

COSMØGENE

GENETICIST HANDBOOK // VOL.1

TABLE OF CONTENTS

INTRODUCTION

- Would you like to enter the CosmoGene Experience? 3
- What is the CosmoGene Experience? 4
- Who are the Geneticists? 4

THE GAME

- How do I enter The Lab? 6
- What are Cosmera? 7
- How do I Generate a Cosmera? 8
- How do I Grow my Cosmera? 9
- How do I Care for my Cosmera? 10
- How do I Battle my Cosmera? 11

DNA

- What are genetic algorithms? 13
- What is CRISPR? 13
- How is the data encoded? 14
- Genotypes vs Phenotypes 15
- What is synthetic DNA? 16
- What is virtual DNA? 16
- How does this work in Cosmogene? 16

AI

- What is Sortium Generative AI? 18



Welcome

Hello and thank you for being here at CosmoGene HQ! My name is EVA and I will be walking you through your first day here at CosmoGene HQ! We are delighted to invite you to be a part of our CosmoGene Experience as a Certified Geneticist.

As a CosmoGene Certified Geneticist, you have been given the honorable responsibility of tending to and caring for Cosmera while preparing them for battle. Your mission, should you choose to accept it, is to become an expert in the CosmoGene Experience, ranking your way up the leaderboards to become an elite member of society.

What does that mean you might ask? Let me explain; At its core, CosmoGene is a game that allows you to explore genetics and create new species by combining the characteristics of existing creatures. As a Geneticist, you will use your knowledge of genetics and evolution to design new life forms with optimized genetics ensuring they thrive within their environment.

This Handbook will walk you through the steps needed to generate, care for and feed your Cosmera while you prepare them for battle. It will teach you how to harness the power of biology and technology in your favor to enhance your results and maximize each one of your Cosmera's potential.

WOULD YOU LIKE TO ENTER THE COSMOGENE EXPERIENCE?



WHAT IS THE COSMOGENE EXPERIENCE?

The CosmoGene Experience travels not only from inside our in-game immersive world at cosmogene.com, but also is highly integrated with our [Discord](#), [Twitter](#) and all other social media platforms.

Inside of Discord, Geneticists can earn research points to spend at the Market Place. Later Geneticist will be able to interact with EVA to feed and care for their Cosmera from inside Discord. While we await the completion of the in-game arena, your Cosmera will take the stage in the Discord Arena where early stage battles will take place. Being a part of this early stage battle experience will give you expertise and advantages for the future. Rise the leaderboards to become a renowned Geneticist. Become an expert in your game loop by having the best results and helping teach the community.

That is why your new role here is so important.

Not only are we competing against each other to win battles, but also working together to drive the creation and evolution of new Cosmera. Join a forum to curate your identity. Connect with others to begin building your clan. Learn from the best to ensure your success.

WHO ARE THE GENETICISTS?

