

the Trend

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Research Stars Light the Path *page 5*

Research Stars Light the Path



Associate Professor Yoky Matsuoka and undergraduate Carissa Conway examine the robot hand, a step toward a lifelike prosthesis.

The call came out of the blue to Yoky Matsuoka, associate professor of computer science and engineering. An official from the John D. and Catherine T. MacArthur Foundation instructed Matsuoka to sit down and put down her week-old baby. Then he revealed she had won a 2007 MacArthur Fellowship, the so-called “genius award” with a \$500,000 no-strings-attached prize.

Matsuoka directs the UW Neurobotics Laboratory. She studies how our central nervous system produces signals that control movements of the limbs and then uses that information to create advanced robotic prosthetics. Her team is working on a lifelike robotic hand that could approximate natural motion, directed by a person’s brain and nerve signals.

Matsuoka said. “That was a big turning point. I realized that acting airhead was not the right dual life for me.”

Matsuoka also is on a mission to pave the way for young women interested in science by changing the image and ensuring them it’s okay to be smart. “I’d like to be a role model. I want them to see what I’m doing and encourage them to do better than me,” she said.

Carissa Conway, a computer science junior, is watching closely. This past summer she participated in the Intel Research Experience for Undergraduates. “I was ecstatic that Yoky chose me to work in her lab,” Carissa said.

She contributed to the research by developing a 3D computer representation of a skeletal finger. It uses a feedback device to take data on the velocity and position

UW Engineering wants to greatly expand research opportunities for undergraduates and encourage more women to pursue careers in engineering. In these pages we introduce you to three women on our faculty who are mentoring young women. Any faculty member, male or female, can be a first-rate mentor to any student, male or female, but in a field where men predominate, an extra dash of inspiration seems to infuse woman-to-woman mentorship.

Matsuoka earned a BS degree from UC–Berkeley and a PhD from MIT, both in electrical engineering and computer science. UW CSE recruited her in 2006 from the Carnegie Mellon faculty. Winning the MacArthur has earned her worldwide media coverage, including a PBS NOVA segment in July, a story in the September 25 *Nature*, and participation in the *New Yorker’s* “Stories from the Future” conference last May.

Matsuoka is just one highly visible example of the extraordinary women on the Engineering faculty, all of whom value the opportunity to introduce the challenges and excitement of research to women undergrads.

She also is light years removed from the super-smart teenager who didn’t want to be perceived as a math and science nerd and so pretended she never studied. The “airhead” act worked until her second year at MIT. “My advisor pulled me aside and told me to stop it,”

of the tip of a user’s index finger. “The virtual finger will execute the same motions as the user’s finger,” Conway said. “This allows us to test passive behaviors in a virtual environment before transferring them to the robot hand.”

Not many girls at her high school in Tenino were interested in math and science, so she is happy to be at the UW. “I just love solving problems and working through the code. Debugging it and getting it to work is such a joy,” Conway said. “Being part of a research team is definitely challenging and has taught me a ton.”

Conway hopes to pursue a doctorate in computer science and then do research in academia or industry. “Yoky has been so supportive and it’s just awesome working with her,” Conway said. “It’s nice to have a woman to look up to. She’s an inspiration.” *Cont. pg 6*

• To learn more about Matsuoka and the Neurobotics Lab: <http://www.cs.washington.edu/homes/yoky/>