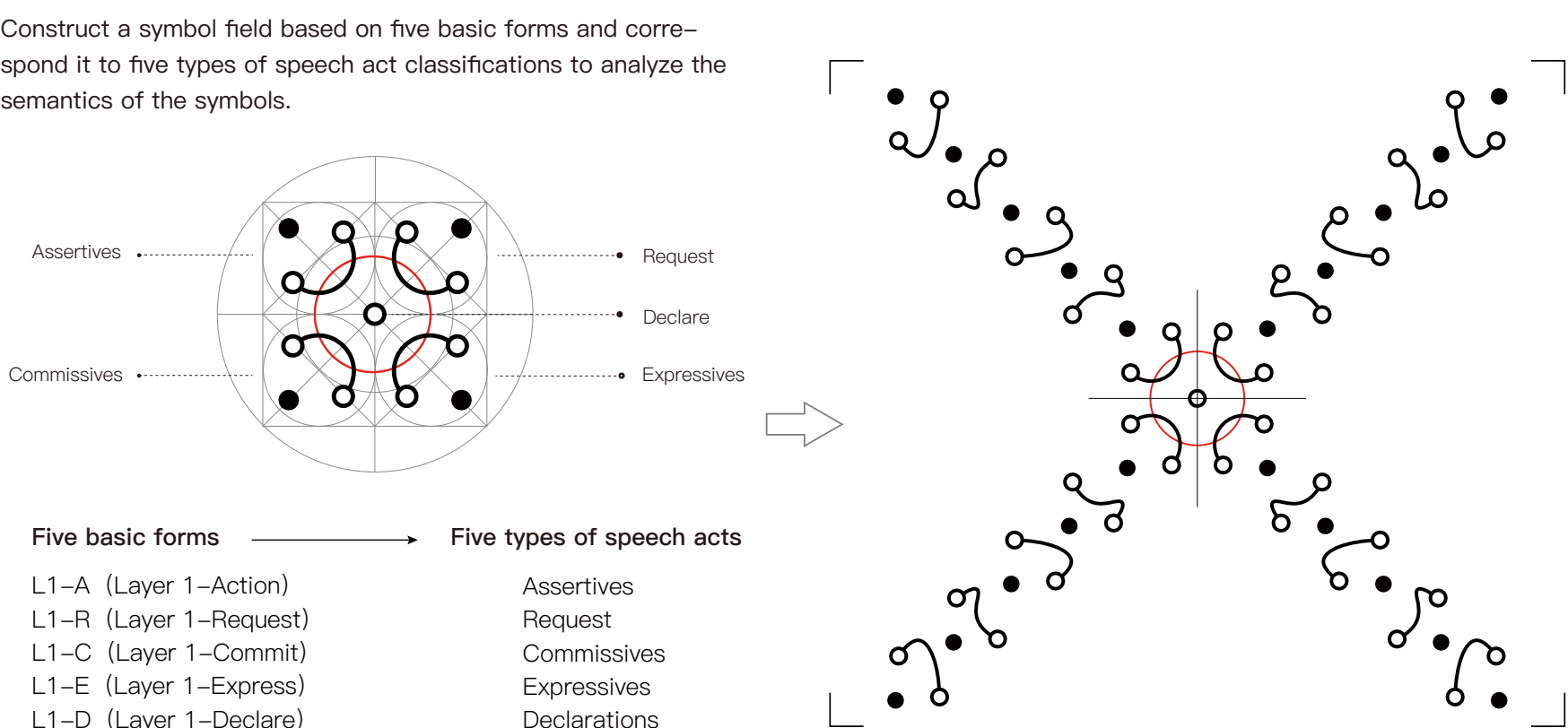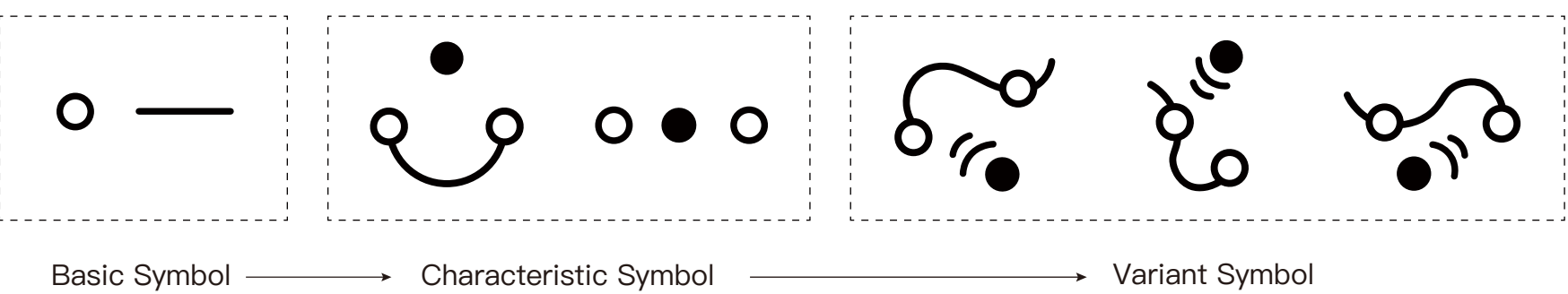
Installation structure

