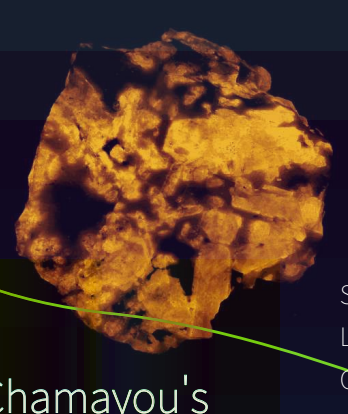
BLUEPRINT 2023

In 2020, I attempted to merge 100 images into a single fully-focused photograph using the focus stacking technique. During the merging process with Helicon Focus software, a series of noisy images akin to **depth maps** were unexpectedly generated. **These unexpected images**, resembling bizarre creatures suddenly emerging, are captivating yet challenging to interpret, strange, and even devoid of meaning. I collected all these generated noise analyses and compiled them into an album. Although the underlying logic remains rather obscure to me, these matrices of information seem to represent a blurry area between human and machine perspective, somehow fascinating. At some point, I was moved by its mysterious force, which can subdue and hypnotize without resorting to metaphors or a simulation of reality.

My experience in the advertising industry has left me weary of repetitive and overused images, as well as excessively immersive experiences. I deeply fear that these phenomena blur our senses and cognition, locking us into a toxic illusion and losing ourselves in the vast chasm between the real and the unreal. In the post-truth era, information fragmentation and highly entertaining experiences confine us within this chasm. These doubts have always prompted me to maintain a distance from images, being vigilant against all immersive experiences (as they can represent sensory invasion and exploitation). However, when on occasion I obtained this series of indecipherable images, it seemed like I had reached a moment of reset – this **illegibility** made me reconsider the logic of digital images. It may be the product of a binary algorithm, and from this **non-human perspective**, the image is deconstructed – all that remains is a mass of data and untranslatable noise. Mystery, in itself, cannot be precisely expressed or represented; I was enchanted and fascinated by this meaningless magic.

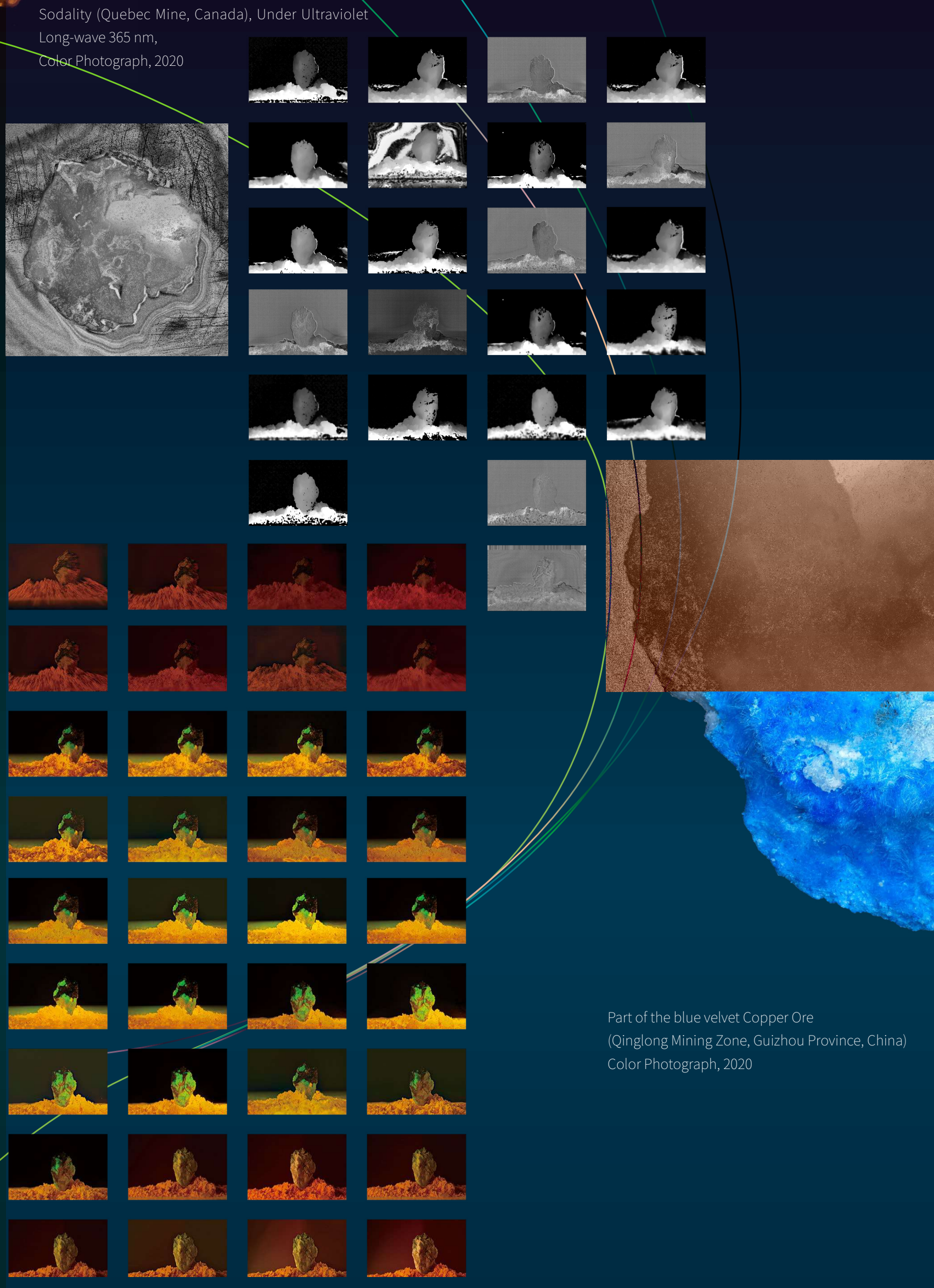
In these image works, I began to focus more on perspectives that require specific media and tools to be obtained, such as the use of detectors to identify **fluorescent objects** under ultraviolet rays, Google Maps, X-ray images, LED screens, as well as telescopes/microscopes, etc.



Inspired by Mark B. N. Hansen's logic of drones and Grégoire Chamayou's "Theory of the Drone" (2013), the drone's perspective consists of real-time updated data from various heterogeneous networks (meteorology, ballistics, geopolitics, strategy) and associated with other regularities (geology, cosmology, chemistry, biology, zoology, anthropology). This relational network thus formed transcends the human perspective.

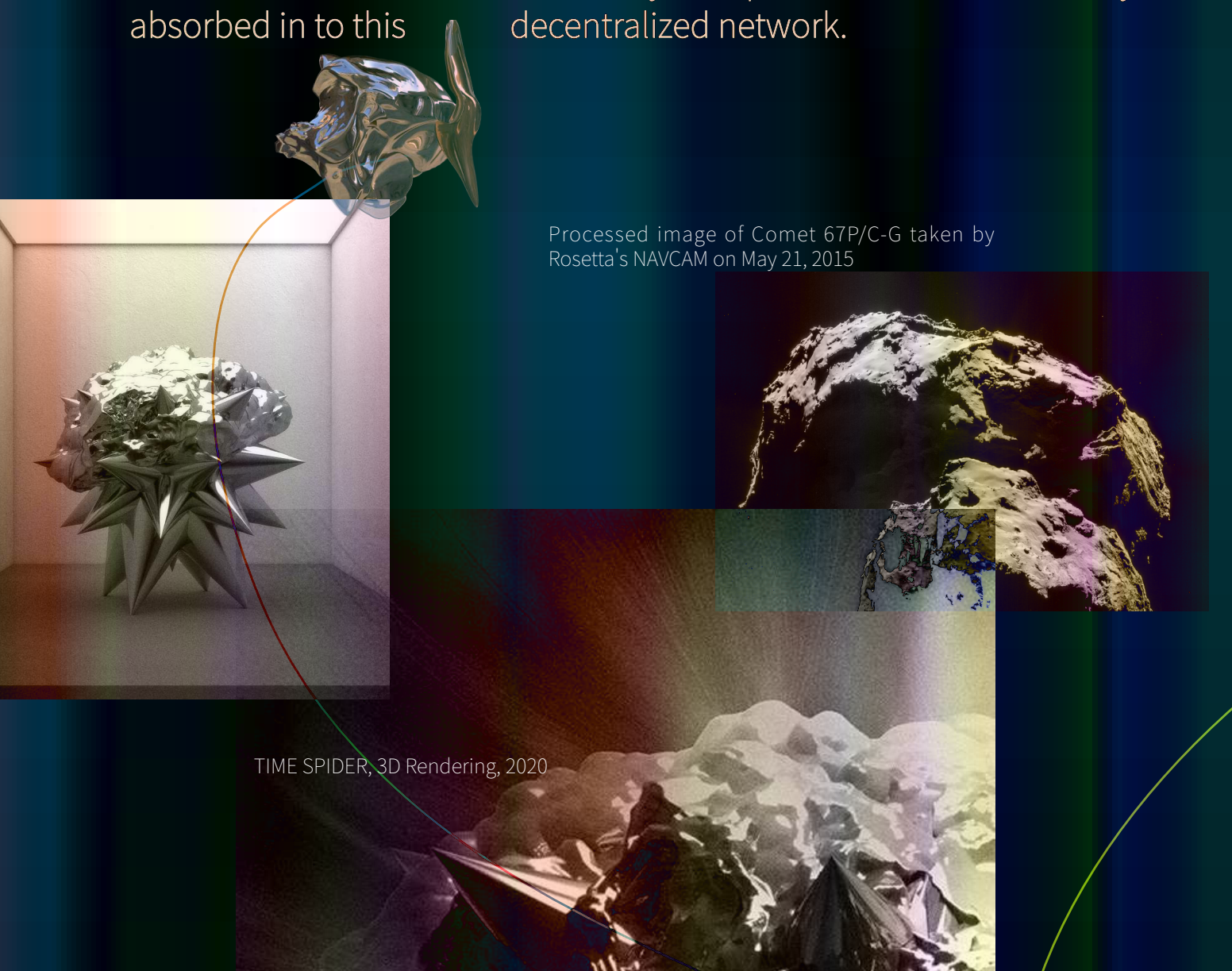
Chamayou, exploring the machinic ethics of the drone, sheds light on the human attempt to resolve moral dilemmas through technological miracles. However, this leads to a transfer of power: we detect moving objects from an aerial view on a screen, then entrust a drone system with the task of locating and eliminating the target.

Hansen sees the drone as the embodiment of many characteristics of the network; in this case, current technological intervention redistributes our senses and cognition. We can truly experience this invisible technological network only by collaborating with technology. This human-media collaboration has made me reflect on our growing isolation in this configuration. Unreadable or decoding-requiring information surrounds us. Humanity, as a passive actor, is inexorably absorbed in to this decentralized network.



