



Innovation For Life

Khalifa University of Science, Technology and Research in Abu Dhabi produces graduates (BSc, MSc, and PhD) who form a superlative cadre of engineers, technologists and applied scientists. KU faculty are well-versed in the creation of knowledge, as well as its dissemination and transfer.



COMPETITION

The 5 Million Dollar Robotic Challenge

Get your robots ready. The Mohammed Bin Zayed International Robotics Challenge – a prestigious, global robotics competition with a total prize value of USD 5 Million – debuts in Abu Dhabi in the Fall of 2016. Immediately following MBZIRC’s official launch on Feb, 15, 2015, the news spread from Abu Dhabi to New Zealand overnight, and was mentioned or posted in 570 media outlets, in 12 different languages. The world’s finest robotics engineers are eager to come to the UAE and compete in this unrivaled event.

MBZIRC will present a very demanding set of challenges for international participants who have their eyes on the prize. The Challenge will test – and push – the limits of technology in the context of next-generation robotics.

The Intention to Participate is now open, with a deadline of June 15.

[Click here to read more about MBZIRC.](#)

Out of the Fog

Ph.D. student Sameera Almulla was driving on a foggy morning when she wondered why there was no practical solution to this common and costly problem. She spoke with her engineering cohort Mouza Shemali about creating a “fog dissipation” drone.

Months later, they were semifinalists in the international category of a recent “Drones for Good” competition in the UAE. Since then, their drone has garnered a lot of attention due to its ability to clear fog by spraying a solution that turns it into precipitation. The women hope to build a machine that can be used to clear fog on stretches of highway or airport runways.

[Read more about the Fog Dissipation Drone.](#)

STUDENT SUCCESS



One of the Most Powerful Women in the Arab World

Dr. Habiba Al Safar, Assistant Professor in Biomedical Engineering at Khalifa University, has been recognized as one of the most powerful women in the Arab world by Arabian Business.com for her work in “identifying genetic and environmental factors associated with diabetes.” The Emirati researcher came in 52nd – appearing on the list with Her Excellency Sheikha Lubna Al Qasimi, who was ranked number one.

“One out of five Emiratis between the ages of 20 to 79 live with Type 2 Diabetes, which is why I’m so passionate about it,” explains Dr. Al Safar.

[Click here to read more about Dr. Safar.](#)



KUSTARS

Mitigating Galactic Cosmic Rays for NASA

Dr. George Wesley Hitt, Assistant Professor of Physics and Nuclear Engineering, won top honors in NASA’s Galactic Cosmic Rays Challenge for his novel idea “on reusing a shield that could be placed in a Mars Transfer Orbit” to mitigate the impact of radiation on future space travelers. NASA received a total of 136 global submission for the Challenge; and, Dr. Hitt received a cash award for his winning concept.

Dr. Hitt, who obtained his PhD from Michigan State University in experimental nuclear physics, proposed that shields become part of space infrastructure as opposed to the ship itself.

“Shielding designs require something like 100,000 extra kilograms of payload to be shot up on a rocket and go with the astronauts. This is very expensive,” he explains. “It would be easier if the shielding was already up there. If you don’t have to make it part of the trip, you can reuse it.”

[Click here to read more about Dr. Hitt’s NASA award.](#)

The Long and Short of It

What do the Los Alamos National Lab in New Mexico, Nanyang Technical University in Singapore, and Khalifa University in Abu Dhabi have in common? The answer is Dr. Lianxi Zheng, who earned a place in the record books for creating the longest carbon nanotube – 4 centimeters – in the world back in 2004. His world record has since been broken, but Dr. Zheng also has moved on to bigger things.

Dr. Lianxi is working on spinning individual carbon nanotubes (CNT) into fibers that are 10 times stronger than any known structural material. Imagine a thing as slight and light as four strands of hair that, when woven together, can dangle a car in midair. According to Dr. Lianxi, the applications for something so small are, in fact, endless.

[Click here to read more about Dr. Zheng’s research.](#)



FACULTY SPOTLIGHTS



“Reverse” Engineering

Dr. James Turner, visiting professor of Aerospace Engineering at Khalifa University from Texas A&M University, is making a career – and a name for himself – in “reverse engineering.” With long-time research partner NASA Emeritus Scientist Harold P. Frisch, he has found a way to translate dynamics into data mining. Or, as Dr. Turner explains, “a physics-based math model.”

For the last four years, Dr. Turner and Mr. Frisch have been collaborating with the immunology department at the Mayo Clinic, in Rochester, Minnesota, on mining cell data to increase efficacy in cancer treatments for melanoma patients. Their work has resulted in a “Cancer Immune Control Dynamics” modeling tool that provides quantitative understanding of the body’s response at the immune system level.

[Click here to read more about Dr. Turner’s research.](#)



COLLABORATION



For more information about research at Khalifa University, please email kupulse@kustar.ac.ae or visit www.kustar.ac.ae