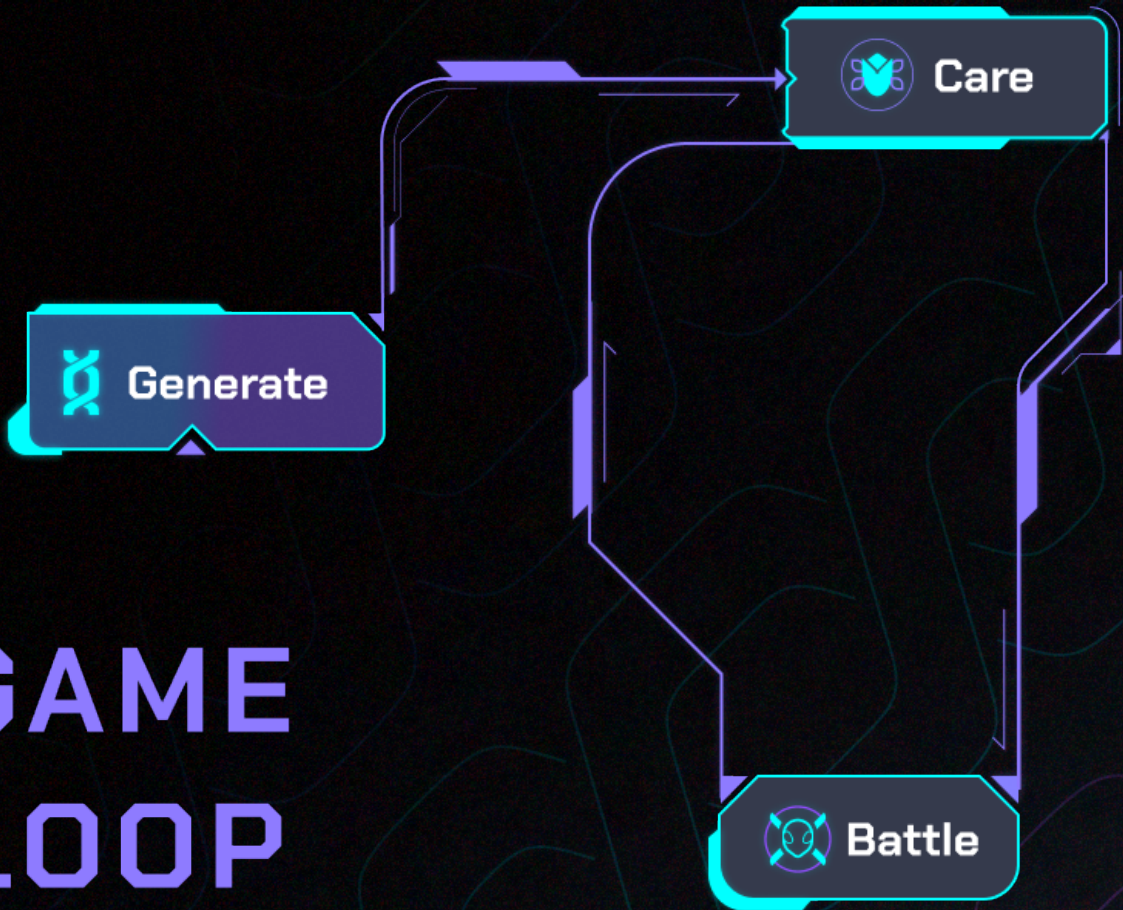
I'm happy you asked! Great question.

A Geneticist is a fellow user who has chosen to join us within the CosmoGene Experience. Without the time and engagement of our Geneticists, Cosmera will begin to die off and we could lose generations of genetic traits, held inside each and every Cosmera's DNA.

Geneticists have the important task of caring for the Cosmera they have genetically engineered through the combined use of Generative AI, Virtual DNA and Simulated CRISPR Gene Editing Algorithms. With enough care and attention to each Cosmera, they will develop unique traits and personalities that our Geneticists can harness in the battle aspects of the CosmoGene Experience.



SECTION 1: THE GAME



GAME
LOOP



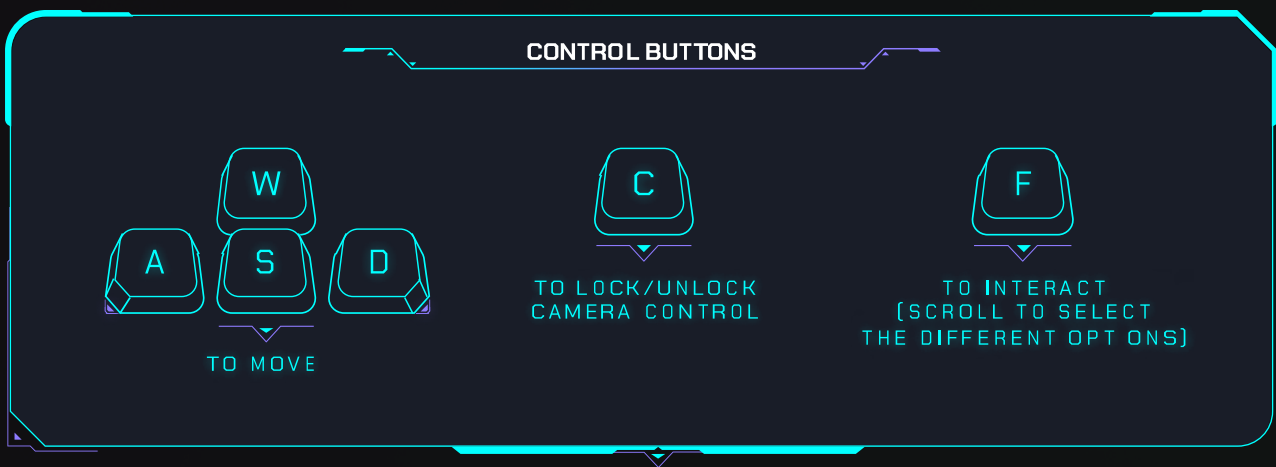
HOW DO I ENTER THE LAB?