Sodality (Quebec Mine, Canada), Under Ultraviolet
Long-wave 365 nm,
Color Photograph, 2020

Part of the blue velvet Copper Ore
(Qinglong Mining Zone, Guizhou Province, China)
Color Photograph, 2020



Processed image of Comet 67P/C-G taken by Rosetta's NAVCAM on May 21, 2015

TIME SPIDER, 3D Rendering, 2020

In 2019, I launched the Time Spider project with the aim of creating a virtual narrative with non-human entities as protagonists. After a series of research efforts, I attempted to develop this narrative by compiling a manual and a blueprint for these non-human roles:

> *In the **post-Anthropocene** era, facing environmental mutations and challenges related to species perpetuation, humans have considered creating a continuous online information system and remote sensing network with the aim of gathering and structuring a comprehensive biological record of the human era. They have developed a range of biomimetic detection devices, driven by algorithms, specifically adapted to conditions in the deep sea, characterized by high pressures and low temperatures resulting from environmental mutations. One of these devices is inspired by **krill** (a marine invertebrate, an important species at the bottom of the food chain), and is designed as a small bait trap. It is capable of attracting large fish through its bioluminescence. Thanks to the high-pressure resistance and low degradability of its inorganic materials, it can remain in the fish's stomach for a certain period, thus collecting data on biological samples. The series also includes a spawning inducer, which can encourage organisms from the deep sea to be active in its semi-enclosed environment, thereby capturing their activity trajectories and biological information. Other parasitic biomimetic products are also proposed, attracting invertebrates to parasitize them and triggering the internal program of the biomimetic product (a network of neuronal coding activated by the animal's neurons, altering the parasite-host relationship and influencing the parasite's behavior) in order to accomplish the information collection mission. All these products are deployed with the aim of successfully completing the tasks of collection, converting samples into data, and uploading them to the human-era biological record network. It is envisaged that these detection devices will be fully deployed and operational by the end of the post-Anthropocene era.*

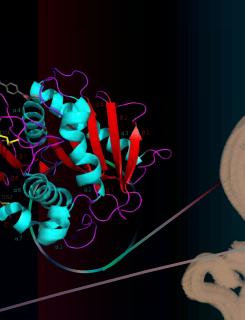
In this narrative, the inspiration for this series of products comes from the **deceptive induction** characteristics of orchid pollination. The protagonists rely on a deceptive mechanism to sustain their work and daily life. Orchids are not parasitic plants; their mutualistic symbiotic relationship with fungi is manifested through the exchange of resources to support their respective lives. However, in their reproductive strategy, some orchids play the role of deceivers. I interpret this network of relationships from a highly anthropomorphic perspective, considering it an extremely economical strategy. In a critical moment close to extinction, biomimicry of machines based on studies in zoology and botany has proven to be the most effective mode.

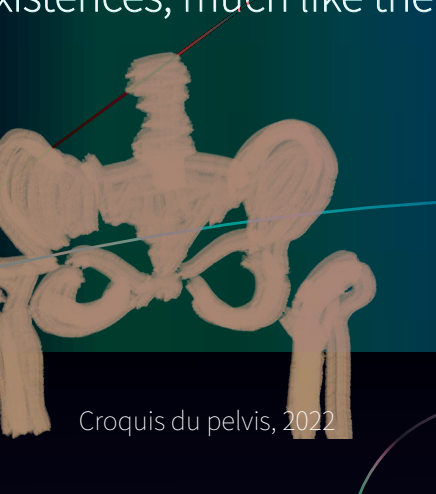
I suppose that the environmental mutations of the **post-Anthropocene** era will result in a continuous sinking of lands, and this series of products is designed to adapt to abyssal environments. The Antarctic kril, a primary food source for whales, is small in size but large in number. It can emit bioluminescence, which is often associated with hunting and self-defense.

The product in this series is a kind of inductive predator that uses this characteristic in reverse. The durability and resistance of its material also represent a temporal struggle against fungal evolution. These deployed products must collect as many biological samples as possible before fungi develop enzymes capable of decomposing these durable materials.

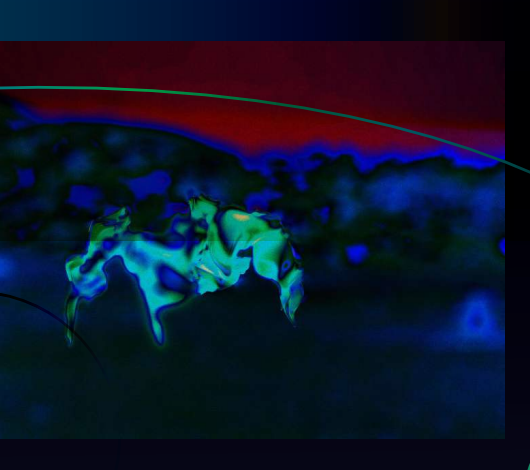
Currently, the fragility of the environment, based on human impact on other organisms and ecological balance, is becoming increasingly clear. Particularly, imbalances and mutations can threaten human survival. However, the fungal network is an exception—it is not greatly disturbed by human activities. Thanks to its great adaptability, it can even appear on lands contaminated by nuclear radiation. We do not fully understand how the mycelial network functions, and its openness exceeds our imagination. In 2016, a research team from Keio University created a hydrolase (PETase) capable of degrading PET plastic from Ideonella sakaiensis, a microbe found in a landfill in Sakai, Japan. Synthetic plastic is an unnatural product, but the mycelial network can evolve rapidly and integrate this foreign material into its network. I suppose that in the post-Anthropocene era, we could seek ways to collaborate and compete with fungi or other non-human existences, much like the symbiosis between orchids and fungi.

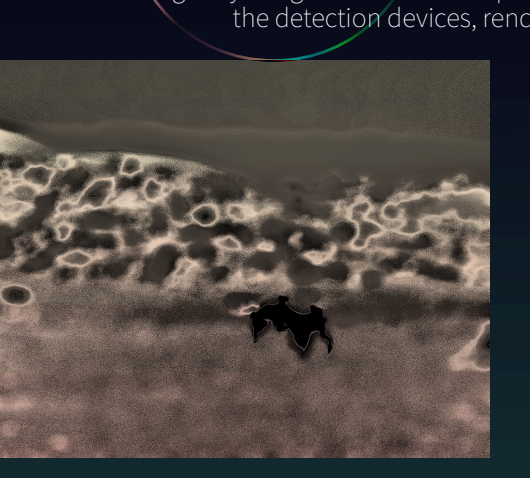
Krill's luminous organ
(by Michelle Innis)



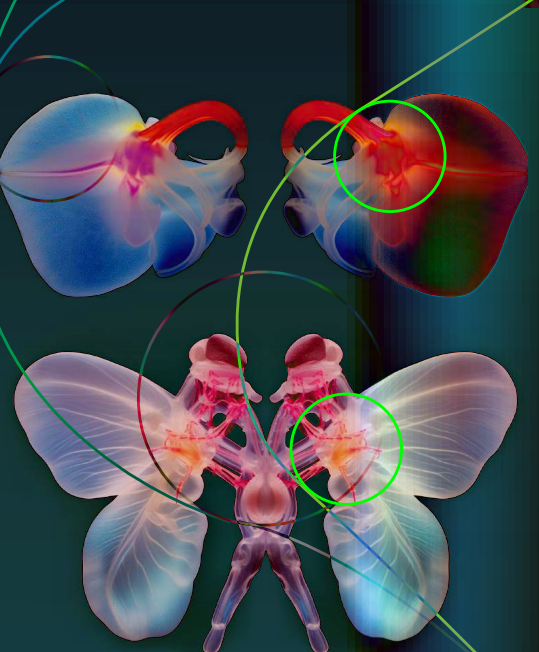


Croquis du pelvis, 2022





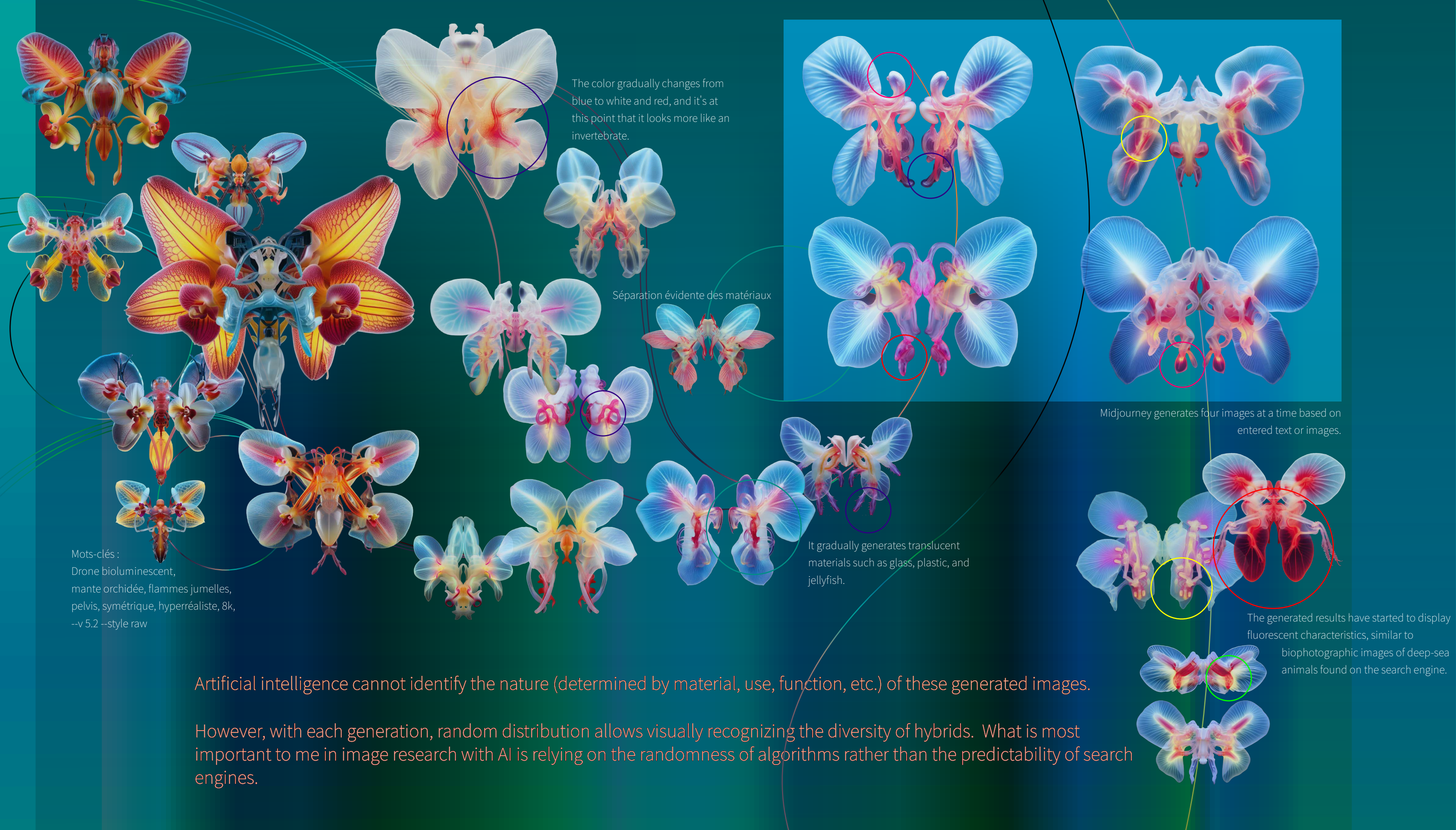
TIME SPIDER II, 2021
These are two imaginary images of the infrared perspective of the detection devices, rendered in 3D.



Some insects cannot effectively distinguish between empty flowers and rewarding flowers. They are deceived into successful pollination without offering any reward, so this action is called deceptive pollination. Orchids are particularly prominent in this fraudulent behavior without reward.

Deceptive orchids often exploit pollination relationships or mating, oviposition, and nesting behaviors of insects to achieve their deception goals (Jersáková et al., 2006). Based on the signals used by orchids, deceptive mechanisms are mainly divided into two categories: food deception and sexual deception.

In constructing this narrative framework and creating a hybrid form for the story's protagonists, I utilized the existing Diffusion Probabilistic Model (DDPM) algorithmic system with the aim of predicting and generating the stylistic structure of these products, serving as a basis for subsequent 3D modeling work. Although the generated results are primarily two-dimensional images (there might be attempts at three-dimensional construction in the future), in reality, the main object processed by the diffusion model algorithm is not the image itself but the distribution. In other words, the data analyzed such as randomly distributed noise information, location, and color depth information, etc. The working principle of the diffusion model is to perturb the training data by continuously adding Gaussian noise and then restoring an image similar to the sample by denoising. With the distribution of added noise and the denoising process all based on the Gaussian function (Normal Distribution), having a margin of randomness. That's why when I use the AI model, the generated results are not always the same. After countless "rolls of the dice" by AI, I gradually branched out four distinct paths, selected certain structures that I deem possible, and produced a total of approximately eight thousand images.



The color gradually changes from blue to white and red, and it's at this point that it looks more like an invertebrate.

Séparation évidente des matériaux

Midjourney generates four images at a time based on entered text or images.

