

Project Duration: December 2023 to November 2024

<https://youtu.be/Dd5zj4oEoZ4?si=LWSGkQdWUKcVxfDn>

NeoGenesis

After humanity's reckless destruction of nature, the world has turned into a wasteland. Scientists now seek answers in evolution, with biomimetic garments becoming humanity's last hope for survival in harsh environments.

Creator

Xiao Chen **Jia Hao Song** **Irene (character)**

Technical and Conceptual Development by **Xiao Chen**

Design and Styling by **Jia Hao Song**

Evolutionary Design

Future Fashion

Virtual Reality

Survival Wear

Interactive Brain-Computer Interface

Interactive Simulation

Softwares used



Background

Climate change and human activity have accelerated land degradation, threatening resources and living conditions in many regions.



In sub-Saharan Africa, desertification is spreading, leading to increased poverty and a significant decline in the ability of residents to withstand natural disasters.

Desertification is both a challenge to natural ecosystems and a potential survival issue for humanity's future, sparking my reflection on **human adaptation and survival in extreme environments**.

Nature's adaptability in extreme environments like deserts sparked my interest in biomimicry's feasibility in such settings.



The Namib Desert Beetle's Back Structure for Water Collection



Cactus' Needle-like Leaves to Reduce Water Evaporation



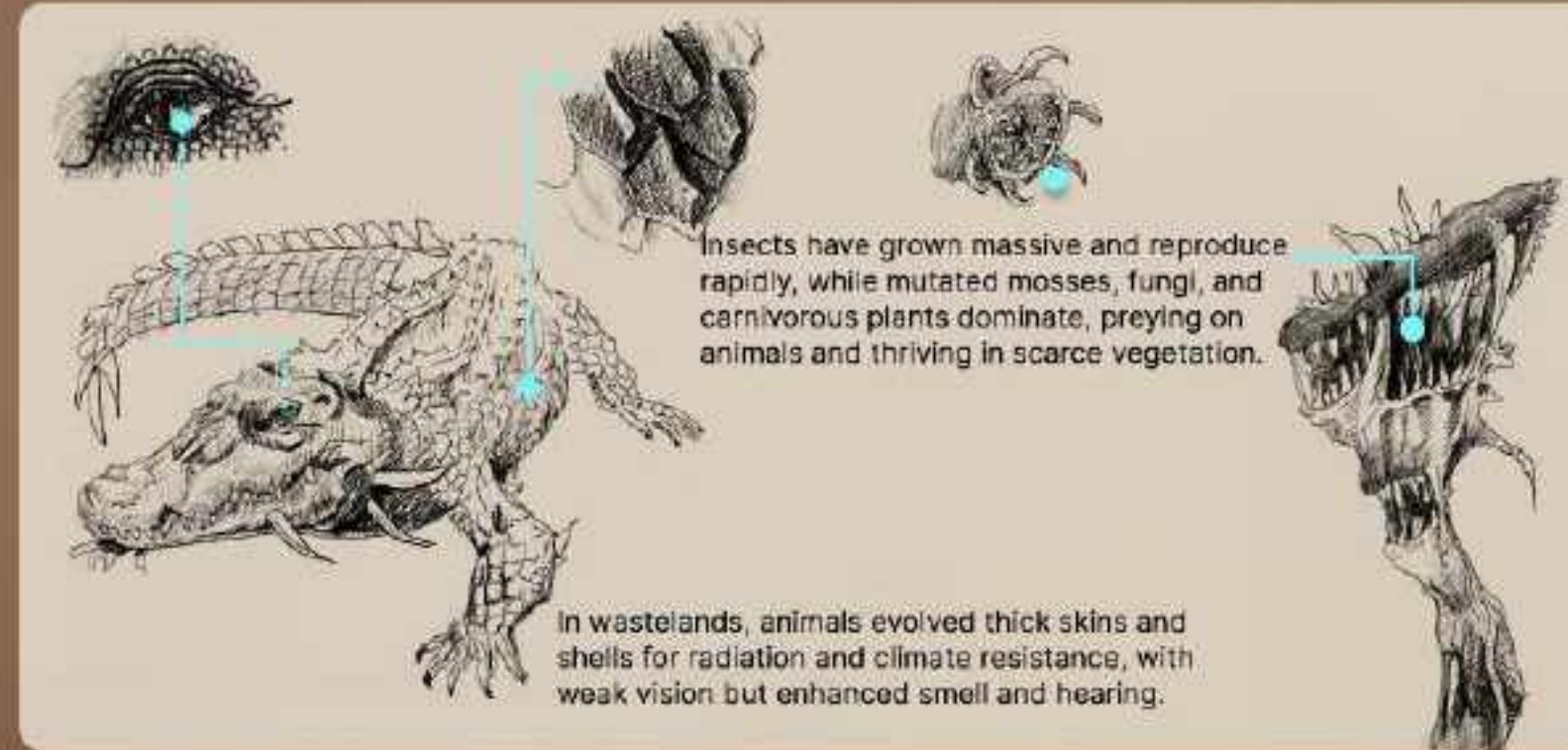
The unique structure of the Arctic fox's fur provides effective insulation