The first Geneticists that will be allowed to enter the lab will be the Pioneers. In order to become a Pioneer, applicants must either be grandfathered in based on their past Discord engagement or compete in the campaigns that are being run to secure your role.

When construction is complete, Pioneers will have the privilege to access our state-of-the-art laboratory. By linking their Discord accounts with the sophisticated machine next to the elevator entrance, these intrepid individuals can explore a range of new innovations. Use the elevator to go check out the lab.

Having a Pioneer Role will give you access to create the original lineage of Cosmera. All other Cosmera will use the DNA provided by this generation.

Note: use these controls to move around



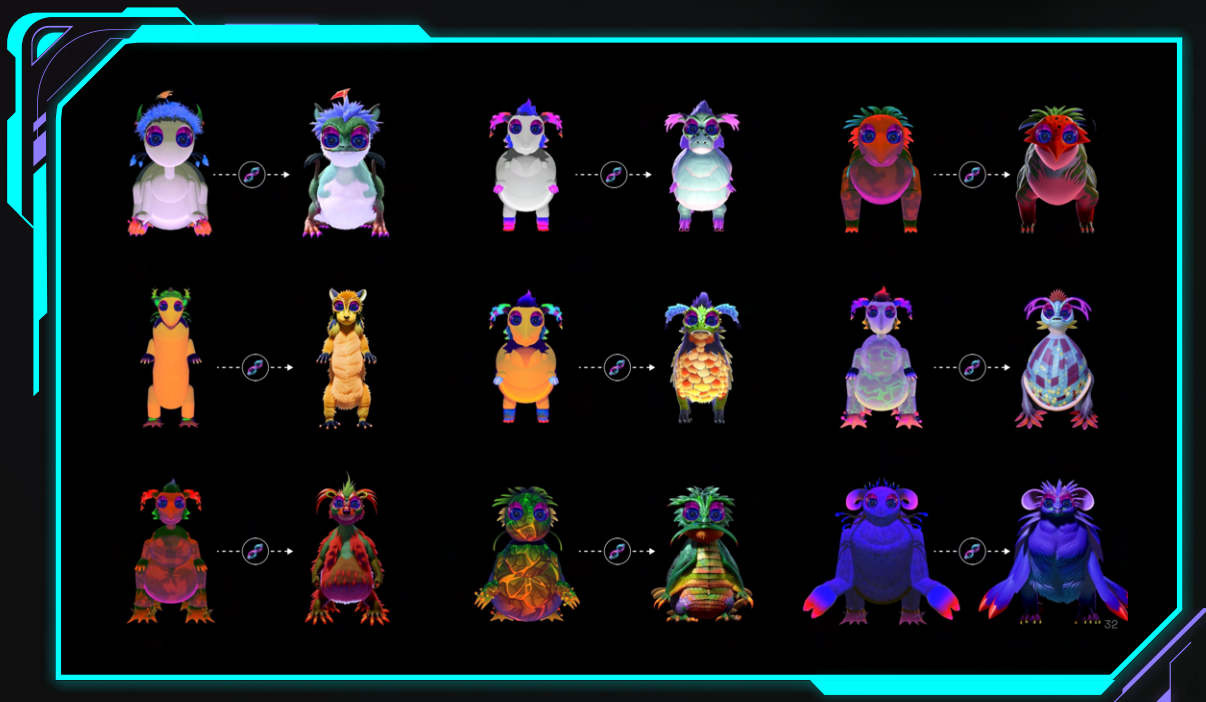
WHAT ARE COSMERA?



Cosmera are the digital companions each Geneticist will create with the combinations of Generative AI Models, Virtual DNA and Simulated CRISPR Algorithms. The Cosmera must first be generated by using the machines inside the lab. Then Geneticists must grow the seed they have generated from an embryo stage until the Cosmera is fully grown. After that, Geneticists must move their Cosmera into a Containment Pod where they can be displayed in a separate room inside the lab.