Mots-clés :
Drone bioluminescent,
mante orchidée, flammes jumelles,
pelvis, symétrique, hyperréaliste, 8k,
--v 5.2 --style raw

It gradually generates translucent materials such as glass, plastic, and jellyfish.

The generated results have started to display fluorescent characteristics, similar to biophotographic images of deep-sea animals found on the search engine.

Artificial intelligence cannot identify the nature (determined by material, use, function, etc.) of these generated images.

However, with each generation, random distribution allows visually recognizing the diversity of hybrids. What is most important to me in image research with AI is relying on the randomness of algorithms rather than the predictability of search engines.

With the growing development of artificial intelligence, thanks to the enormous size of the training model database (questionable legitimacy), the fidelity of AI simulation is becoming increasingly higher. However, looking back, you will find that the AI synthesis style was very recognizable - the traces of synthesis were too evident: comparing real and existing samples, it was easy to identify their falsification traces. An important branch of the artificial intelligence field is natural language processing (NLP), for example, the two platforms I am currently working on: the Midjourney image generator and the ChatGPT4 are consistent in simulating human cognitive logic, both striving to read, process, and understand human language. But in this image sequence generation process, I want to break this logic because inputting instructions based on natural language logic will cause the generated results to exhibit a predetermined style, and I just want it to be more neutral. When I enter keywords, the model generates images corresponding to category labels in big data based on input characters and sequence logic. But data classification is not always 100% accurate, when I break the subject-verb-object sentence logic and purify the set of keywords, the generated image results become more diverse, enhancing the bizarre and strangeness. I will focus on mutation factors (random appearance not in line with keyword labels) in **each result of generating four images** and continue to generate these mutation results. Like an animal breeder cultivating mutant creatures, once I find a satisfactory mutation result, I will continue to "cultivate" this mutation until the next generation undergoes another mutation. Among the eight thousand existing images, I have collected many hybrid structure possibilities, thanks to these algorithms, this working method has provided a rich source of references for my image research.

Ideally, using a customized model for generation would be more appropriate than a Midjourney image generator, as achieving a result that aligns with my imagination requires a lot of trial and error with keywords - I feel like an apprentice sorcerer practicing how to cast the right spell. Due to my insufficient understanding of neural networks, this is still an ongoing and uncertain project. I have always strived to find a way to allow the artwork to grow freely; the randomization of AI "rolls of the dice" has shown me the infinite possibilities of media and forms, this potential is not limited to visual and auditory language alone. Furthermore, I want to emphasize that the value of artificial intelligence lies not only in the imitation of humans, as artist James Bridle pointed out during the presentation of his interdisciplinary project **SERVER FARM**: AI can be not only human intelligence but also machine intelligence or other forms of intelligence. For example, in the field of biotechnology, inspired by this model, the Baker Lab published **three articles** in the journal Nature between 2022 and 2023, developing RFdiffusion based on DDPM to predict and even design protein structure sequences from scratch (including **fluorescent proteins** that enable deep-sea animals to emit biological light). I believe this open-source system can completely help developers train corresponding models, in order to use these models to generate all kinds of new structures; the characteristics of "intelligence" are not limited only to generating images and text. My main experience in advertising post-production has made me very accustomed to working with software, and I think the popularization of these new tools and the development of new technologies have provided another method for my research; (which mainly relied on keyword search engine and previous personal experience); opening a bottle of wine, sitting in front of the computer, and starting to roll digital dice thousands of times.

De novo design of protein structure and function with RFdiffusion

SERVER FARM is a proposal that uses plants and other organisms and collaborates with them to build computers, a collaborative project between artists and interdisciplinary experts.
http://serverfarm.jamesbridle.com/

Algorithmic Culture Before the Internet by Ted Striphas, 2023, Columbia University Press

Returning to the original intention of creating this virtual narrative regarding the imaginary "permanent online" network and the biological archives of the human era, I envisioned constructing a scenario: faced with an urgent situation, humans completely relinquish control to an automated information network, which continues to collect and organize the archives of the human era. Technology is not my main point of interest, but rather exploring, through the establishment of this scenario, and with a reverse approach, how humanity is integrated into this vast computer or mechanical network. Especially in the current context, where we are vigilant about the redistribution of power structures under **algorithmic culture**, the controversy surrounding the omnipresent "surveillance-detection" algorithmic system, I imagine if this network can continue to function online and without deviating from its predefined program, even after detaching from its "creator". Thus, I have established a scenario of human absence, **externalizing** our knowledge and memory into this **tertiary retention** outside the body. I believe that what can leave a trace over time is not humanity itself, but the technological devices beyond the body. They are like traces of old creatures buried in ancient geological layers: the organism decomposes over time, but its outer form, as a negative mold obtained after casting and demolding, emerges as a **trace fossil** on the surface of the ground. An online network can be the archaeological decoder of the next era. However, the post-Anthropocene era I imagine does not tend toward a time of complete human extinction, but toward a critical moment where we are forced to completely relinquish manipulation of the **critical zone** and let the interactive network that we have placed on the Earth's surface, in the deep sea, and in the atmosphere, govern the daily order.

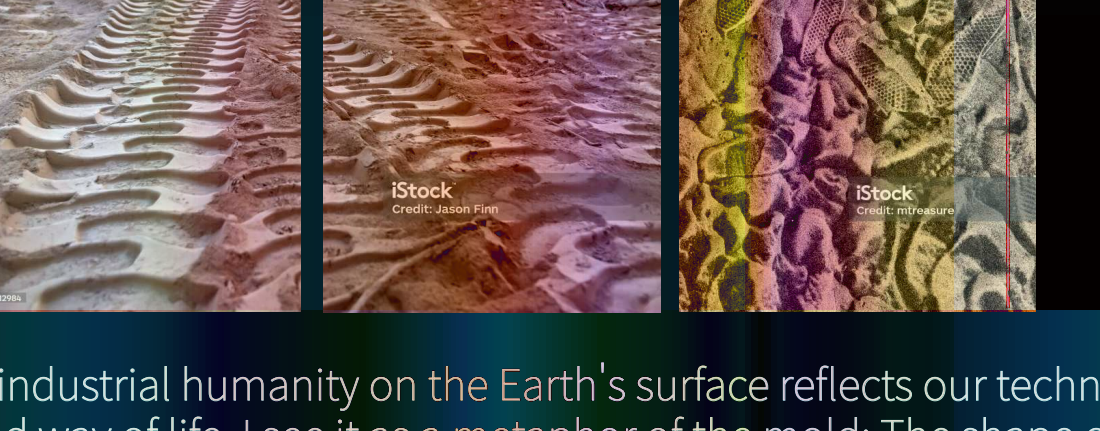
It remains an ongoing project, as I attempt to build a virtual narrative or intertextual landscape that interacts across various mediums such as text, image, sound, and industrial materials, exploring how we are passively absorbed into the network at the current time.

Manling XUE,
at Toulouse, France, 9 Octobre 2023

Bernard Stiegler,

drawing on Husserl's primary (psychic retentions of perception)
and secondary retentions (psychic retentions of memory),
introduces the notion of tertiary retention as external memories preserved in
technical objects , that are linked to the formalization
and externalization of streams of consciousness and knowledge
into material or symbolic forms, such as writing or digital technologies.

These tertiary retentions, as an externalization of memory,
facilitate the transmission and transformation of knowledge over time,
embodying the continuity of culture
and human experience across epochs.



The trace left by industrial humanity on the Earth's surface reflects our technological devices and our technologized way of life. I see it as a metaphor of the mold: The shape of life is recorded in the archives in a negative form throughout history. Life, through technologization, manages to perpetuate itself beyond life itself.

Bruno Latour,

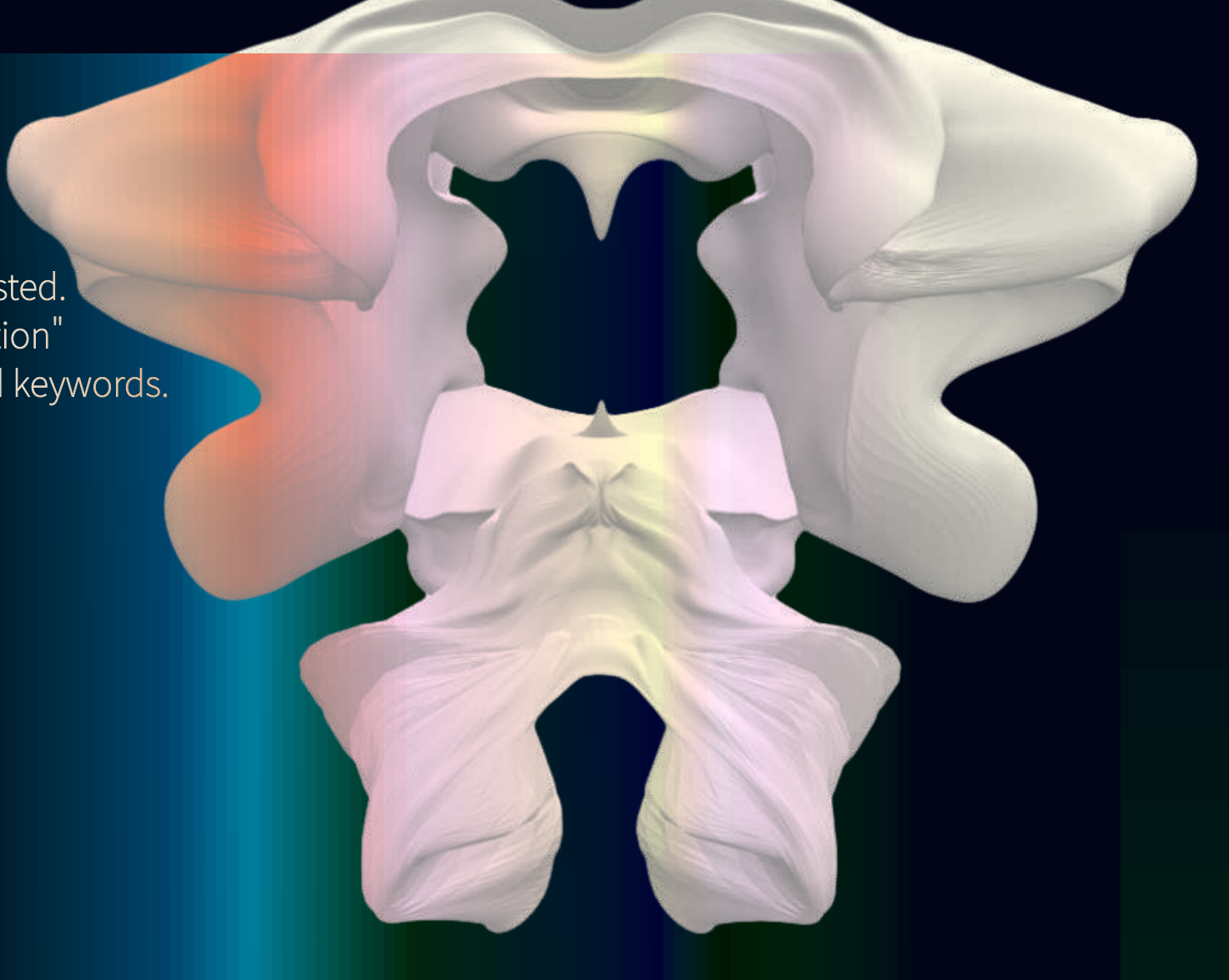
while exploring the Anthropocene,
mentions the concept of the "critical zone," r
epresenting the Earth's surface, involving complex interactions among rocks, soil, water, air, and organisms in this natural habitat.

The critical zone, unlike the old world, underscores the fragile interdependence between humans and the environment, especially in the face of unprecedented anthropogenic changes. Humans and non-humans are "actors" in the network, interacting within a socio-political and ethical framework.

Thus, current research on the critical zone requires seizing the opportunity to restructure society and politics to address climate challenges.

Methodology:

Inspired by basin structures and animal and plant forms, I created a 3D model using NOMAD software and used it as a source for AI image generation. During the generation process, keywords were gradually added, tested, and repeatedly adjusted. The following images are the result of "algorithmic hybridization" performed by Midjourney based on the source 3D model and keywords.



