

Marco Cesante

Alliance/Merck *Ciencia* Scholar Class of 2013

**Studying mechanical engineering at the University of Southern California
Interned at University of Southern California's Autonomous Micro-robotics
Lab**

Marco grew up watching *Transformers* and a Japanese anime series called *Gundam*. Back then, robots were his passion; today, he's made them his career.

As an Alliance/Merck *Ciencia* Scholar and with the support of the Alliance, for his summer internship Marco worked at his university's Autonomous Micro-robotics lab, where he worked to improve the dragonfly robot, a combustion fueled actuator and motor system dependent robot. Marco's primary task was to test the properties of a "Shape Memory Alloy" wire. The wire gets its name from how it contracts when heated. When it has cooled, it "remembers" its original shape, Marco explained. Heating and cooling the wire at a certain frequency allows the engine to flap the wings of the dragonfly. "Our job was to give it the force it needed to move. Someone else worked on the control and direction," he said.

Marco sees myriad possibilities for working with robots. "I just feel that in some ways machines can just do it better and more efficiently," he said. He's not looking to replace humans but, by working with robots, he thinks we can accomplish more.

Marco says his parents have always supported his academic goals. He was equally inspired by his grandfather, an immigrant farmer, whose favorite expression was: "Day in and day out, you always have to work to your fullest."

One idea Marco would like to explore is using robots to enter environments that unsafe for people, such as the ocean floor and the peaks of mountains. With the experience he's accumulated through school and internships, Marco's ideas may soon become reality.