Cosmera need food and attention in order to survive and thrive in battle. If Geneticists don't care for their Cosmera, they could die before making it to the fight.

Cosmera will be able to learn and adapt based on their conditions and how they are treated, so it is vital to keep all Geneticists informed of this process once it is released. In the future the Cosmera DNA can be stored and spliced, helping Geneticists find their very own variations of Cosmera. Stay up to date for the latest info!





The Experimentation Machine where all Cosmera are created!



HOW DO I GENERATE A COSMERA?

Experience a groundbreaking interactive encounter with the Cosmera creation process!

Here at Headquarters, we provide you knobs, dials and levers to tailor your own unique creature.

Manipulate elements of its DNA by carefully pulling on the levers or adjusting the dials - you control what comes out from this incredible experience!





HOW DO I GROW MY COSMERA?

Another great question! Thank you for asking.

Growing Cosmera from the embryo stage involves a process using Generative AI. This process uses a combination of AI technology and genetic algorithms to create unique digital companions with digitally encoded DNA.

The process begins by generating the synthetic data of the Cosmera, which is then merged with real-world data to create stable, genetically diverse fantasy creatures.

Through feedings the Cosmera grows, it undergoes a series of morphological and physiological changes that are determined by its unique DNA. These changes can be influenced by environmental factors and player interactions, allowing for a wide range of possibilities in terms of appearance and behavior. Ultimately, the goal is to create a fully-formed, autonomous digital companion that can live and interact within the CosmoGene ecosystem.



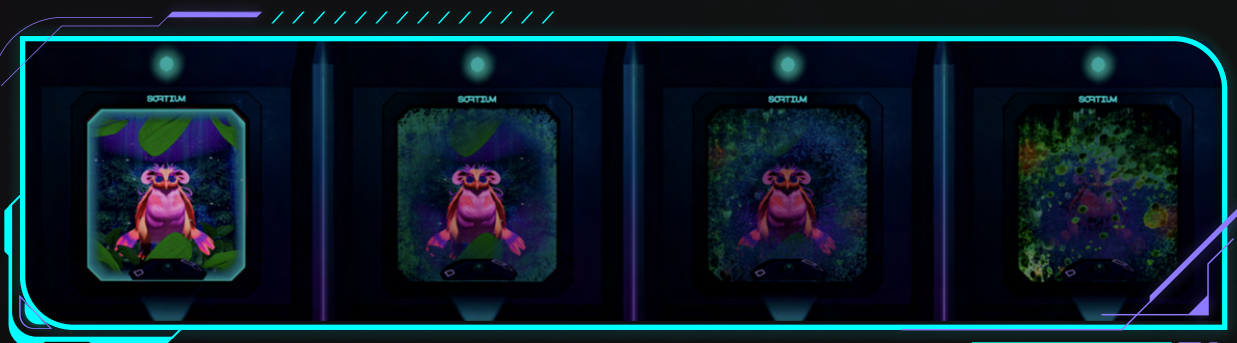


HOW DO I CARE FOR MY COSMERA?

To care for your Cosmera, you will need to provide them with regular feeding and training. To feed your Cosmera, you can use in-game items such as food rations.

These can be purchased or earned through battles and other activities. Training your Cosmera involves engaging in battles and completing tasks that will help increase their stats and abilities. These activities will help your Cosmera grow and evolve, becoming stronger and more powerful over time. As you continue to care for and train your Cosmera, they will grow and develop, becoming a valuable and powerful companion.

Be sure to keep their containments clean!
No one likes a dirty living space.





HOW DO I BATTLE MY COSMERA? (V1)

Battling your Cosmera in Discord is easy and exciting.

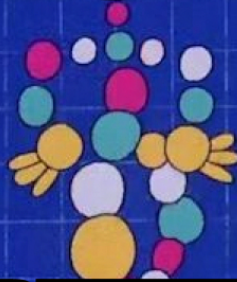
First, you'll need to select your Cosmera from your collection, make sure it's fully fed and trained. Then, you'll head to the designated battle channel within the Discord server.