Original 3D Model

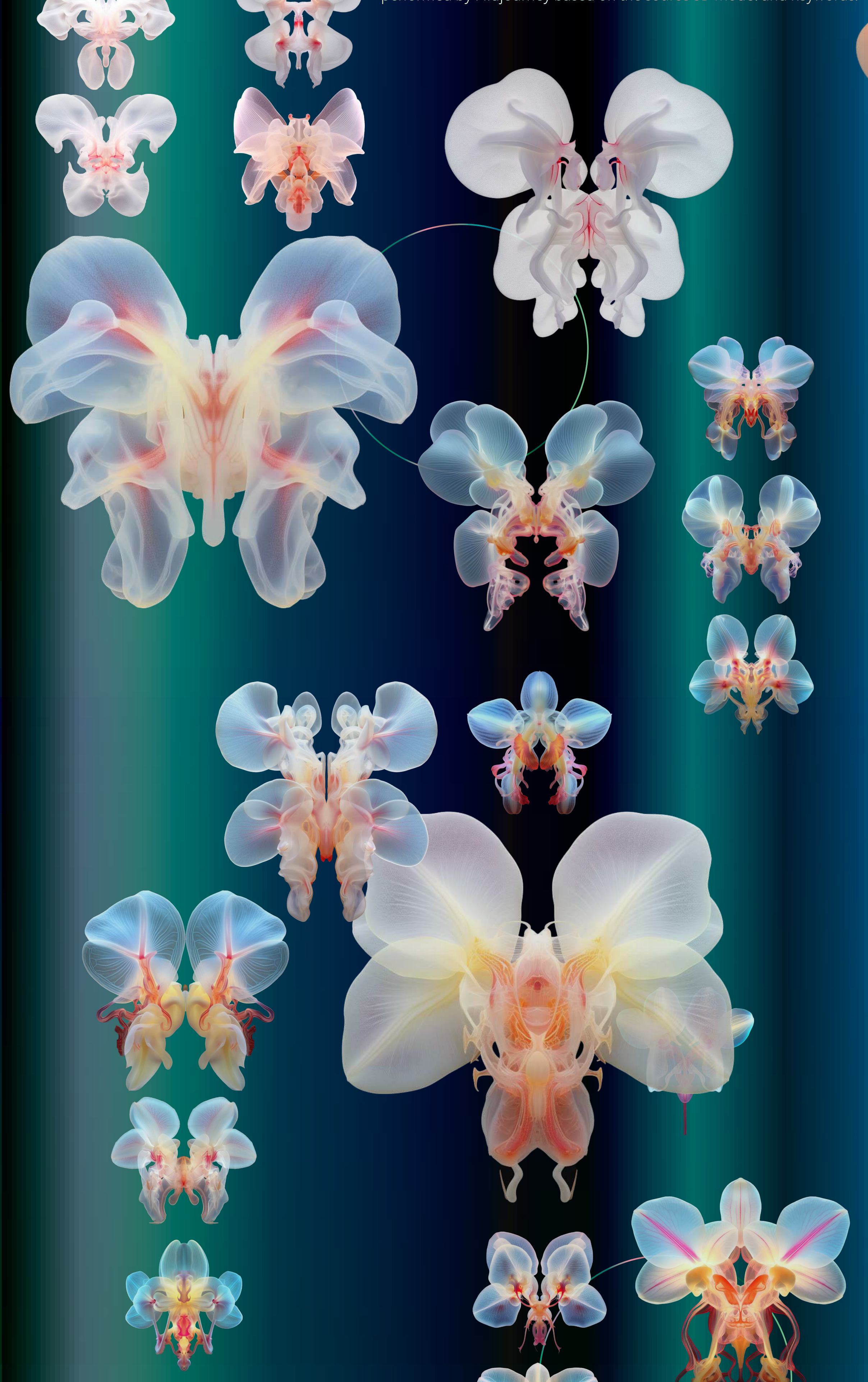
AI Image Research

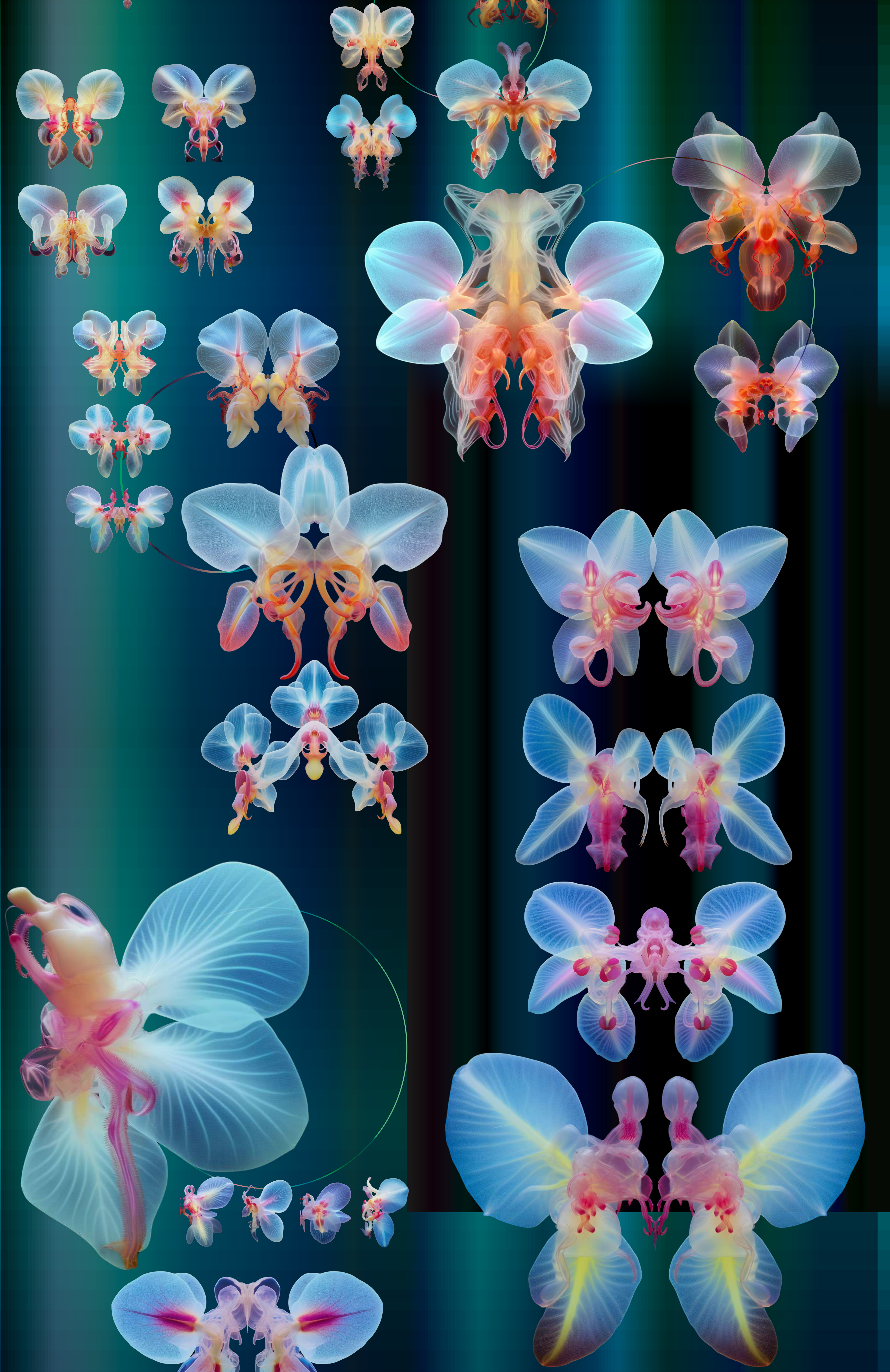
After experimenting with composite structures of various materials (neons, industrial waste, silicone, medical supplies, disassembled mechanical parts, and plants), I also delved into software experiments, including modeling, rendering, 3D printing, image composition with Photoshop, and post-photography editing.

With the development of the diffusion model, I explored AI generation for research of image. Using Midjourney as the main generator, I make original modeling structures as source images, generating a series of images via keywords. Over two months, I created over ten thousand images, identified their four distinct branches, and selected over 8000 images archived in my private folders.

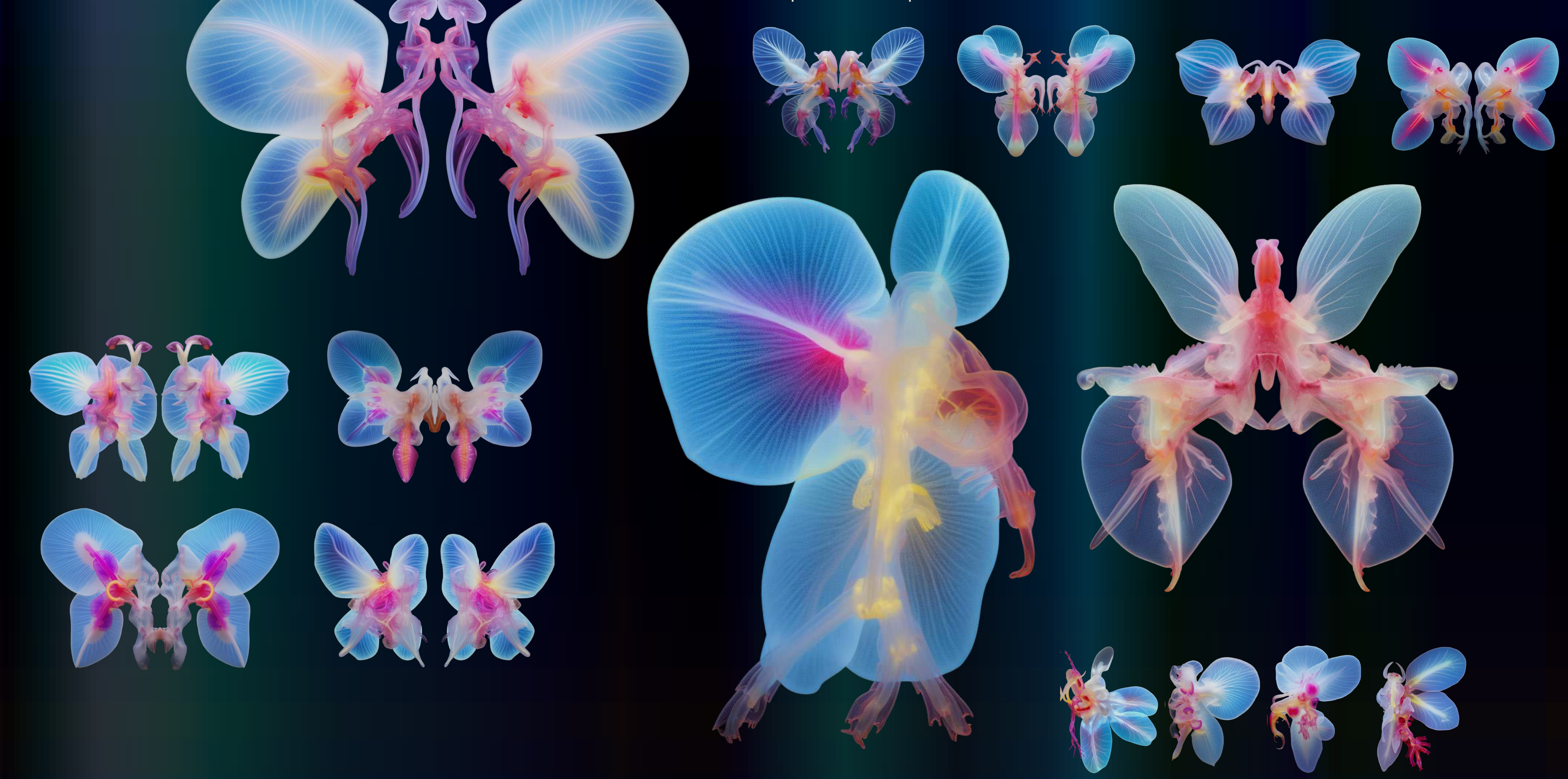
Due to the large number of images and layout constraints, only a few representative images and keywords are presented below to briefly illustrate their generation process. The keyword descriptions do not characterize the generated images but reflect the objects I focused on in my previous work, thus attempting to create personal definitions for these terms.

