Cornell students present research at Senior Expo

Cornell University
By Farrah Tan [1]

Why do overweight and obese women find it harder to breast-feed? Are current therapies for autistic children who can't speak effective? How can we use a 3-D printer at home to fabricate everyday objects? Cornell students have been researching such questions.

Fifty seniors, funded by the Hunter R. Rawlings III Cornell Presidential Research Scholars program, discussed these and other research projects at the annual Senior Expo April 14 in the Biotechnology Building, as many prospective freshmen and their parents on campus for Cornell Days looked on.

Students said the most rewarding part of the research experience was the opportunity to work closely with professors and Ph.D. students.

"It was nice to have a professional relationship with members of my research team and to have mentors to learn from," said Rabia Aslam '10, an applied economics and management major, who worked to design a method for quantifying and classifying creativity with the goal of learning how to induce creativity from nonconscious information processing for business purposes. "I also learned how to use the business simulation lab," Aslam said.

Grace Chen '10 researched the effectiveness of current therapies for autistic children who cannot speak. While therapists encourage autistic children to focus their attention on a particular task, she said studies show that focusing directly on someone's face, for example, is so stressful for these children that it activates the fear part of their brains.

"What we found was that there is a negative correlation between autistic children's success rate and their engaged attention," Chen said. "In our study, children weren't paying attention to the therapist but were still able to answer the simple math questions correctly."

Stephanie Leonard '10, a human biology, health and society major, examined the associations among high body mass index, breast milk expression and breast milk production and feeding to better understand why heavier women have more trouble breast-feeding, as well as women's experiences with breast milk pumps.

"It's kind of a controversial issue, but there seems to be evidence that breast pumping may prolong breast milk production. But breast pumps are still really new, and we don't understand if they are good or bad. More research in this area is needed," Leonard said.

Karl Gluck '10, electrical engineering, represented two projects at the expo:

Fab@Home and Octopus Robot. Fab@Home is a platform of printers and open source programs that can produce functional 3-D objects for everyday use.

"Imagine if someone on the Internet has a design for something, and you can download it and then print it in a usable form," Gluck said in explaining what Fab@Home can do.

The Octopus Robot involves replacing stiff components and rigid actuators in robotics with soft, more compliant parts that can distribute the force of a blunt impact and operate in confined spaces.

The Rawlings scholars program supports a select group of Cornell students to pursue undergraduate research and has graduated more than 500 scholars since 1996. It is a part of the Cornell Commitment, which includes other two programs: the Meinig Family Cornell National Scholars program and the Cornell Tradition.

Farrah Tan '10 is a writer intern for the Cornell Chronicle.

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