I attempt to construct such a **worldview** to simulate the unknown dangers humanity faces.

Worldview Design

By 2080, overexploitation of ecosystems has led humanity into crisis...

- Most cities are powerless, populations have dwindled, and humanity migrates in search of remaining survivors.
- Deserts have covered the majority of the Earth's surface.
- Mutated species resulting from various forms of pollution.



Protagonist design



Irene

Profession : Ecologist

age:28

Irene studied **plant and animal adaptation** during early desertification. Though not a migration leader, her insights shaped **humanity's journey**.

"We thought we controlled everything, but we forgot that true wisdom comes from nature."

Research

Irene believes humanity must reflect on its treatment of nature to redefine the **human-nature** relationship and correct current issues.

1.The relationship between humans and nature.

■ Anti-anthropocentrism

Anthropocentrism is the belief that humans are the central or most important entities in the universe, placing human values above those of other species or nature.



■ The Fragility of Humanity



- Imbalance between spirit and matter
- Fragility of environment and ecosystems
- Degradation of morality and ethics
- Conflict between technology and spirituality
- Reincarnation and the cycle of rebirth

Irene believes humanity is **an organic part of nature** and should **respect it**. **Historical migrations** due to climate and extreme conditions serve as a reminder

2.Migration under extreme conditions in history



Irene drew on **historical experiences** and attempted to study **biomimicry** from multiple perspectives.

3. Biomimicry Research

Structural Biomimicry



Biomimicry of biological structures involves imitating the physical designs found in nature to optimize human-made systems.

Example:
Honeycomb Structure

Functional Biomimicry

Biomimicry of Biological Functions focuses on learning and replicating the unique capabilities of organisms to address technical challenges.

Example:
Gecko's Adhesive Ability



Mechanism Biomimicry



This area studies the dynamic processes of living organisms and applies them to technological development.

Example:
Electric Eel's Power Generation

Irene regrets past human arrogance but is inspired by nature's resilience to design survival-oriented bionic clothing.

Concept

The project envisions a future world where humanity, due to its destruction of nature and the environment, is forced to embark on a journey of migration. Along the way, they face numerous crises, including harsh natural environments and mutated plants and animals caused by pollution. However, the protagonist Irene's designs, research, and reflections lead the migrating humans to begin questioning their mistakes.

- Irene, through biomimicry research, explores how humans can form new collaborative relationships with nature in extreme and harsh circumstances.
- Irene extracts survival wisdom from nature and integrates it into clothing design to protect humans during their migration.

Time: 2080

Scene: Wasteland Desert

Character: Irene and traveler

Enemy: Monster, etc

Design

Irene believes that people will face attacks from many unknown creatures during migration, so she wants the specially designed clothing to protect people's safety and intimidate any attacking creatures.