*All underlined words are associated with external links for reference.



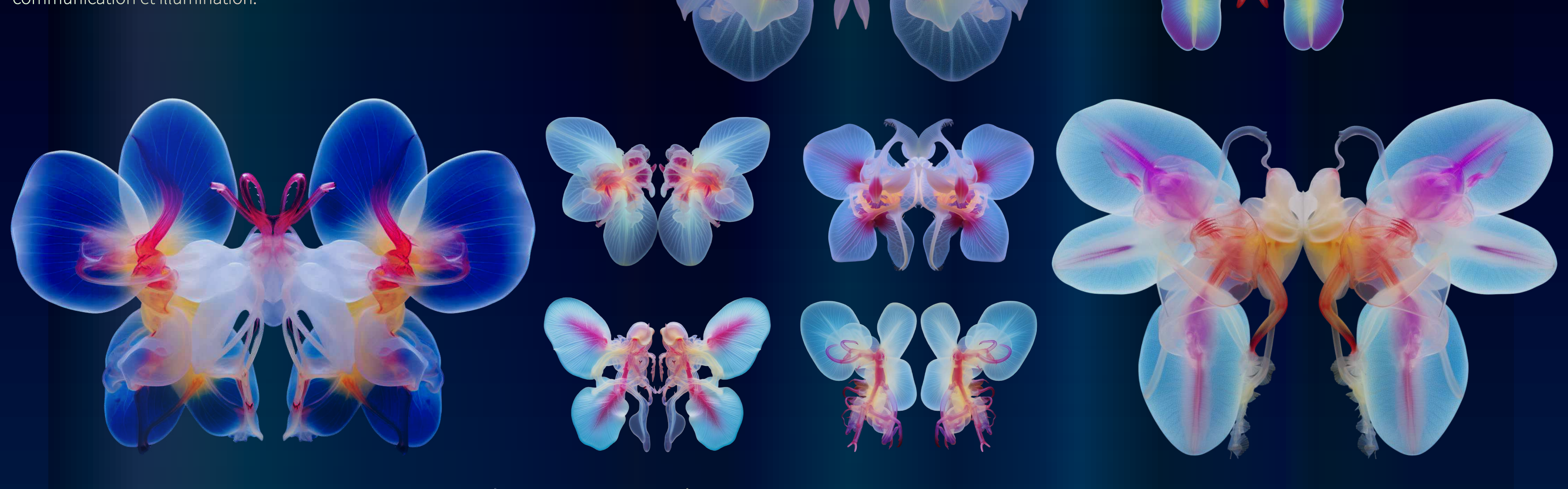


* Principe de Gause : Les compétiteurs complets ne peuvent pas coexister.
* Loi de Dollo : La perte de la complexité est irréversible.
* Sélection de parentèle : La fréquence génique augmente lorsque le produit de la relation de parenté et des bénéfices obtenus dépasse le coût de reproduction pour l'acteur.relation de parenté et des bénéfices obtenus dépasse le coût de reproduction pour l'acteur.

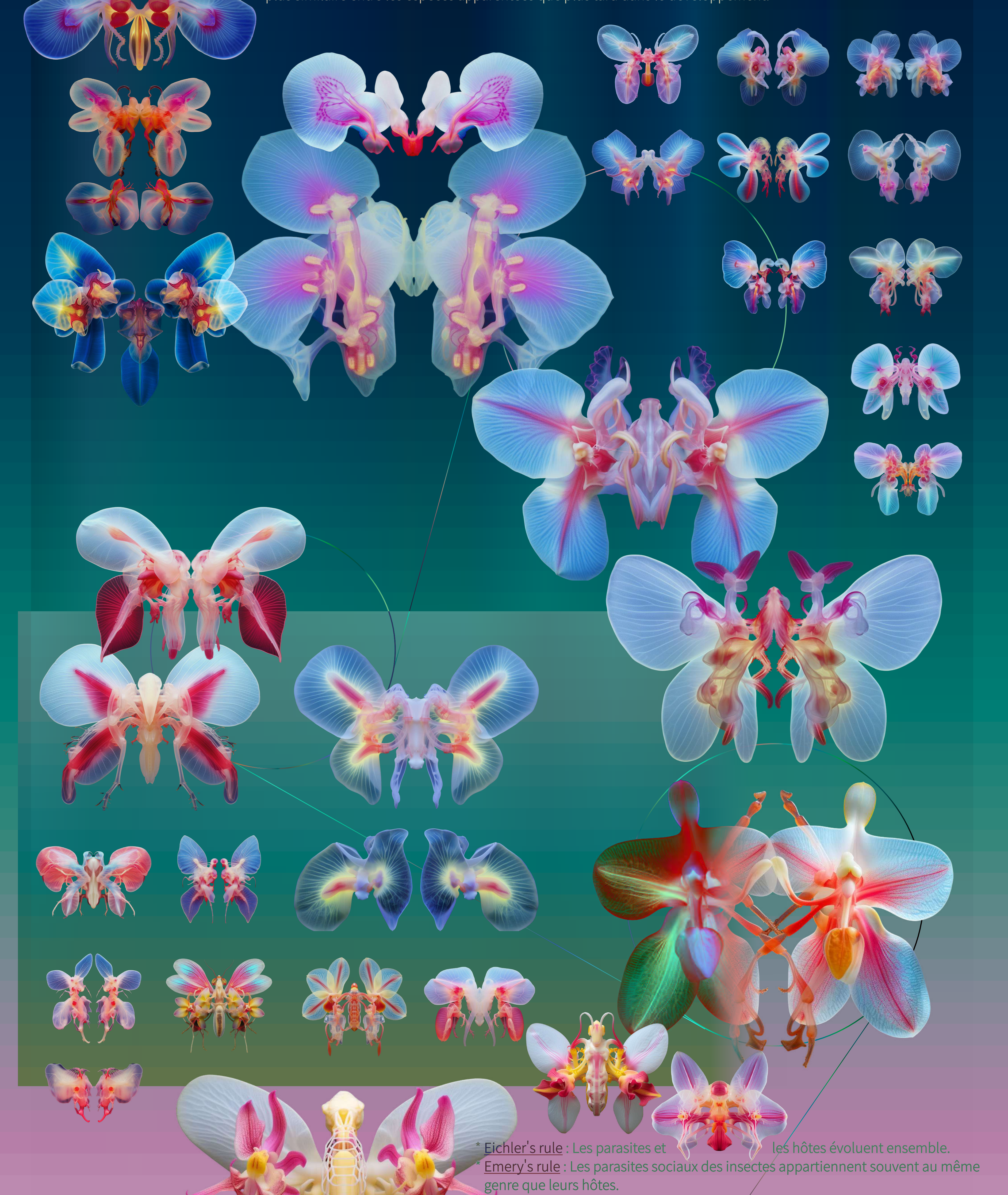


Bioluminescence
(distincte de la Fluorescence et de la Phosphorescence)

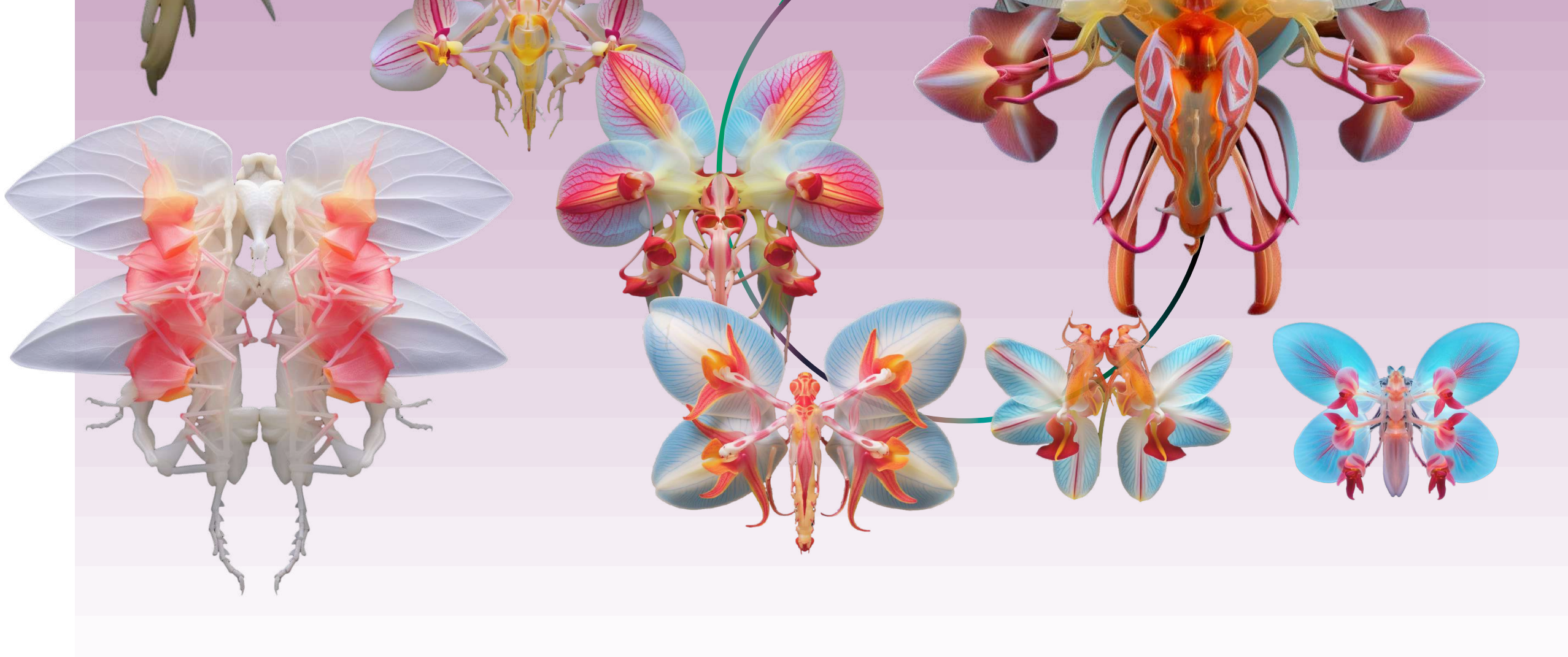
La bioluminescence est une forme de chimioluminescence,
libérant de l'énergie lumineuse via des réactions chimiques.
La théorie adaptative peut expliquer l'évolution des caractéristiques lumineuses :
camouflage contre-illumination, attraction, répulsion,
communication et illumination.



* Thorson's rule : Le nombre d'œufs chez les invertébrés marins benthiques diminue avec l'augmentation de la latitude.
* Règle de Rapoport : L'aire de répartition augmente avec la latitude.
* Règle de Bateson : Plusieurs jambes émanant de la même embase sont souvent des images miroir les unes des autres.
* Loi de von Baer : L'embryon commence à partir d'une forme commune et se développe progressivement en une forme de plus en plus spécialisée, donc un trait particulier à un stade précoce de développement est souvent plus similaire entre les espèces apparentées que plus tard dans le développement.



* Eichler's rule : Les parasites et les hôtes évoluent ensemble.
* Emery's rule : Les parasites sociaux des insectes appartiennent souvent au même genre que leurs hôtes.
* Fahrenholz's rule : Lorsque le phénomène de symbiose se produit, l'évolution systématique de l'hôte et du parasite devient cohérente ou étroitement correspondante.
* Harrison's rule : La taille des parasites et des hôtes évolue ensemble.