Magnetic fluid
Robotic arm operation layer
Bionic support structure
Bionic structure installation design

Robotic arm operation layer
Magnetic fluid
Stainless steel 3D printing

FRONT VIEW   TOP VIEW

3 Symbolic language system

A symbolic language system for visualizing consciousness, which facilitates information transmission and semantic alignment between "futurelife forms"–natural humans"

Signal Wave
Signal Source
Connecting Line

Structured Language Logic

Basic Symbol → Characteristic Symbol → Variant Symbol

Construct a symbol field based on five basic forms and correspond it to five types of speech act classifications to analyze the semantics of the symbols.

Assertives — Request — Declare — Expressives — Commissives

Five basic forms → **Five types of speech acts**
L1–A (Layer 1–Action)   Assertives
L1–R (Layer 1–Request)   Request
L1–C (Layer 1–Commit)   Commissives
L1–E (Layer 1–Express)   Expressives
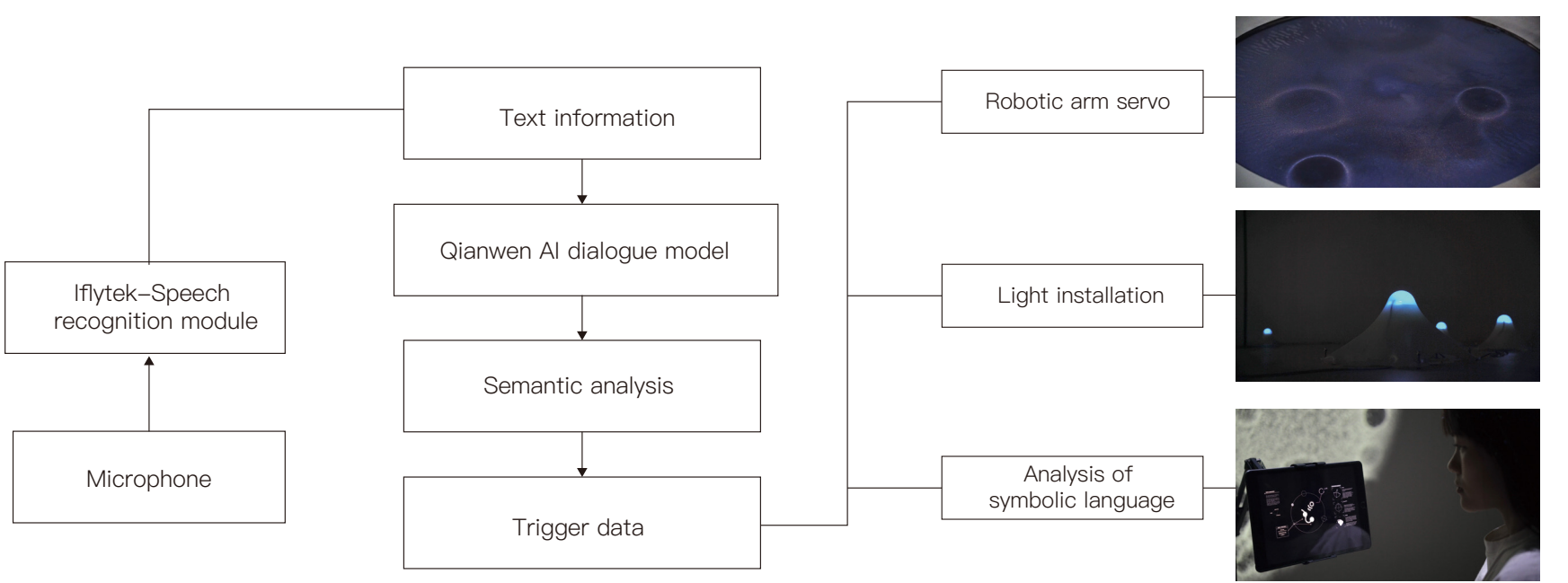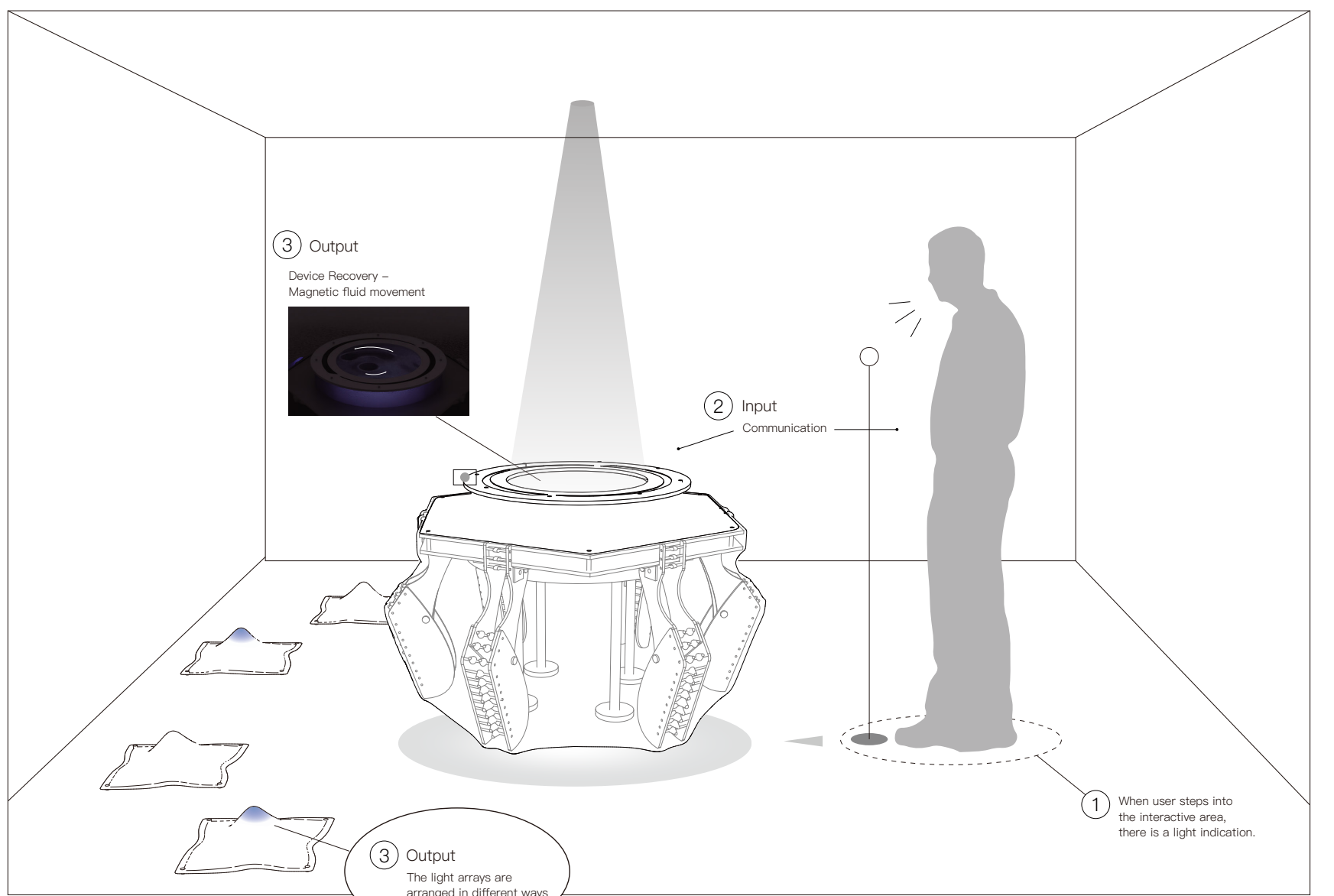L1–D (Layer 1–Declare)   Declarations