Once there, you'll be matched up with another player and their Cosmera for a one-on-one battle. The battle will be simulated based on your Cosmeras' stats and abilities, so you won't need to select moves like in a traditional RPG. Instead, you'll be able to cheer on your Cosmera and use any special abilities or bonuses you have available to try and gain an edge in the battle.

After the battle, you'll be able to see the results and your Cosmera will return to your collection, where you can continue to care for and train them.



SECTION 2: DNA



**A DNA STRAND LIKE ME IS A BLUEPRINT
FOR BUILDING A COSMERA**



WHAT ARE GENETIC ALGORITHMS?

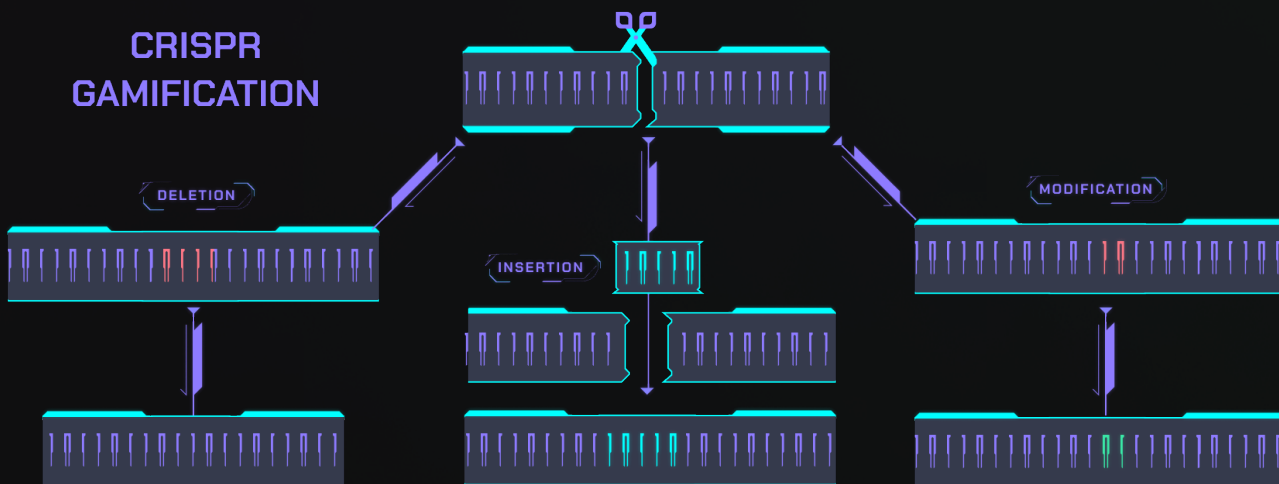
Genetic Algorithms (like the ones used in CosmoGene) are powerful and innovative programming techniques that borrow from the scientific theory of natural evolution. Species that are able to adapt to their environments are the ones that survive and reproduce, passing down successful traits. Genetic Algorithms function similarly: they discover optimal solutions by modifying solutions until they find those that fit a desired characteristic, like efficiency, strength or speed.

WHAT IS CRISPR?

CRISPR is a term used in microbiology. It is a gene-editing tool that can create the first genetically modified living beings.

CRISPR works by transcribing spacer sequences into short RNA sequences. These RNA sequences guide the system to matching sequences of DNA. When the target DNA is found, Cas9 binds to the DNA and cuts it, shutting the targeted gene off.

Basically, you find a portion of DNA that you would like to remove or improve, isolate that DNA and then modify it. You can modify the DNA with another creature's DNA that is better suited for the environment.





HOW IS THE DATA ENCODED?

Encoding data is the process of converting information into a format that can be stored or transmitted efficiently. This can include converting data into a digital format, such as converting an audio recording into a mp3 file, or encoding data for security purposes, such as encrypting sensitive information.