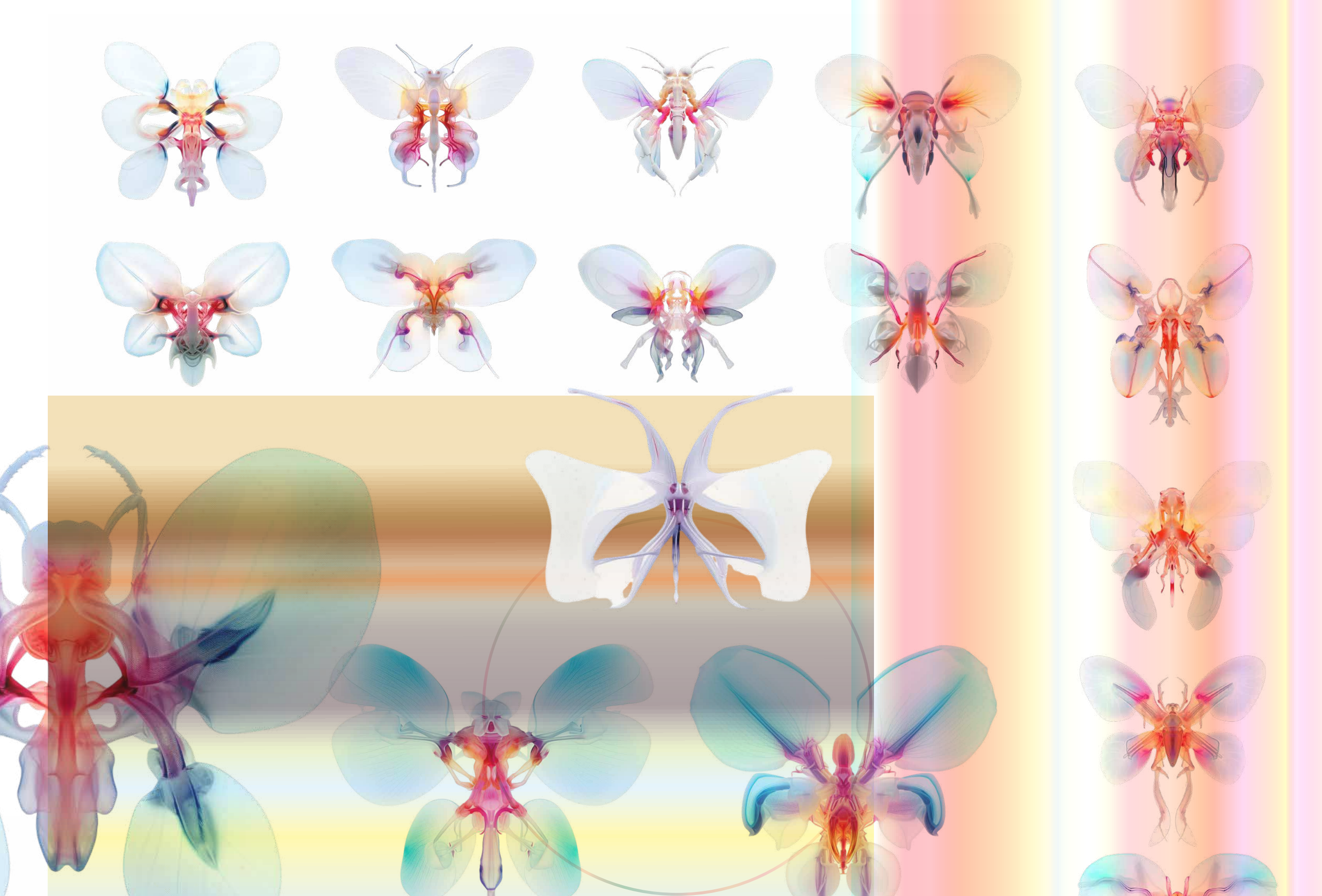
* Willi Henning (Cladistique et Évolution) : Dans la phylogénie, les espèces les plus primitives sont souvent trouvées dans les régions centrales et les plus anciennes de la distribution du groupe.
* Règle de Haldane : Les sexes hybrides qui sont absents, rares ou stériles, sont hétérogamiques.
* Règle de Williston : Les parties d'un organisme deviennent réduites en nombre et spécialisées en fonction.
* Hypothèse de la Reine Rouge : Les espèces doivent constamment s'optimiser pour rivaliser avec les prédateurs et les compétiteurs pour les ressources ; les prédateurs doivent également évoluer continuellement pour survivre face à cette concurrence.

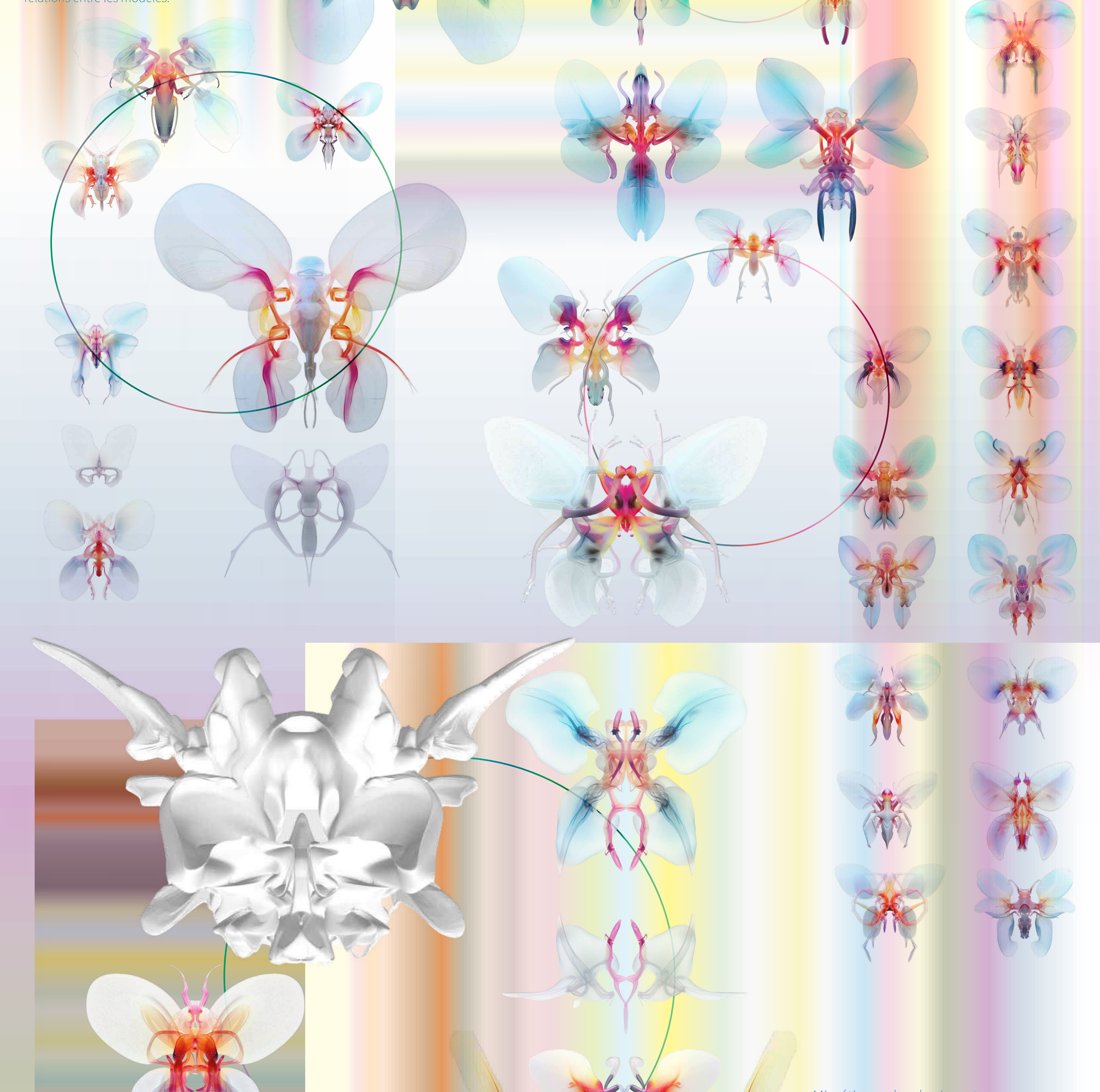
Mimétisme :

C'est l'imitation par un organisme dans sa forme, sa physiologie et son comportement d'autres organismes vivants ou d'objets inanimés, constituant un concept fondamental en biologie évolutive. Ce type de mimétisme fournit des exemples frappants pour la théorie de la sélection naturelle de Darwin. Les imitateurs adoptent une série de méthodes précises, incluant des adaptations morphologiques, physiologiques et comportementales,
pour réaliser le mimétisme.

Mimétisme Réciproque :

Cette théorie considère principalement l'action de la sélection individuelle sur des organismes indépendants comme les papillons adultes.
Bien que le mimétisme de Bates chez les insectes sociaux soit très courant, il y a jusqu'à présent peu d'études appliquant la théorie de la sélection de parentèle au mimétisme.
Ces études mettent l'accent sur les relations de parenté entre les imitateurs plutôt que sur les relations entre les modèles.



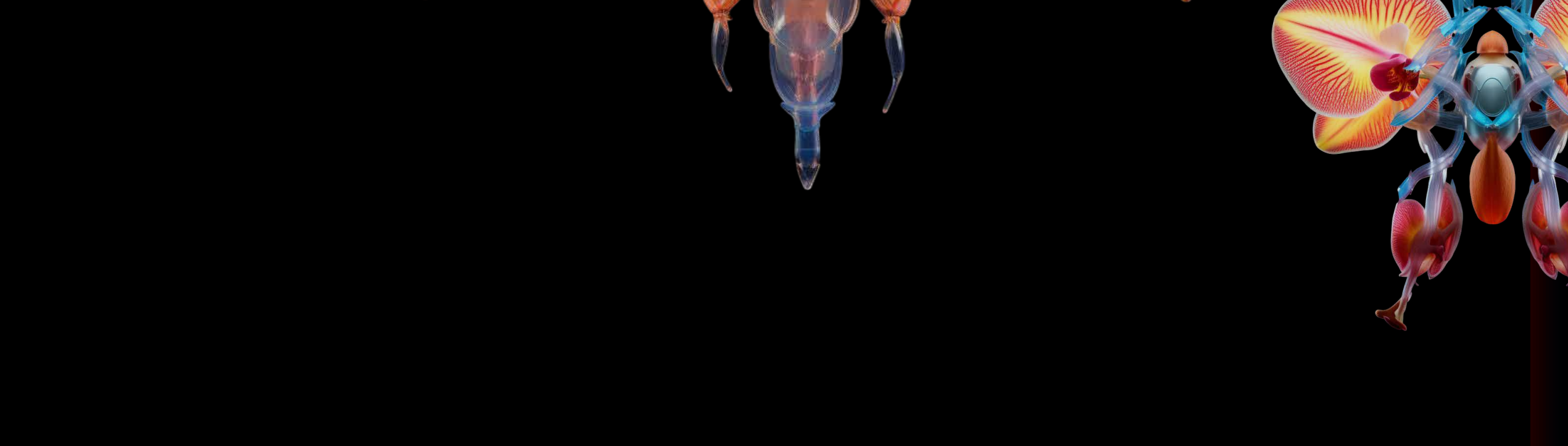


Mimétisme chez les Insectes :

Le concept de mimétisme implique qu'une espèce possède, pour une raison quelconque, des caractéristiques spécifiques qui la rendent indésirable comme nourriture, tandis que d'autres espèces (les imitateurs) évoluent vers des formes similaires pour bénéficier de cette caractéristique de sécurité relative.

