Serendipity Leads to Vast Opportunities.

By: Desiré Bennett

Brad Keserich is the UC College of Engineering and Applied Science Engineer of the Month for April. Brad is a senior maintaining a GPA above a magna cum laude level in his fifth year in the computer science program while working toward a Bachelor of Computer Science degree.

According to Brad, at first, his decision to study computer engineering was an arbitrary one. “I chose [this major] because I was sitting in front of a computer when I was filling out the application and, not knowing what to fill out, I thought ‘hey, there are a lot of computers around’,” he reflects. “Plus my parents told me to do computer engineering because I could get a job.”

Brad now admits that there are many benefits, beyond simply nailing down a career path, to studying computer engineering. “You get cool insight into the physics of computer hardware – from the logic designs to the more abstract, software engineering space – like applications and all that,” he explains. “You really get a full, holistic view of what a computer is about and there’s a lot of great stuff that goes along with that – and once you know that, you can apply it to other things.”

Brad says it can be applied to the exciting field of artificial intelligence. “That’s all based in what we’re building with computers,” he said. “And there are cool things going on with complex systems. I really like theoretical physics that relate to computing – there are some great ideas out there on how the universe might actually be described in terms of information computation.”

Brad utilized his computing skills while conducting computer vision work during his six co-op rotations at Etegent Technologies, Ltd. Etegent is a small, high technology, R&D focused company located in Norwood, Ohio. “The big project we worked on was called ISAR (Inverse Synthetic Aperture Radar),” he said. “Essentially, what that means is people fly a plane with radar on it and they’ll capture a bunch of return responses.”

Brad explains that once the return responses are captured, “a 2D image of something like a car or a tank is generated and computer vision is then applied to the image. You then take that signature of a car and take a guess at what type of car it is. This is called automatic target recognition.”
He is thankful for the experience that working at Etegent provided. “It was very interesting because I learned how to really conduct research, since [the automatic target recognition project] was kind of like a mini research project.”

In addition to his work with Etegent, Brad has also participated in other research projects including the Academic Year Research Experience for Undergraduates (REU) last semester. “I worked with professor Agrawal – we investigated the potential use for a certain type of algorithm, like for sound automatic target recognition,” he said. “It was kind of related to the things that I learned during my co-op experience, but in this case it applied to sound.”

Brad has also worked with Dr. George Purdy on a project related to quantum mechanics. “We did an iteration of the Helsinki model and formulated it in terms of Bayesian networks,” he said. “We presented a poster at the Undergraduate Research Symposium.”

Although he is grateful for all of the experiences the past few years have afforded him, it is Brad’s love of physics that drives him. “I like cosmology and theoretical particle physics and you can kind of tie that back to things like quantum computation, which is something where you might need to know quantum mechanics and potentially push that even further,” he said. “I really like taking higher level math classes because they’re challenging and there’s an aesthetic appeal to really crazy equations.”

Brad is currently taking Japanese classes for some of the same reasons. “I’m taking Japanese because I think the written language looks really cool,” he said. “And I would also like to learn Chinese.”

But Brad isn’t all work and no play – in fact, he plays the guitar, bass, drums and keyboard. In high school his band, Mescaline, participated in a competition called the High School Rock Off which led to opportunities that some only dream of: he and his band mates played at the Rock and Roll Hall of Fame and at the House of Blues in Cleveland, Ohio.
After graduation, Brad would like to attend graduate school. “It might not happen immediately – I might go work for a year,” he said. “But I think it’s definitely something I’m going to do in the future.”

ENGINEER OF THE MONTH

As one of the most innovative colleges, the College of Engineering and Applied Science at the University of Cincinnati takes pride in its exceptional students and their successes. “Our vision is to produce outstanding engineers and technologists,” states Interim Dean Teik C. Lim, PhD. “WE ENGINEER BETTER™ starts with our training the next generation and we are proud to introduce a few of our leaders.”

Starting in August and each month this academic year, the college is recognizing one of our upper classmen (junior or senior) as our Engineer of the Month. Each Engineer of the Month has demonstrated excellence in the classroom, success in their co-op assignments, and leadership through extracurricular activities on campus and/or in the community. These students have found the balance needed to be leaders and exemplary scholars.

The College of Engineering and Applied Science salutes their efforts and recognizes:

Brad Keserich
Engineer of the Month for April
Senior
Computer Science Program