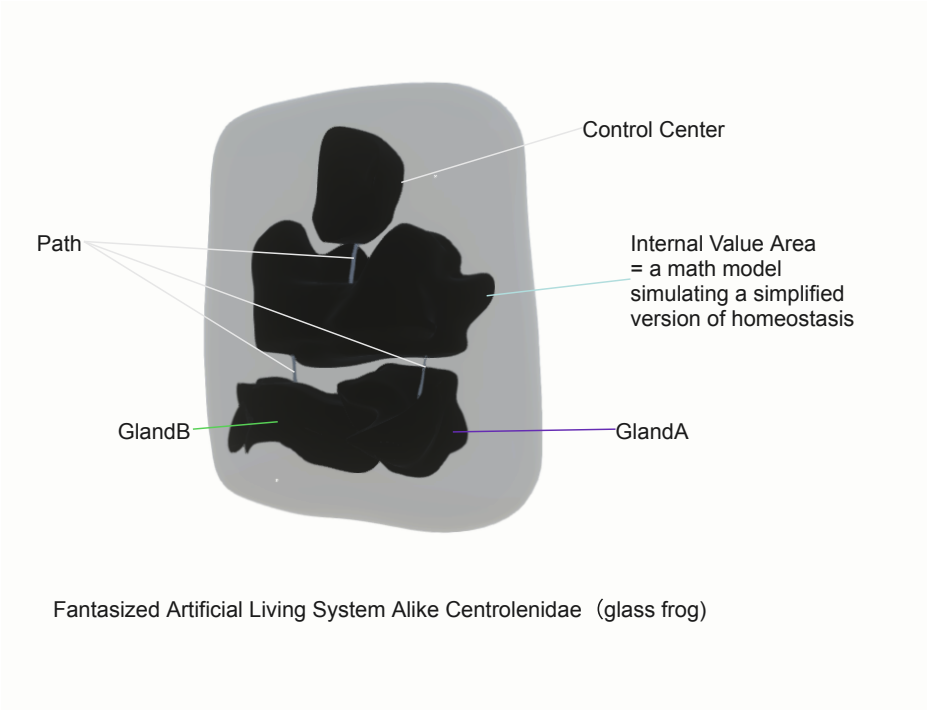
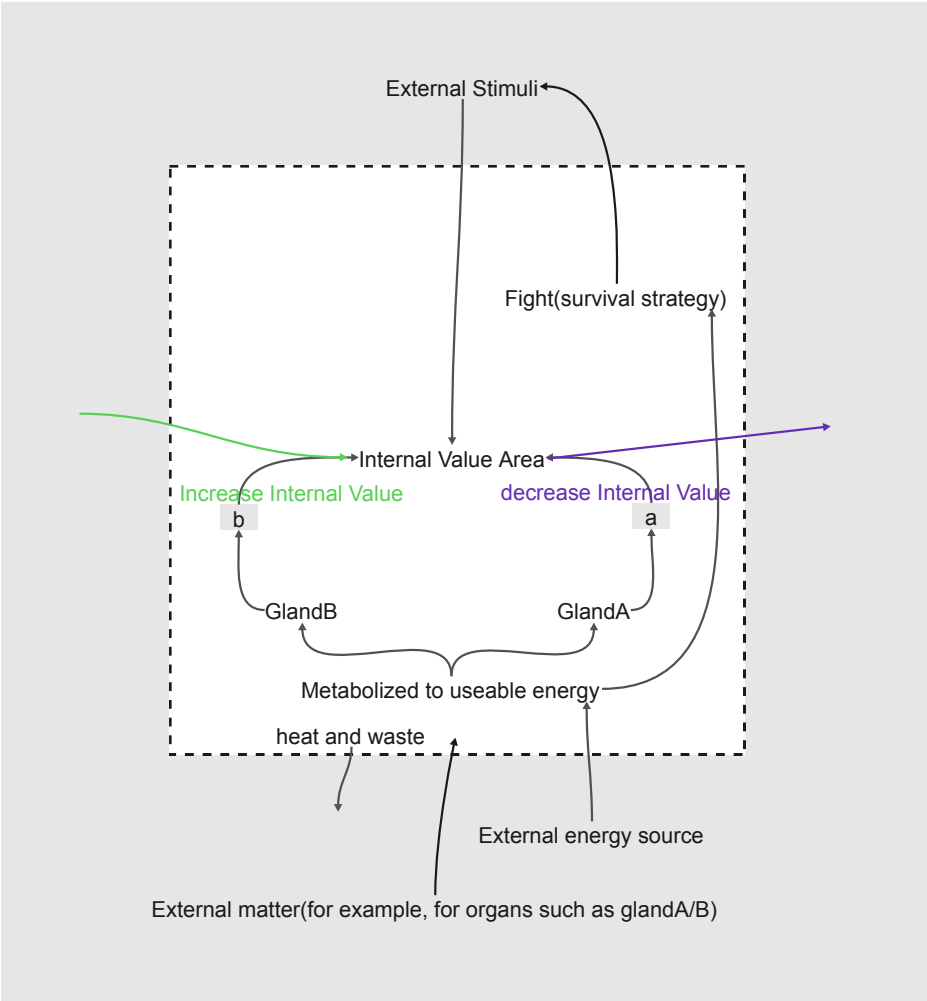