Drone :

Caméra embarquée / Vol automatisé /
Surveillance aérienne / Conception de l'aéronef /
Vol à distance / Technologie de photographie aérienne /
Travaux aériens / Système de stabilisation électronique /
Capteur infrarouge / Télécommande /
Programmation de drones / Capteur d'altitude /
Robot aérien / Technologie de batterie /
Système de commande de vol /
Livraison aérienne / Fabricants de drones /
Surveillance par drone / Données de télédétection /
Télécommande d'aéronef / Drones de téléphonie /
Sécurité des drones / Planification de l'itinéraire des drones /
Mode de vol / Technologie de vol autonome /
Maintenance des drones / Collecte de données /
Réglementation des drones / Systèmes de vision /
Navigation par drone / Aéronefs sans pilote /

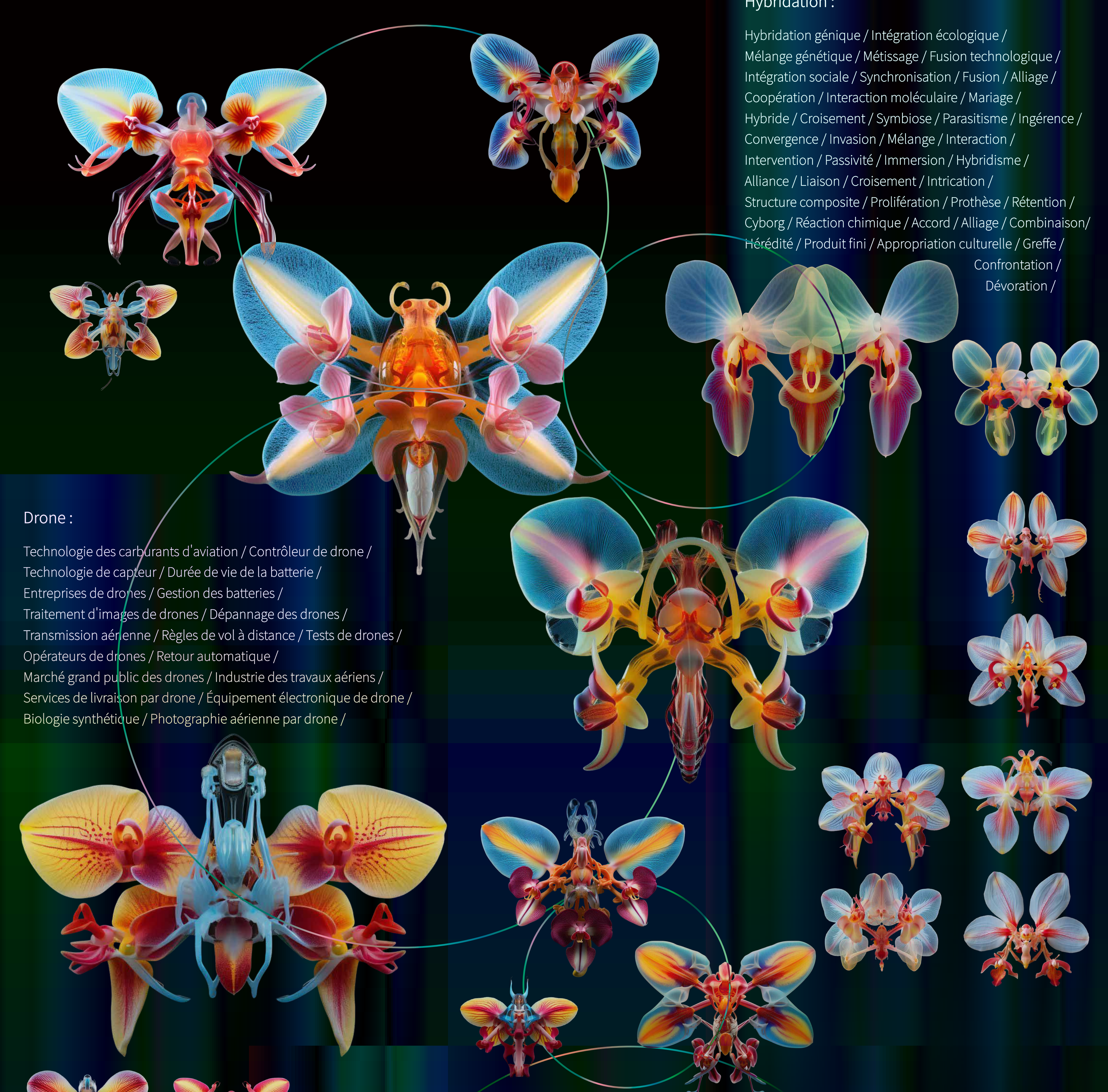


Hybridation :

Hybridation génique / Intégration écologique / Mélange génétique / Métissage / Fusion technologique / Intégration sociale / Synchronisation / Fusion / Alliage / Coopération / Interaction moléculaire / Mariage / Hybride / Croisement / Symbiose / Parasitisme / Ingérence / Convergence / Invasion / Mélange / Interaction / Intervention / Passivité / Immersion / Hybridisme / Alliance / Liaison / Croisement / Intrication / Structure composite / Prolifération / Prothèse / Rétention / Cyborg / Réaction chimique / Accord / Alliage / Combinaison/ Hérédité / Produit fini / Appropriation culturelle / Greffe / Confrontation / Dévoration /

Drone :

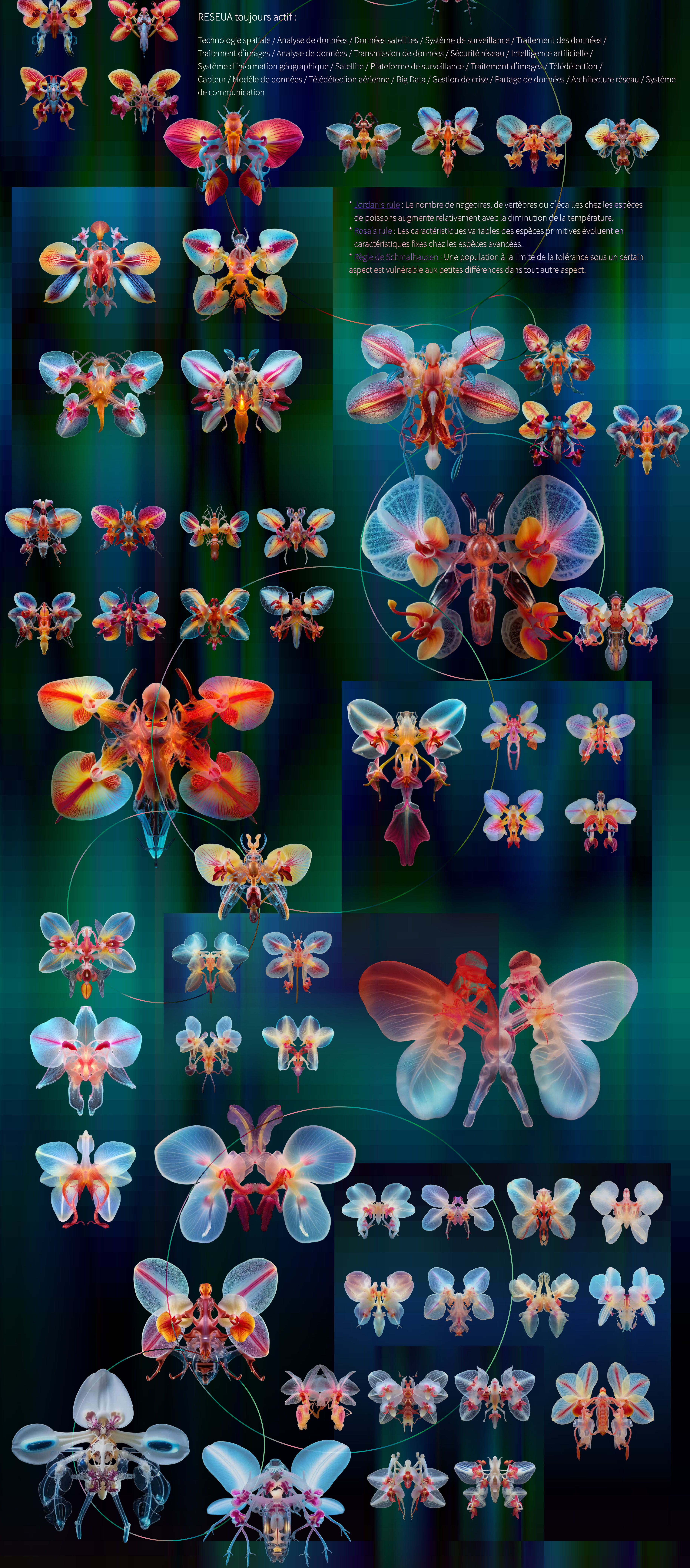
Technologie des carburants d'aviation / Contrôleur de drone / Technologie de capteur / Durée de vie de la batterie / Entreprises de drones / Gestion des batteries / Traitement d'images de drones / Dépannage des drones / Transmission aérienne / Règles de vol à distance / Tests de drones / Opérateurs de drones / Retour automatique / Marché grand public des drones / Industrie des travaux aériens / Services de livraison par drone / Équipement électronique de drone / Biologie synthétique / Photographie aérienne par drone /



RESEUA toujours actif :

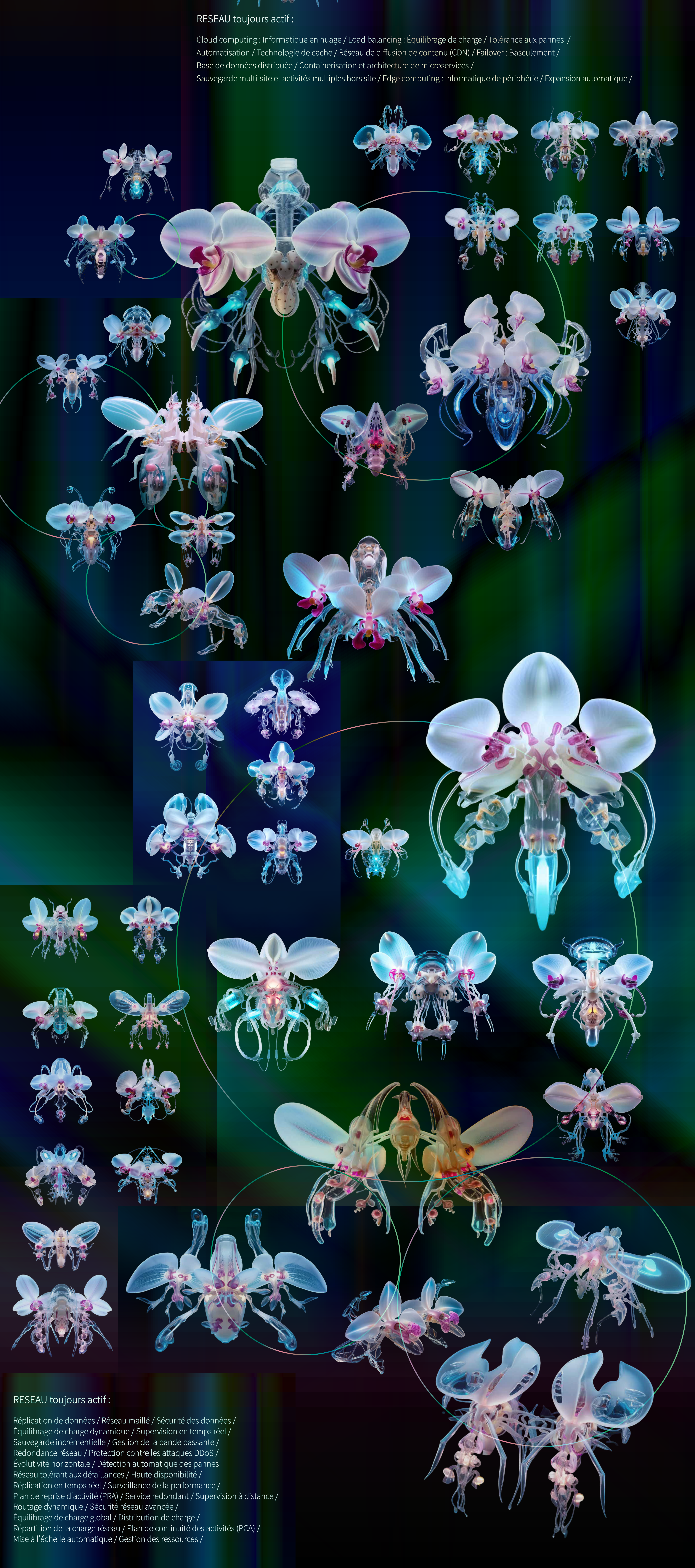
Technologie spatiale / Analyse de données / Données satellites / Système de surveillance / Traitement des données / Traitement d'images / Analyse de données / Transmission de données / Sécurité réseau / Intelligence artificielle / Système d'information géographique / Satellite / Plateforme de surveillance / Traitement d'images / Télédétection / Capteur / Modèle de données / Télédétection aérienne / Big Data / Gestion de crise / Partage de données / Architecture réseau / Système de communication

* Jordan's rule : Le nombre de nageoires, de vertèbres ou d'écailles chez les espèces de poissons augmente relativement avec la diminution de la température.
* Rosa's rule : Les caractéristiques variables des espèces primitives évoluent en caractéristiques fixes chez les espèces avancées.
* Règle de Schmalhausen : Une population à la limite de la tolérance sous un certain aspect est vulnérable aux petites différences dans tout autre aspect.