Octopus Central control of neural circuits

When the EEG device built into the helmet detects signals of extreme life-threatening stress from the wearer, it activates all subsequent protocols.



Porcupine Defensive Organ

Scales quickly raise to protect vital abdominal organs.



Large-Eared Sand Lizard Defensive organ

Extend the shoulder-mounted mechanical arms as a warning measure.



Poison Dart Frog

Warning color

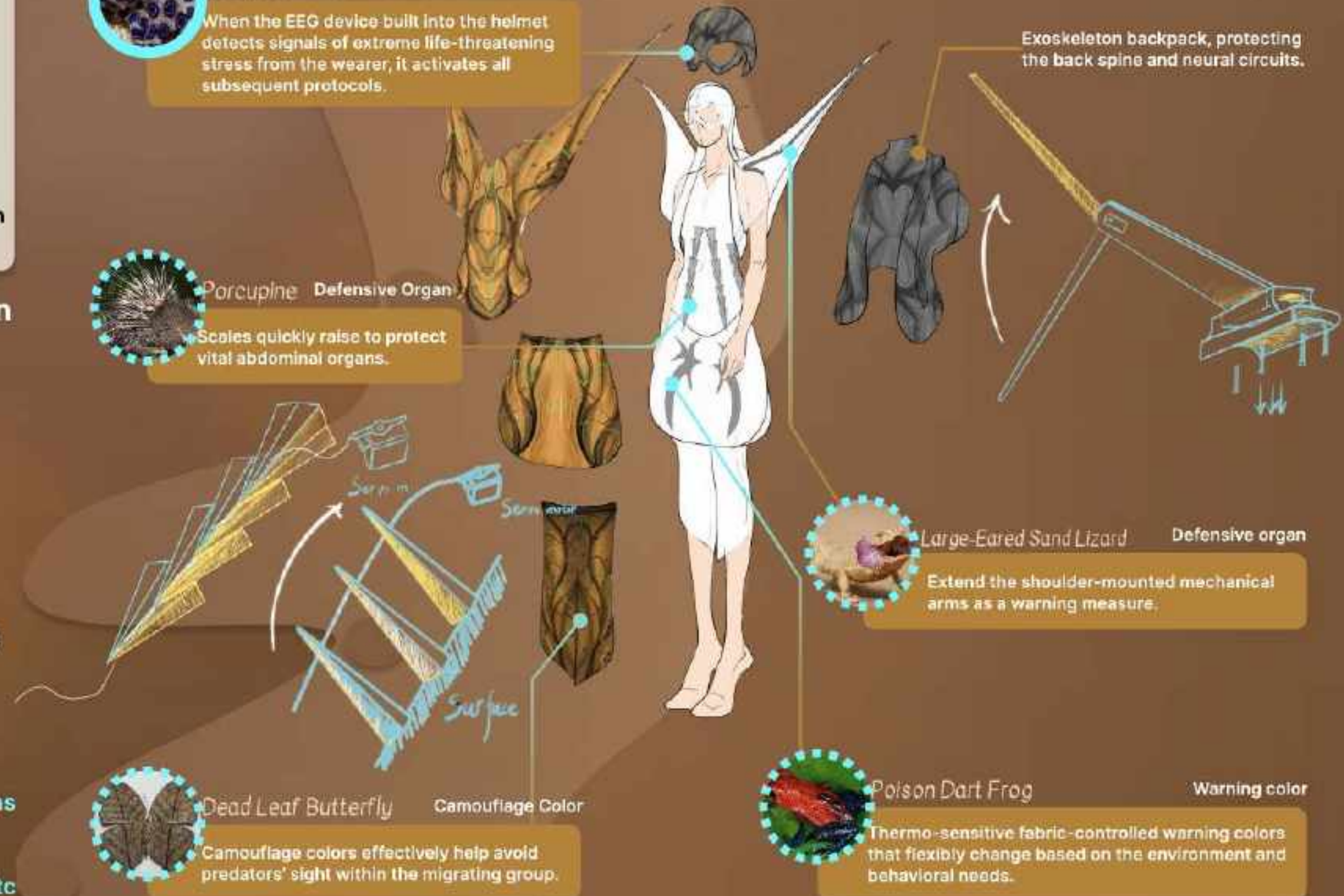
Thermo-sensitive fabric-controlled warning colors that flexibly change based on the environment and behavioral needs.



