ALUMNI NOTES

COURTESY OF JUSTIN HO AND WYATT SING

A student pins an arrow onto an 8-foot-tall corkboard display featuring the names of everyday heroes.

Science graduates cook up lab for encouragement, self-esteem

ANNA ILIFF
REGISTER WRITER

After UC Irvine alumni Justin Ho (2012) and David Ly Khim ('13) graduated with degrees in science, it seemed only logical they would start a new experiment.

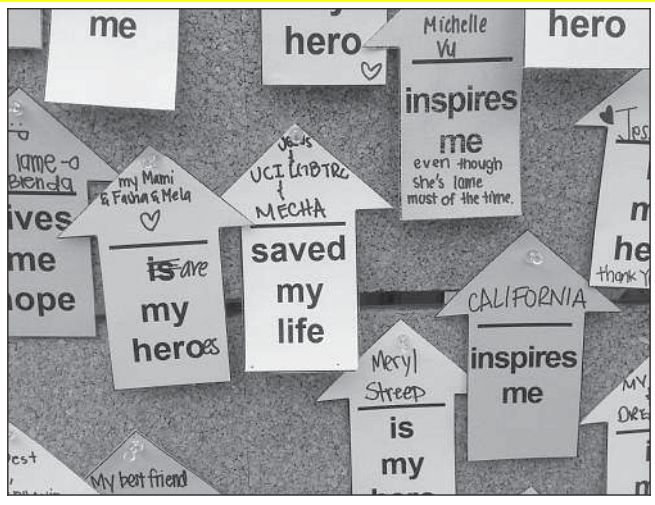
But unlike the kind conducted in a sterile, white laboratory with beakers and petri dishes, the duo wanted to try something different – they wanted to see how telling inspirational stories of everyday heroes could affect the lives of those around them.

What resulted was The UP Lab.

Founded in 2013, The UP Lab attempts to inspire others through storytelling in a variety of mediums, be it an online blog post about self-esteem or an 8-foot-tall corkboard with messages of thanks at the UC Irvine campus.

The idea is simple: share a story about those who do good things, motivate others to attain their goals, and promote positivity in your community.

"Throughout college I met a lot of people who sacrificed their happiness to be successful on someone else's terms," Khim said. "The mission of The UP Lab is to encourage people and to provide them with a network of support so they can reach their own idea of success."



ANNA ILIFF, ORANGE COUNTY REGISTER

Students write names that fit preprinted phrases.

COURTESY OF THE UPLAB

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David Ly Khim, left, and Justin Ho founded The UP Lab.

Over the course of one week, hundreds of students were able to select one of four colorful paper arrows with phrases such as "inspires me," "gives me hope," "is my hero" and "saved my life" written on it. Participants were invited to write down the name of a person or group that fit the phrase on their arrow.

Popular choices displayed on the boards included parents, siblings, religious figureheads, celebrities, friends and on-campus clubs.

The Looking UP Project is one of many events The UP Lab plans to host in the future. Each week, Ho and Khim upload blog posts sharing stories of those who inspire them, advice for life after college, or tips for overcoming adversity.

To see some of the stories shared by The UP Lab, visit **theuplab.wordpress.com.**

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In November, the group brought the Looking UP Project to UC Irvine. The project was thought up by UCI student Victoria Wang, who wanted to find a way to thank those who have inspired and supported her throughout her life. Wang reached out to The UP Lab to create a large-scale corkboard display where students could publicly show their gratitude for people who have made an impact in their lives.

"We purposely planned this event to take place before Thanksgiving because we felt that it would give people some perspective on how to look at the holiday," Khim said. "We wanted to make people think about why they look up to certain people and those who influence them."

Living Textbook

PHYSICS

The science of killing zombies

Editor's note: This is last of four Living Textbook articles that followed the theme of UC Irvine's massive open online course, "Society, Science, Survival: Lessons From AMC's 'The Walking Dead.'"

MICHAEL DENNIN
UC IRVINE

With our Living Textbook feature, the Register invites university faculty to share their knowledge and expertise with readers.

At some level, everything that happens to you happens because of the interactions between matter and matter, matter and radiation, or radiation and radiation.

Physics is the study of these interactions, and a key to learning physics is to find relatively simple examples of interactions that can be quantified through measurements and described by mathematics.

The killing of zombies in "The Walking Dead" demonstrates these basic characteristics, which makes them ideal for teaching people about physics.

INTERACTIONS OF MATTER ON MATTER

The basic interactions between different pieces of matter that occur in zombie killings are similar to everyday interactions we encounter. By watching and evaluating key scenes of interactions between objects in "The Walking Dead," we can examine the physics involved.

For example, when killing a zombie, it is best to crush their skull with another solid object. This raises the question: How do we determine which object will break in a collision? For example, if you are unlucky enough to have a car accident, you generally prefer damage to your car than to yourself. But if you could arrange it, you would really prefer no damage to your car either. Or consider your cellphone. How should it be built so as to minimize the chance of breakage when you drop it?

Understanding these types of matter-to-matter interactions involves exploring two different physics ideas:

1. Descriptions of interaction.
2. Descriptions of types of matter.

In most introductory physics courses, we focus on how to describe interactions. We teach students about Newton's Laws, energy conservation, and specific forces such as electricity and magnetism. Rarely do we teach about the mechanical properties of materials.

KINETIC ENERGY AND MOMENTUM

How do we put these ideas to the test?

A classic example is shooting a crossbow bolt through a zombie's head. In "The Walking Dead," the crossbow bolts always end up sticking out the back of the zombie's head. How realistic is this? What would you need to know to answer this?

Well, for the details, you need to sign up and take the course. But I'll share a few relevant bits.

First, the parts of the head need to stop the bolt. They do this by applying a force to the bolt as it moves through the head. This changes both the kinetic energy and momentum of the bolt. Kinetic energy and momentum, two of the fun things you will learn about in the course, are essentially two ways to quantify how much motion an object has.

Where does the force on the bolt come from? It comes from interacting with two very different types of materials: the skull and the brains. Essentially, we can describe materials based on how solid or liquid-like they are. The skull is clearly quite solid and the brains are somewhere in between. Once you know a little bit about how materials generate forces, then you can estimate whether the zombie head can really stop a crossbow bolt, and if so, how far out the back you can expect the bolt to go.

Information:
canvas.net/courses/the-walking -dead

Michael Dennin

Michael Dennin is a UC Irvine professor of physics and astronomy. He earned his doctorate in physics from the UC Santa Barbara and spent 18 months at UCLA in the chemistry and biochemistry department as a postdoctoral researcher. In addition to teaching a wide range of physics courses, he runs a research lab that studies the behavior of bubbles and foam and has appeared on numerous science specials for History Channel and National Geographic Channel, including "Science of Superman" and "Spider-Man Tech."

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