FALSAC Lives in an Environment

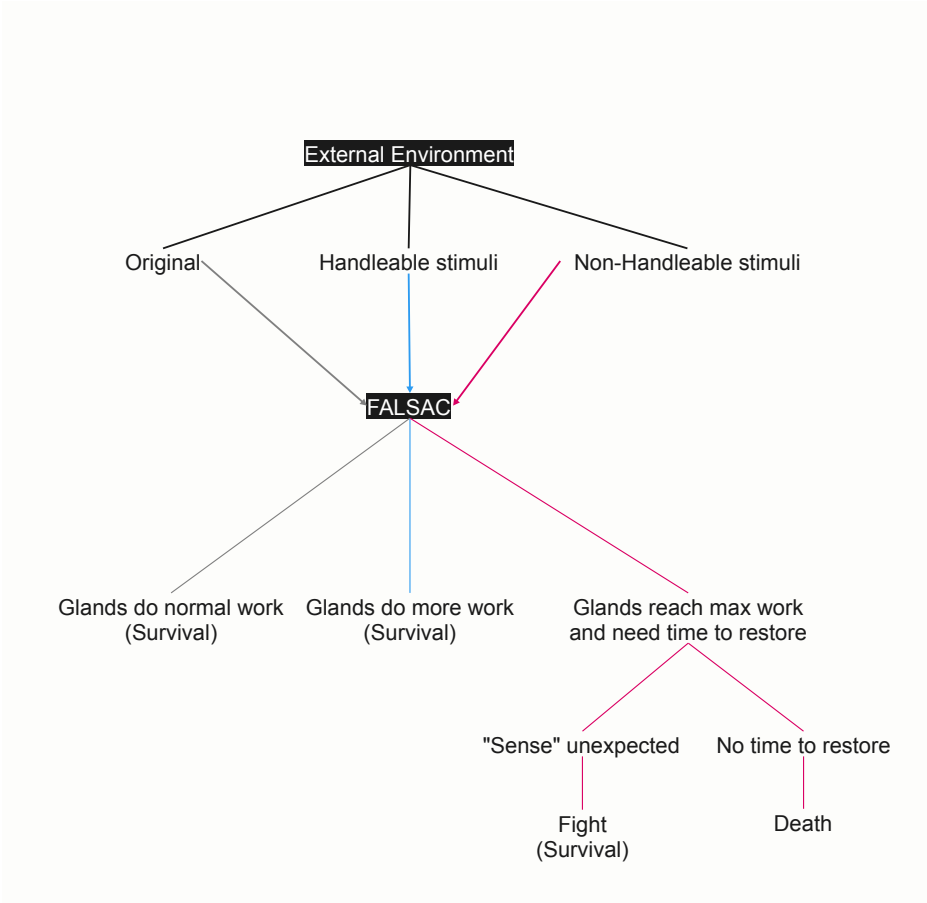
Tiange Hou



Concept envision



States summary



FALSAC's external environment is related to something random, which is the prerequisite for [handleable stimuli](#), meaning if the prerequisite has been met, handleable stimuli are present.



How do the glands work?

For example, GlandA:
GlandA's working rate increases as the internal value reaches several thresholds.
GlandA's working rate is always between its min and max value until FALSAC's death.
GlandA working at its max rate for too long results in its failure.
There is some randomness in this value.

Inspiration

For this research-based artwork, I was mainly inspired by two references. The first one is a scientific article titled "Life with Purpose: The Need for a Theory of Agency," published in Aron magazine in 2020. In this article, the author argues that "a genuine theory of agency might finally help to clarify what science can say about free will." The second reference is a story from Star Trek: The Next Generation Season 2, titled "The Measure of a Man." This episode focuses on the debate of whether an android could be considered a sentient being. This episode first aired in 1989.

Major biological inspiration

Homeostasis(negative feedback), glucose regulation(insulin resistance), fight/flight response, stress physiology, open system, randomness in nature.

What happened to FALSAC?

In terms of homeostasis, FALSAC's "life" is supported by its internal system. This system includes a control center, gland A, gland B, and paths between them. FALSAC, as a "living system," is also an open system, meaning that FALSAC could exchange matter and energy with FALSAC's external environment to live.

FALSAC "lives" in this environment. Originally, FALSAC's internal system does a normal amount of work.

Sometimes, certain external stimuli appear in this environment, affecting FALSAC's internal environment.

One kind of stimulus is handleable. When FALSAC's internal environment is affected by those stimuli and FALSAC senses this change in its internal environment, FALSAC starts to do more work supported by its internal system to maintain the relative constancy of its internal environment.