Dead Leaf Butterfly

Camouflage Color

Camouflage colors effectively help avoid predators' sight within the migrating group.



Coding

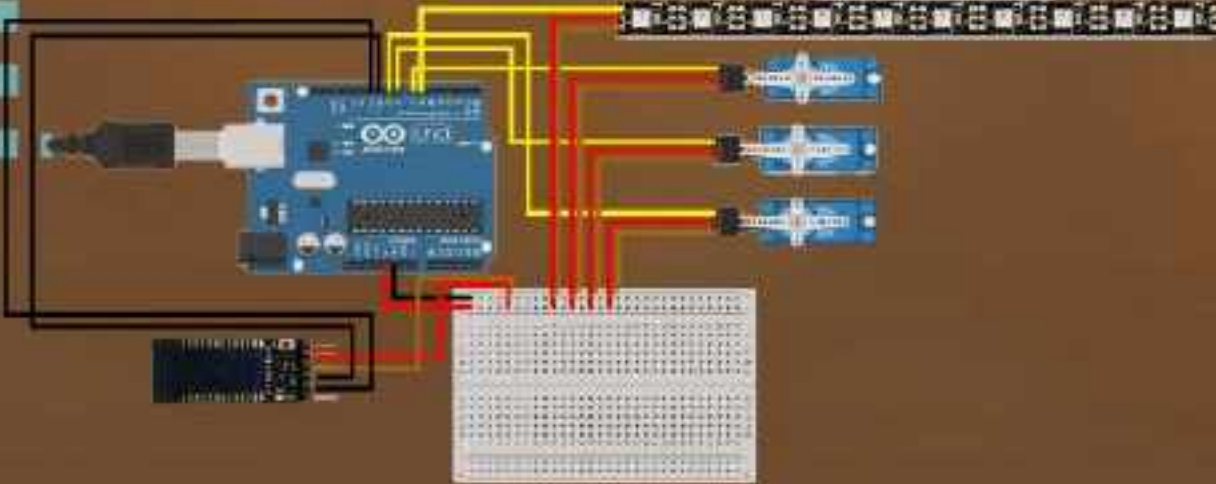


Using the **Neurosky Mindwave** device to collect brainwave meditation data



Detect brainwaves when a person is **tense** ;
When the **beta wave** increases rapidly

Activate subsequent circuits



(Outputs: 3 servos, WS2812B LED strip, Arduino heating module)

Processing the obtained brainwave data in **Arduino**

Animation

Irene, in order to test the most realistic environment, collected data on the most difficult mutated creature, **the Mutant Arachnis**, faced by the migration group, and used **Blender** and **Unreal Engine** technology to simulate it.



Mutant Arachnis



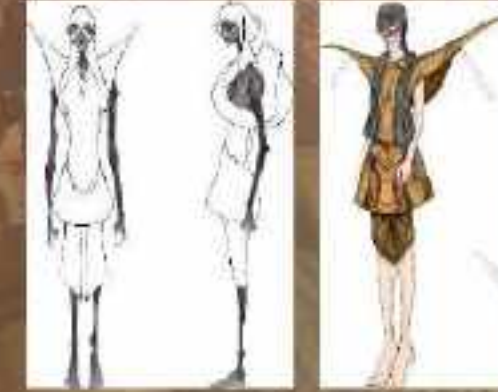
The **Mutant Arachnis** is a 2-meter tall, 4-5 meter long desert creature with four legs and a moisture-retaining mucus surface. It **hunts at all times**, preying on smaller creatures, **including humans**.

