

# BIOMIMICRY BIOGRAPHIES

## 2023: Episode 3



**Jun Kamei**

Jun Kamei is a chemist, materials scientist, and designer. As a child, growing up in southern Japan, Jun fell in love with chemistry at school. In the lab, he could see chemical reactions happening right in front of him. Chemistry, to Jun, made school interactive. When he left home and moved to northern Japan for university, he continued pursuing his interest in chemistry. It was at Tohoku University that he received his bachelors degree in chemistry and materials science.

In 2011, Jun was working in a materials science lab in northern Japan. At the same time, a major earthquake hit the coast. The earthquake caused a tsunami, which led to the failure of a nearby nuclear powerplant. In response to the disaster, Japan and its citizens required a serious relief effort, in which Jun was eager to assist.

The efforts to rebuild and recover after the disaster opened Jun's eyes to his future and its possibilities. As he searched for different ways to rebuild, he noticed that the people who had the most helpful ideas were often designers. Designers were able to utilize pre-existing technology to create solutions that could come to life quickly. This was in contrast to the slow pace of research, to which most scientists and academics are accustomed. Jun recalls feeling inspired by this aspect of design, and this new perspective led him to attend art school.

Thus, in 2015, Jun began studying design engineering in a dual program at Imperial College London and the Royal College of Art. He quickly realized that the initial task of jumping between the two worlds was quite challenging.

In one of his first projects in art school, Jun remembers designing and building a chair. One challenge in this project was that Jun had never worked with anything as large as a chair. In art and design, most products are big enough to exist at a human scale. However, in chemistry and materials science most measurements aren't even visible to the human eye!

Ultimately, after some practice, Jun overcame the initial hurdles in his career transition. In 2018, after graduating with his MA/MSc, Jun began work on his first product as a designer. Jun combined his knowledge of science, design, and biomimicry to create a special kind of scuba gear. Jun's scuba mask functions like fish gills, capturing oxygen from water and allowing its wearer to breathe underwater.

The mask, called amphibio, caught attention of investors who were excited with the prospect of diving gear that could eliminate large oxygen tanks. Investment in amphibio paved the way for Jun to start his own company, AMPHICO. As CEO of AMPHICO, Jun and his team continued to improve the amphibio technology,

One component of the mask that was pivotal to AMPHICO's future was the filter. To make these filters, Jun needed a permeable, waterproof membrane. Prior to amphibio, the industry achieved these properties with harmful chemical processes, like fluorination. Overtime, Jun realized that the filter's membrane could double as a waterproof textile. With this discovery, AMPHICO developed a new product, amphitex. Amphitex is the recyclable and chemical-free alternative to traditional waterproof clothing.

AMPHICO inspires adventurers to get outside and enjoy nature while wearing sustainable clothes. Jun hopes that the biomimics and designers of the future also remember to get outside, and find their next inspiration while hands-on in nature!