Symbolic meaning–information mapping

Mapping symbols to the information space corresponds to three information dimensions: semantics (feld), direction (polarity), and magnitude (intensity)
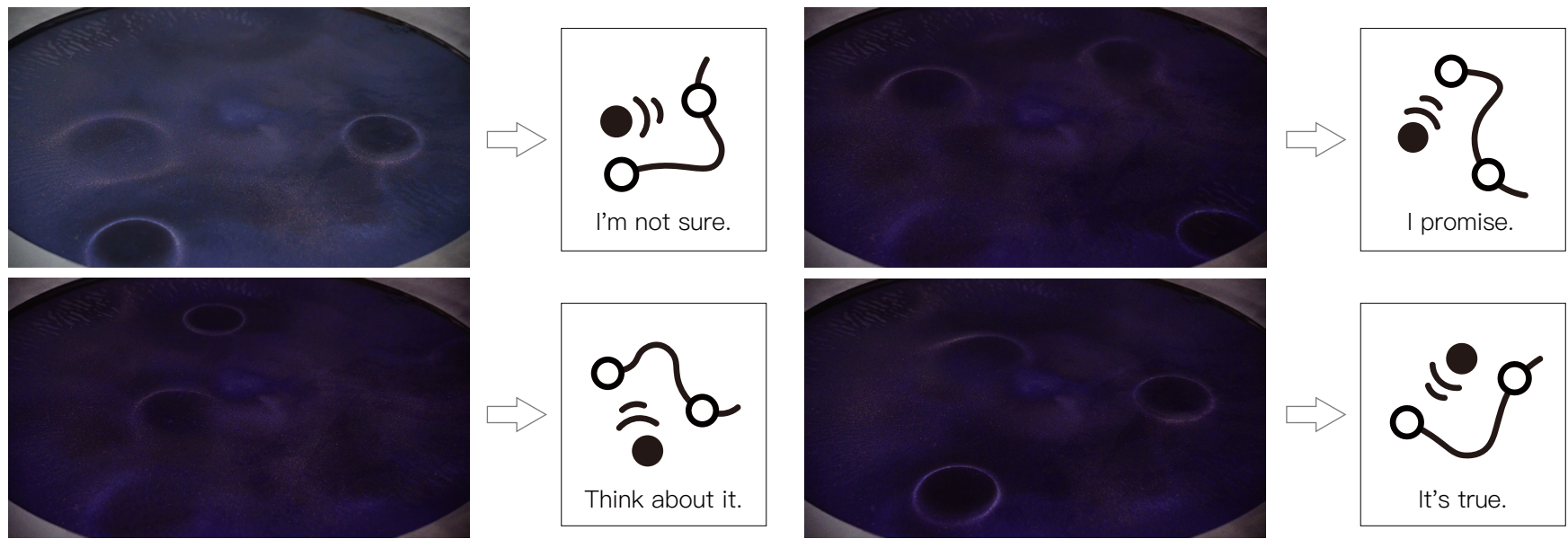
FIELD

