

Cian Costello – EE Fast Track Program

I was born and raised in Silicon Valley and attended Saratoga High School. I've been able to explore aspects of computer science and electrical engineering through various opportunities that I've been a part of.

As a rising high school senior, I spent six weeks conducting research at the University of Florida. I interned in the Agricultural and Biological Engineering Department, and I used the programming language "NetLogo" to develop agent-based models of elephant grazing patterns around water sources. I incorporated flocking, dominance hierarchy, and path fidelity algorithms to produce more accurate simulations. Analysis was conducted with the statistical computing language "R" to further conservation efforts in South Africa. This experience was a great introduction to computer science and it taught me the tools and strategies needed at my next internship.

This past summer I worked on two projects at NASA Ames Research Center. For the first project, I created ray tracing and volume rendering programs (in C++) to improve visualizations of helicopter rotor tip vortices. These renderings support transparency (with alpha channel values) and multithreading (using POSIX Threads). For the second project, I collaborated with other pre-college interns to design and build a prototype CubeSat (U-class spacecraft) network. We used Arduino microcontrollers and XBee radio modules to demonstrate networking capabilities between three satellites.

Since coming to UCLA, I've joined the Electron Losses and Fields Investigation (ELFIN), a CubeSat mission launching in 2017 to study space weather. I was recently appointed as the Electrical Engineering Lead and I have spent my time testing and debugging circuit boards, creating grounding schematics, and running weekly meetings to manage all electrical aspects of the spacecraft.

Based on my prior experience, I am most interested in embedded systems and electronic design. Ideally, I would get further exposure to both hardware and software portions of electrical engineering.