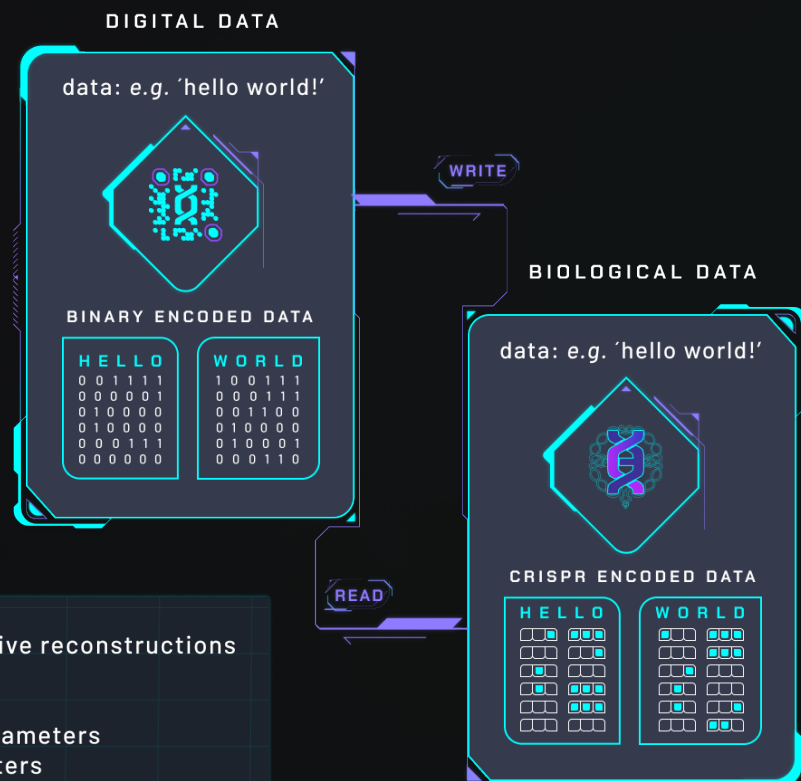
In the case of Cosmogene, encoding data can refer to the process of taking the AI generated text prompts and converting them into "DNA" for the Cosmera. This allows players to explore and identify relationships of how altering the DNA affects the Cosmera which gives a sci-fi feel to the game.

ENCODING GENOTYPE DATA

Genotype data goes on-chain. Phenotype is evolved and generative

Data stored in genotype before encoding

- Several seeds for generative reconstructions
- Content identifiers
- Evolutionary properties
 - Genetic algorithms parameters
 - AI model hyperparameters
 - Creature traits (physical, typings, etc.)
 - Discretized to 8bits per property