Wasteland Desert Environment Simulation



3D Model

Sketch



Rigging



Modeling



Rendering



Production EEG Helmet



Shoulder of Robotic Arm



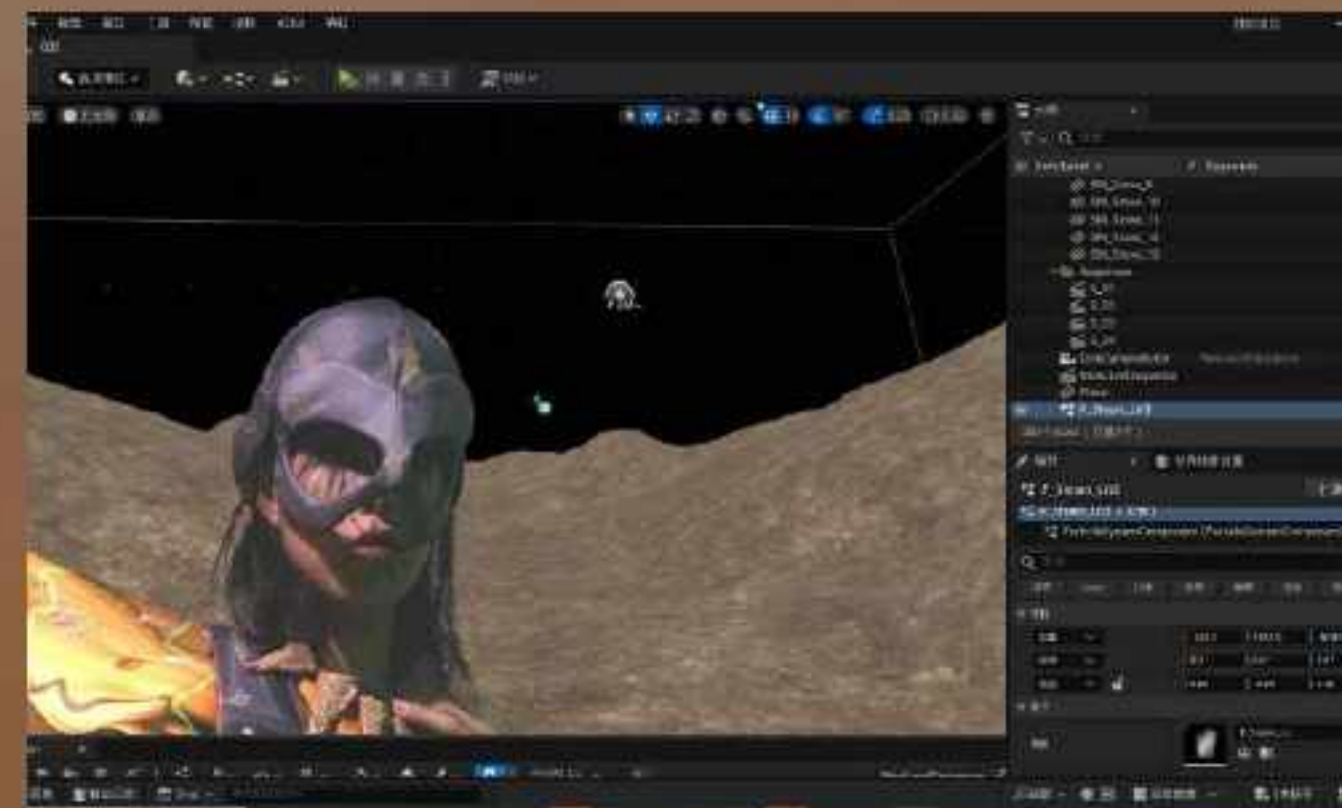
Defensive Mechanical Scales



Ready-to-wear and Prototypes



Virtual Production



Outcome

