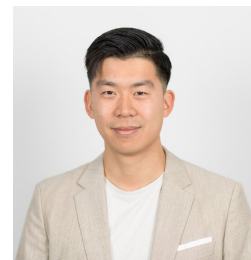


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Research

I am a microfluidic engineer and researcher with a strong foundation in mechanical engineering, specializing in the application of microfluidics within interdisciplinary research contexts. My work involves close collaboration with experts in biology, physics, and engineering, allowing me to bridge the gap between these diverse fields.

I developed artificial porous media that mimic oil reservoirs, soil structures, and cement concrete pore networks. These models provide a unique visualization window for the analysis of physical chemistry and the morphological characterization of microbial communities. As a crucial member of the Soil Chip team led by Edith Hammer, I take on the responsibility of designing and fabricating microfluidic devices, leveraging deep learning techniques to analyze soil bacterial communities efficiently. My particular focus lies in understanding the capacity of microorganisms to exploit spatial resources across various resource distribution levels, taking into account both initial ecophysiological conditions and interactions within the microbial community.

In my role as a Principal Investigator (PI), I lead an interdisciplinary project aimed at developing fungal repair agents to repair existing infrastructure. By doing so, we aim to reduce the need for extensive new cement concrete construction and lower maintenance costs, aligning with our core values of sustainability and cost-consciousness.

Our team is deeply committed to developing sustainable biomaterials, and we firmly believe in the importance of interdisciplinary collaboration. Our vision extends beyond commercial products; we are passionate about bridging the gap between the theoretical and practical applications of using fungi as bio-healing agents. I aspire to make a positive global impact by fostering greater collaboration between the realms of biology and engineering. By demonstrating the power of interdisciplinary expertise and innovative thinking, I aim to inspire others to apply their skills across various fields to generate groundbreaking solutions to real-world problems.

Qualifications

Mechanical engineering, Doctor of philosophy, Microfluidic platforms for analyzing the development of miscibility , Monash University

Award Date: 2021 Feb 10