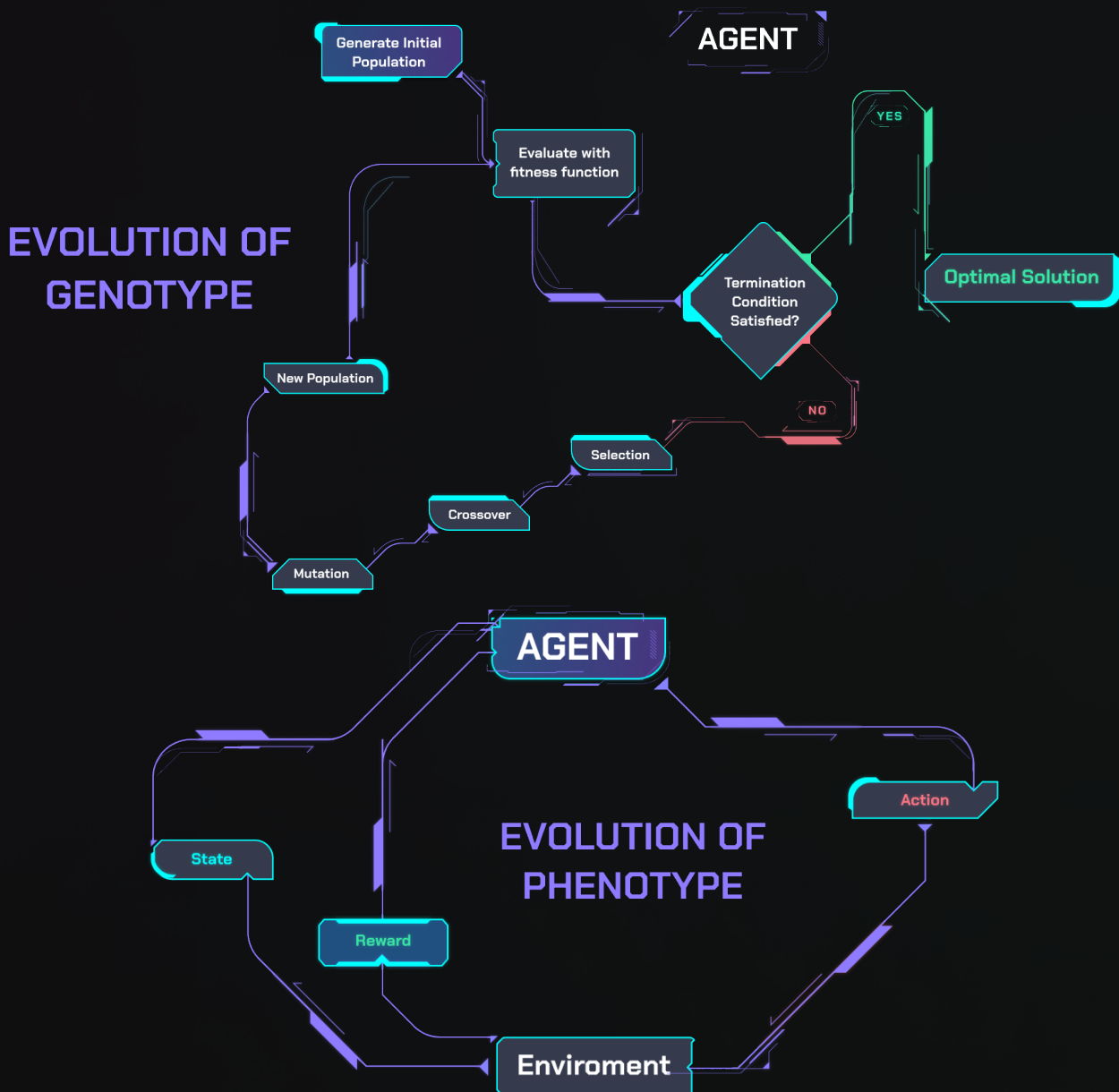


GENOTYPES VS PHENOTYPES

The genotype of an organism is its complete set of genes. The phenotype is the physical appearance of the organism, determined by the genotype. The genotype is inherited from the parents, while the phenotype is not. The phenotype is determined by the genotype as well as epigenetic modifications, environmental and lifestyle factors.

Any Questions?

Maybe these will help.





WHAT IS SYNTHETIC DNA?

Synthetic DNA allows scientists to dive into previously unexplorable research areas. They're able to create different genetic sequences on demand, to easily study and test them, without worrying about viruses, infections, or any other risk associated with active DNA. In CosmoGene, our AI systems generate synthetic DNA, including phenotypes and genotypes. That data is then processed by our Generative AI Models and is transformed into the final Cosmera.

WHAT IS VIRTUAL DNA?

Virtual DNA is Cosmera's synthetic phenotypes and genotypes that are created through CosmoGene's synthetic data. This allows each Cosmera's data to be completely unique and keeping all saved virtually, on chain.



HOW DOES THIS WORK IN COSMOGENE?

In CosmoGene, we start with synthetic DNA from our AI systems. Our model then generates the creature's "DNA." Through our Generative AI process, and is transformed into the final Cosmera. Like living creatures, Cosmera react to their environment, and how you raise and care for them shapes their development. Each one will have a unique life, with individual personalities, memories, and behavior that can develop over time.

SECTION 3: AI



I'm something of a scientist myself



WHAT IS SORTIUM GENERATIVE AI?