RESEAU toujours actif :

Cloud computing : Informatique en nuage / Load balancing : Équilibrage de charge / Tolérance aux pannes / Automatisation / Technologie de cache / Réseau de diffusion de contenu (CDN) / Failover : Basculement / Base de données distribuée / Containerisation et architecture de microservices / Sauvegarde multi-site et activités multiples hors site / Edge computing : Informatique de périphérie / Expansion automatique /

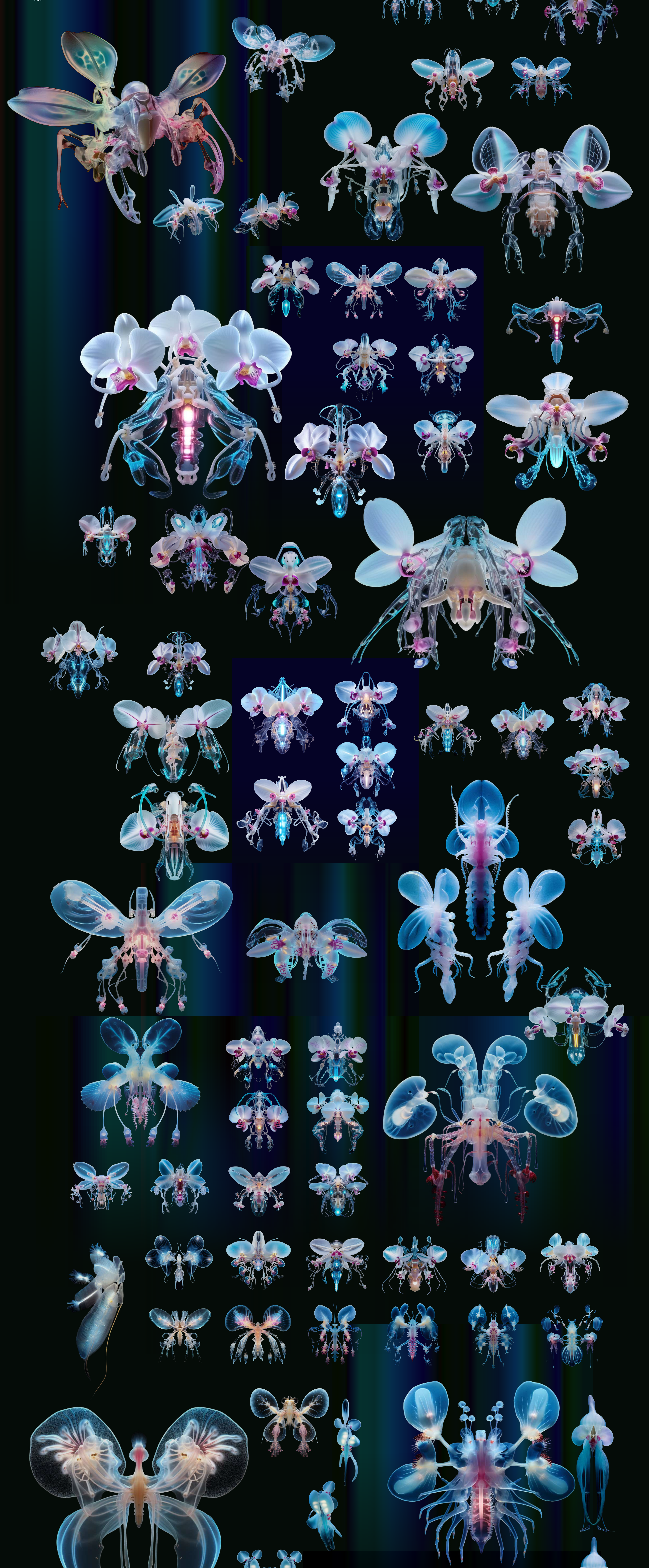


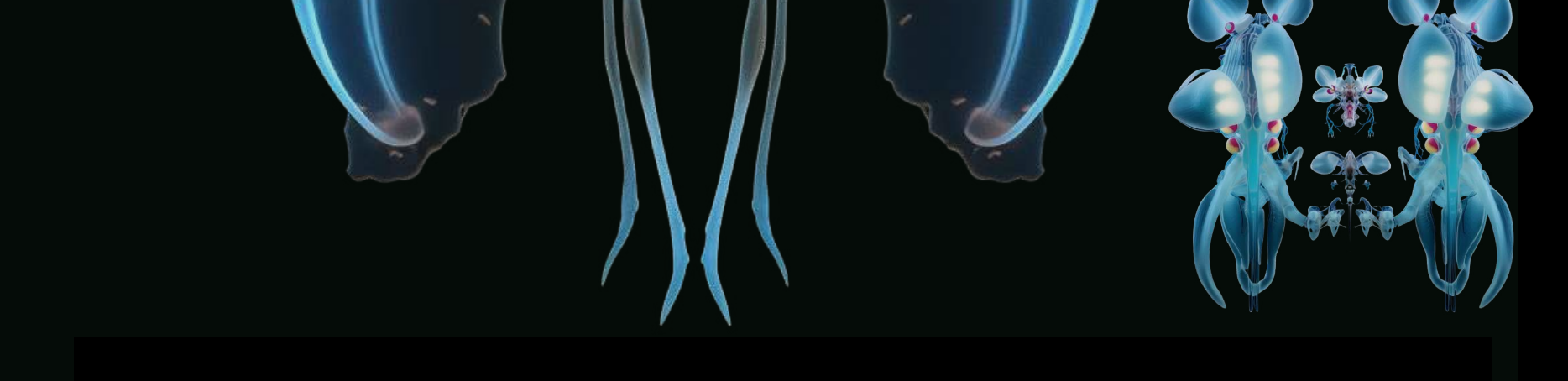
RESEAU toujours actif :

Réplication de données / Réseau maillé / Sécurité des données / Équilibrage de charge dynamique / Supervision en temps réel / Sauvegarde incrémentielle / Gestion de la bande passante / Redondance réseau / Protection contre les attaques DDoS / Évolutivité horizontale / Détection automatique des pannes Réseau tolérant aux défaillances / Haute disponibilité / Réplication en temps réel / Surveillance de la performance / Plan de reprise d'activité (PRA) / Service redondant / Supervision à distance / Routage dynamique / Sécurité réseau avancée / Équilibrage de charge global / Distribution de charge / Répartition de la charge réseau / Plan de continuité des activités (PCA) / Mise à l'échelle automatique / Gestion des ressources /

Bioluminescence Strategies of Deep-Sea Organisms:

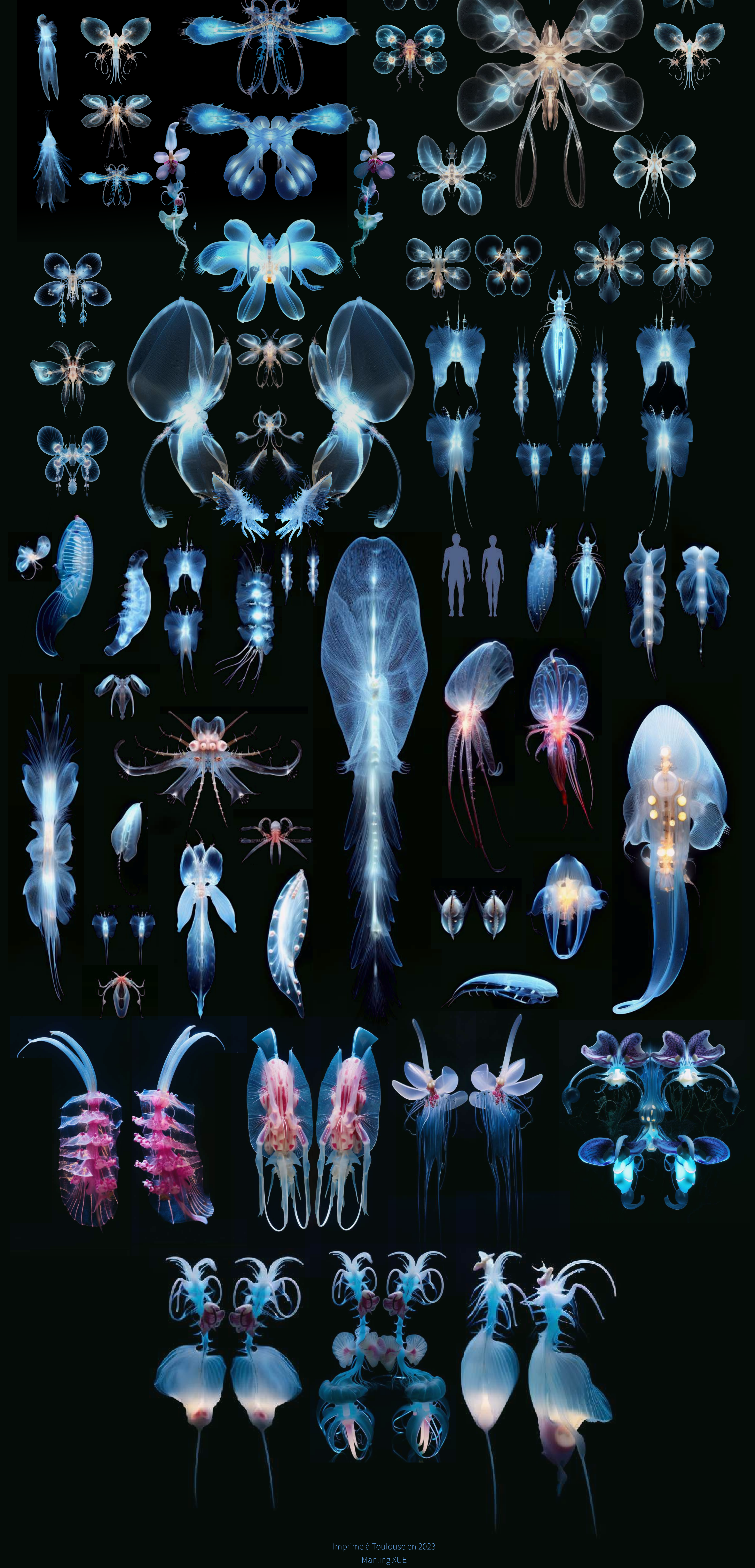
Some organisms divert predator attention by releasing luminous chemicals, while others use light signals to indicate they may be toxic or dangerous. Some employ particularly bright light as a "distress signal" to attract larger predators to attack their aggressors.





- * Règle de Gloger : Les animaux sont plus clairs en couleur dans les climats froids et secs.
- * Règle de Rensch : Lorsque les mâles sont plus grands, la différence de taille entre les sexes augmente avec la taille ; lorsque les femelles sont plus grandes, la différence de taille entre les sexes diminue avec la taille.
- * Principe de Jarman-Bell : Corrélation entre la taille des animaux et la qualité de leur alimentation : les animaux plus grands peuvent consommer des aliments de moindre qualité.

- * Règle d'Allen : Les extrémités, comme les membres, des animaux homéothermes sont plus courtes dans les régions froides.
- * Règle de Bergmann : Les corps sont plus grands dans les climats froids.
- * Règle de Cope : Les corps tendent à augmenter de taille au fil du temps.
- * Gigantisme abyssal : Les animaux des profondeurs marines tendent à être plus grands.
- * Règle de Foster (Gigantisme insulaire, Nanisme insulaire) : Les grands animaux terrestres tendent à réduire leur taille après s'être installés sur des îles, tandis que les petits animaux tendent à augmenter leur taille.



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