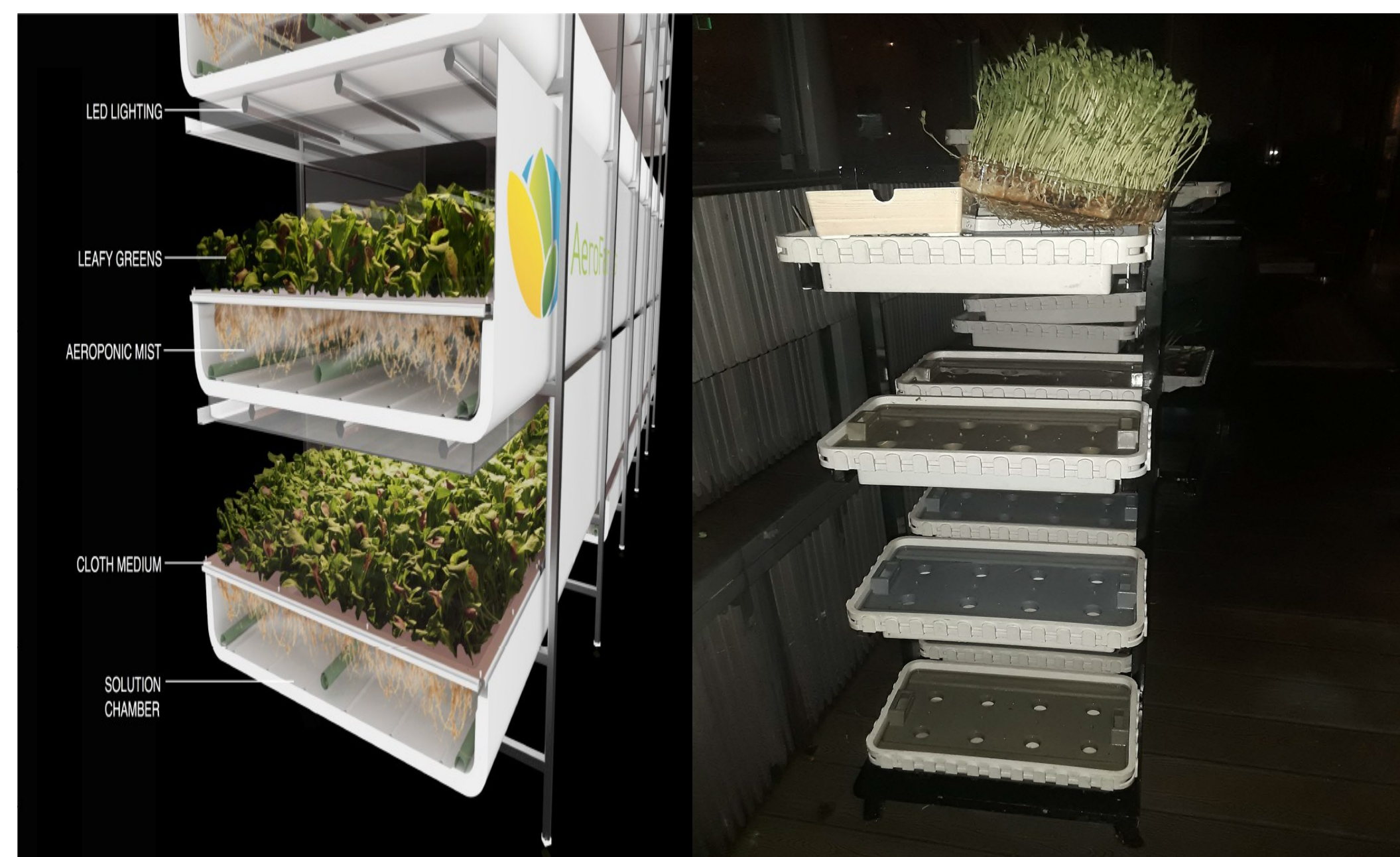


Medicinal Aeroponics To Support Resource Constrained Environments

Jessica Thomas Student Health Informaticist

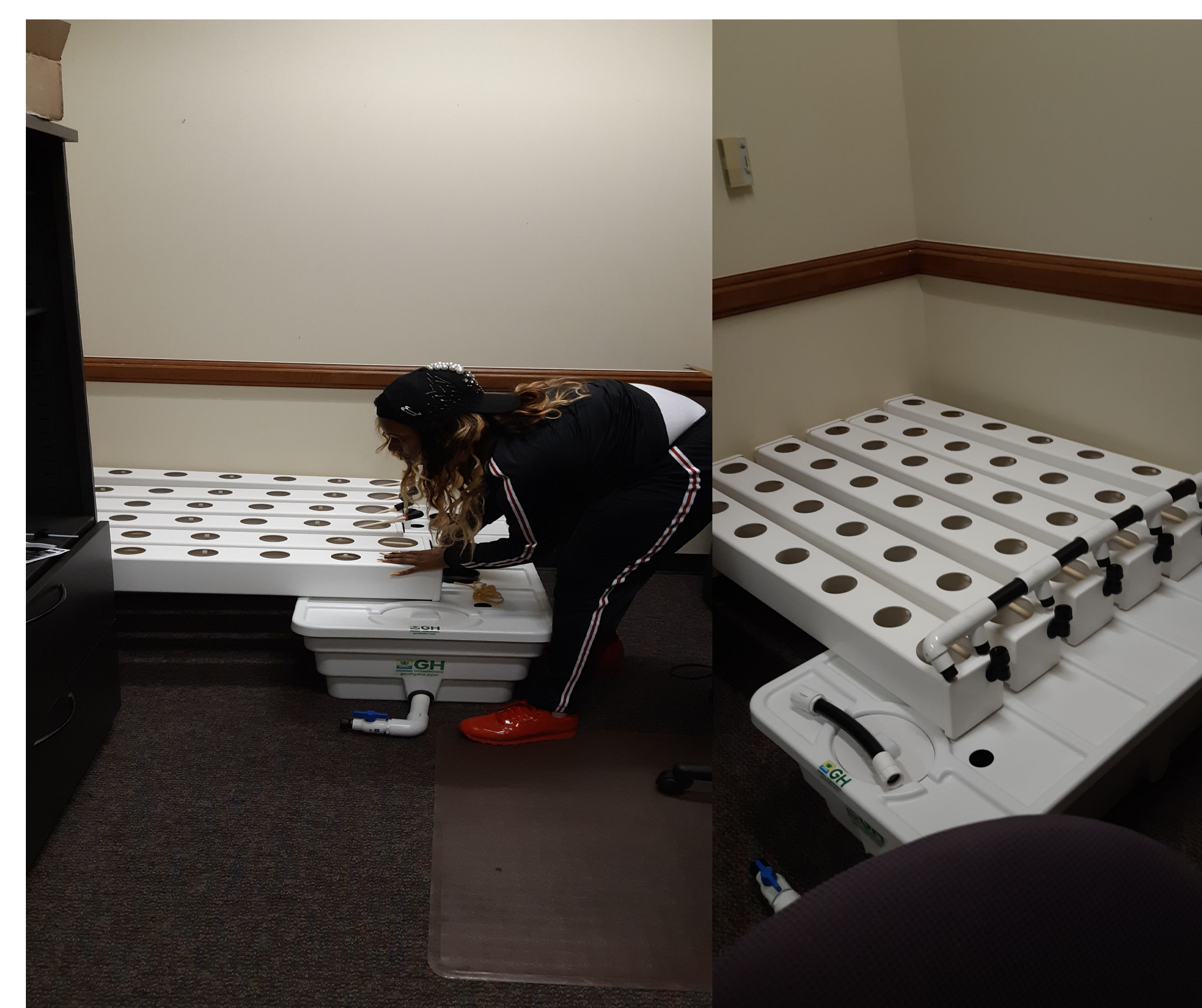
What is Aeroponics?



Aeroponics is a form of hydroponic plant cultivation in which plant roots are suspended in a closed chamber and misted with a complete nutrient solution. Aeroponics requires no solid or aggregate growing medium and allows for easy access to roots. The chamber and misting system provide complete control of the root zone environment, including temperature, nutrient level, pH, humidity, misting frequency and duration, and oxygen availability. Plants often exhibit accelerated growth and maturation in aeroponic systems. Aeroponics provide a concentrated controlled growing environment in contexts where space, soil, light, and other agricultural resources are limited such as in urban areas, underwater habitats, extreme temperature habitats, and outer space.

Why is it important?

The purpose of this research project is to explore, and lay the foundation for further exploration, of the use of aeroponic technology to grow medicinal herbs to support the needs of humans living and working in resource constrained environments. I developed a passion for supporting humanity's work, and the opportunity to solve on-planet problems using experiential research. This project will give me direct experience exploring a technology supported need in our space program and has the potential to support the needs of humankind as it could be applied to our world's changing environment and needs.



Who needs it?

Meet Yu Yan, a Chinese native that falls within the 65-85% of the world who relies on holistic medicine. She shared her journey with me when I visited China for this experiential research November 2018.



Over the last several years Yu has had 65 surgeries and has taken numerous prescription drugs that have led to long term side effects. She now has more symptoms than she originally started with. In addition, the tap water in China is undrinkable and contains a lethal amount of carcinogen. She expressed a yearning desire to use more holistic approaches, and thus benefit from medicinal herbs.

Where can it be utilized?



We have natural disasters globally that result in hunger, sickness, disease, and death. Some hit close to home such as hurricane Ike and Katrina. We're always under prepared for water sustainability, basic medicine, and food. This is not just a national issue, this is global. How do we provide these health needs, in resource constrained environments? This may be the solution. So the question is...How do we respond to meet medical needs in the wake of natural disasters, and minority populations? The goal is to explore the co-design food system that works for everyone and that produces more than we consume; reducing our food mileage and carbon footprints.