However, there will be times at which external stimuli are non-handleable. Non-handleable stimuli would lead to problems in FALSAC's internal system as it does too much work. Without a relatively stable internal environment over time, FALSAC is no longer "alive."

But this result could be preventable. Before non-handleable stimuli appear, if FALSAC has experienced enough times of handleable stimuli, FALSAC somehow gains the ability to sense that this is the presence of non-handleable stimuli before its internal system fails. In this case, FALSAC applies its built-in fight mechanism. Then, as FALSAC's internal system restores, FALSAC survives.

Agency

From the "Life with Purpose" article, agency is defined as: "first, an ability to produce different responses to identical (or equivalent) stimuli, and second, to select between them in a goal-directed way."

Based on this definition, if we only consider the original and handleable stimuli part in this framework, can we see agency in FALSAC? Or must we also consider the non-handleable-stimuli part to see agency? If yes, in addition to or instead of higher cognitive functions, could other strategies exist for an artificial living system to sense threats and fight to survive? Or even taking the whole framework together, is there still no agency in FALSAC?

This artwork is based on interdisciplinary research, starting from biology and incorporating philosophy, science fiction, robotics, and history.

The artwork does not aim to provide an answer about the nature of agency and life. Rather, it serves as my personal exploration, capturing moments of my interests that originated from a biological perspective, developed into interdisciplinary research, and culminated in a technology-aided simulation. Its goal is to raise awareness of a question that has lingered in the human mind from the past to the present and into the future. This artwork documents one way we can approach this question and the specific difficulties we might face. With more advanced technology, we will eventually need to confront this question when thinking about future human-AI relationships, as depicted in "The Measure of a Man."

[Research Reference](#)
[Project Website](#)
[Summary Video Text Version](#)