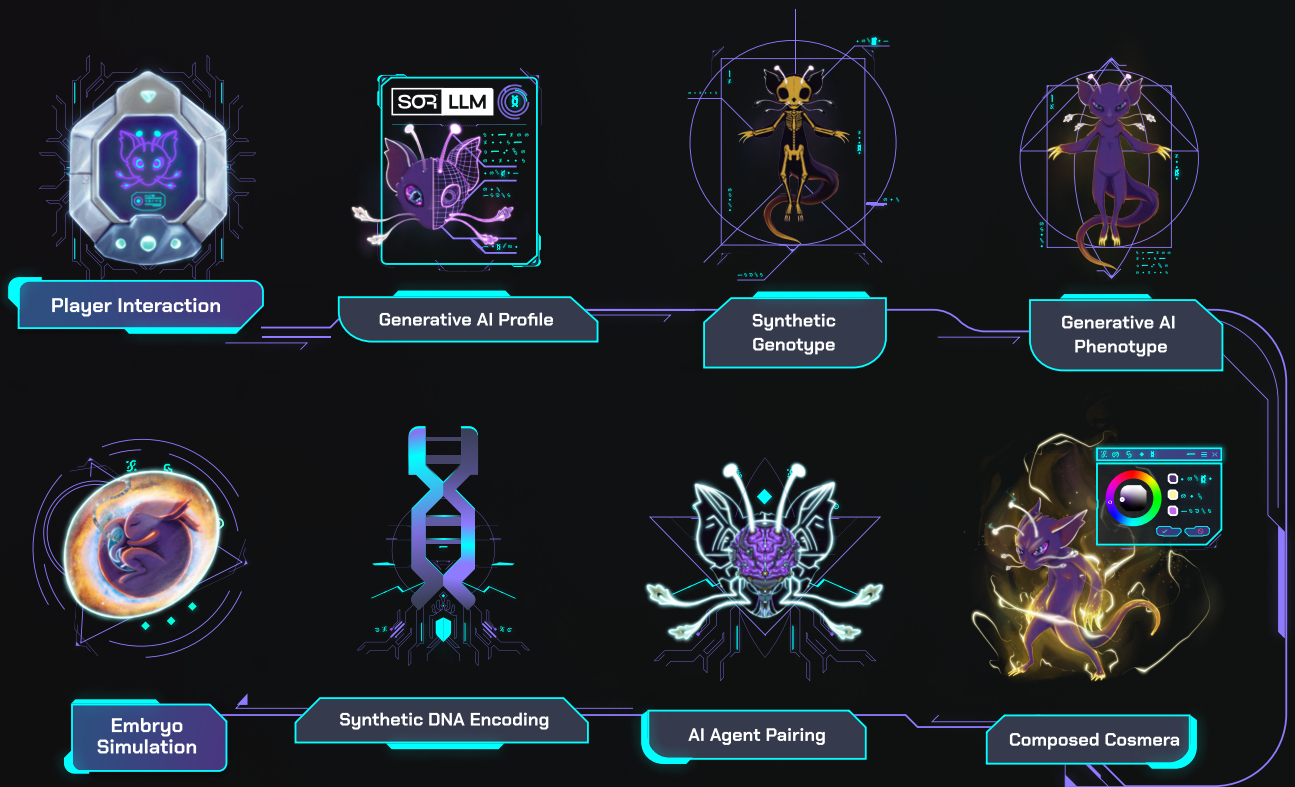
Sortium, the company behind CosmoGene has engineered a powerful AI pipeline using diffusion models, large language models among others which allow for the creation of functional game assets and logic without any human interaction necessary. This technology that is responsible for bringing Cosmera to life. Through generative AI we create limitless possibilities for what players may experience and discover in the CosmoGene universe.

The Cosmera lifecycle begins with Large Language Models (LLM) generating “Synthetic Data” which defines specific inputs of their genetics, abilities, personality and physiology. LLMs allow us to define the “rules” of Cosmera genetics for it to follow and “fill in the blanks” with relevant and unique information on a precise scale we could never achieve otherwise.

Once our LLMs have defined a Cosmera’s profile it communicates with a Generative Diffusion Model to process and finalize the visuals created in the synthetic data stage. Diffusion is a type of AI model that can process text, images, and 3D shapes as input, allowing for better control over generative outputs. This is what allows each Cosmera to be unique and still having complex and relative relationships with their genetic lineage.

The use of AI doesn't end once a Cosmera has been visually created. After creation each Cosmera is then turned into an “AI Agent” through a dedicated LLM, bringing it to life. This is what will power interactions with your Cosmera allowing you to talk, play, care and battle with it while it learns from you. Making each and every Cosmera truly unique.

Sortium AI will also be applied in many other aspects of CosmoGene to power numerous game systems.



THANKS!

You made it!

Thank you for following along with us.
We look forward to seeing you more often!

Remember, if you have any suggestions or
see suspicious activity, please reach out to
us directly inside of Discord!

Join your fellow Geneticists by [clicking here!](#)

Sincerely,
EVA

