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NASA internship for Chris Olson '05

Summary: Recent graduate Chris Olson's NASA internship is one more step towards "dream career."

(December 12, 2005)-Christopher "CCO" Olson '05, a computer science major and mathematics and statistics minor, is currently a doctor of philosophy student in computer science with a robotics emphasis at the University of Minnesota, Twin Cities. Olson grew up in Roseau, a small town in northern Minnesota. He decided to attend the University of Minnesota, Morris for his undergraduate career because of UMM's high academic standing and the opportunity to continue "small town life" in Morris. After graduation in May 2005, he enjoyed a remarkable summer interning with the National Aeronautics and Space Administration (NASA).

NASA and the STEREO mission

Olson was one of five recipients out of more than 3,000 applicants to be accepted for an internship at the Applied Physics Laboratory (APL) at Johns Hopkins University in Maryland. He served as a software engineer intern on the STEREO (Solar TERrestrial RELations Observatory) mission with NASA.

According to the Johns Hopkins University APL Web site: "STEREO is the third mission in NASA's Solar Terrestrial Probes program, scheduled to launch in spring 2006. This two-year mission will employ two nearly identical space-based observatories to provide the first ever, 3-D stereoscopic images to study the nature of coronal mass ejections (CMEs)." CMEs are often associated with solar flares and can trigger severe magnetic storms when colliding with Earth, which can cause electrical power outages and damage to communication satellites.

A dream begins to unfold

"Since high school, I've dreamed of one day working for NASA at the Jet Propulsion Laboratory in Pasadena, California, on an autonomous, planetary rover project," shares Olson. He decided to get a jumpstart on that dream by researching NASA internships during the fall of his senior year. "I Google searched 'NASA robotic internships' and found a link to various NASA internships," recalls Olson. He then applied to four different NASA internships as well as several other internships at companies throughout the United States.

"When March came and I hadn't heard back from any of my internship applications, I started to worry that I would never get an internship," remembers Olson. But by mid-spring, he had several internships from which to choose, including a NASA offer. "You just have to have confidence in yourself and have plenty of patience," he shares.

Olson accepted the NASA internship at Johns Hopkins and turned down several other impressive opportunities. He was offered a software engineering internship at Beckman-Coulter, a full-time position with PTC, and an IT field engineering internship with United Defense. Olson turned down the PTC position, because he knew he wanted to attend graduate school before starting a career. He also knew that the NASA internship would bring him a step closer to his

dream career.

Andy Lopez, professor of computer science, was pleased but not surprised with Olson's success. "Olson is a very hardworking, dedicated, responsible student who loves to tinker with things," states Lopez. I was not surprised when he got the NASA position. These are very competitive positions, but we have great students at UMM."

A "fresh mind"

Olson left for Maryland in early June. At APL Olson shared an office with another software engineer and worked on several major projects during his 10-week internship. "Every now and then, I had a colleague ask me if I could help with a task. Surprisingly, they saw me—an intern—as a 'fresh mind' to bounce programming ideas and techniques off of," recalls Olson.

While at Johns Hopkins, Olson tackled three projects. "I was first told to write a small piece of software that would alert the scientists and engineers, via email, when a spacecraft's telemetry data packet was received from ground control whose timestamp is out of sequence with other data packets received within the same timeframe."

For his second project, Olson worked on a "Secondary Archive" project. "For this project, I prototyped a web interface for a collection of software tools that the engineers used regularly for the mission. It was also a web interface for a database that temporarily contained spacecraft data (spacecraft data consists of sensor readings, voltages, etc...). The scientists could use my software to view various spacecraft data values which then they could process for whatever reason."

"Scheduler" was the final project Olson worked on. "I was temporarily pulled off of Secondary Archive to work on Scheduler, because the developers were behind schedule," Olson says. "Scheduler was a web interface for a database which held spacecraft commands that were queued up until it was time to send them to the spacecrafts. I wrote the 'add command to the database' and 'edit command in the database' features for this project, which helped them to meet their deadline."

The chance of a lifetime

"The internship was a chance of a lifetime opportunity for me," shares Olson. "The fact that I got to work for NASA, if only for 10 weeks, means so much to me. It has given me the confidence to strive towards challenging goals."

Photo: Olson used triangle-shaped robots called PPRKs (Palm Pilot Robot Kits), developed by Carnegie Mellon University, for an artificial intelligence robotic project for his doctorate program. The University of Minnesota, Twin Cities is second only to Carnegie Mellon University for the largest university collection of robots in the nation.

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