POLARITY

FORCE
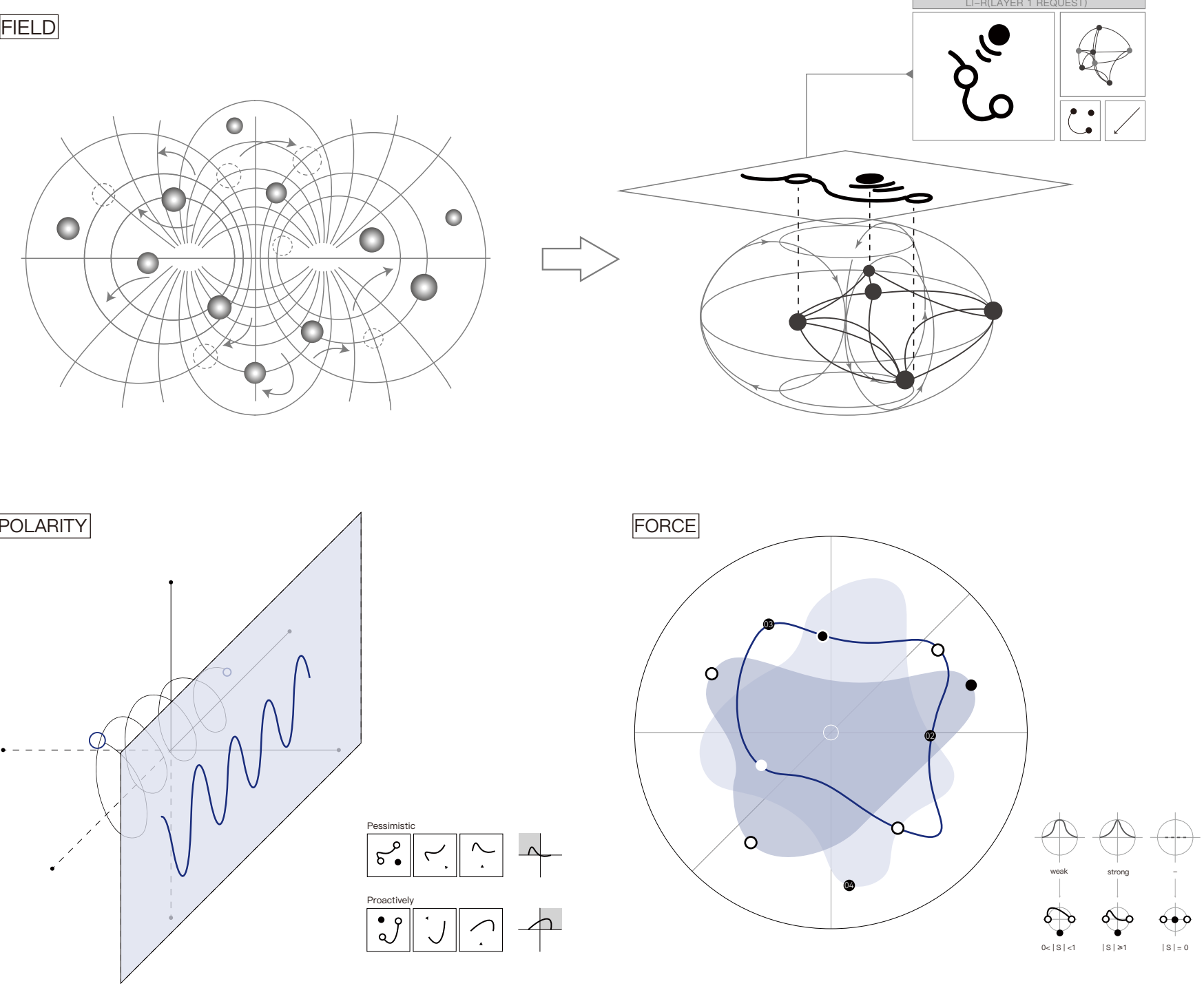
4 Interactive Experience System

Viewers communicate with the installation through a microphone interface. Their voice signals are processed via iFLYTEK speech–recognition and converted into text, which is then analyzed by an embedded Qianwen AI dialogue model. The trained AI performs semantic analysis on the viewer's input, extracting three parameters — speech act type, emotional polarity, and expression intensity.

③ Output
Device Recovery – Magnetic fluid movement
② Input Communication
① When user steps into the interactive area, there is a light indication.
③ Output — The light areas are arranged in different ways

Iflytek–Speech recognition module → Text information → Robotic arm servo
Microphone → Qianwen AI dialogue model → Light installation
Trigger data → Semantic analysis → Analysis of symbolic language

5 Magnetic fluid interface

These parameters are transmitted to an ESP32 microcontroller, which converts the graphical data into motion commands for the robotic arm. The arm drives a magnet positioned beneath the magnetic fluid, altering its displacement and angle. Through these movements, the magnetic particles within the fluid reorganize—forming diverse evolving patterns in real time.

I'm not sure.   I promise.
Think about it.   It's true.

6 UI Design