## She Robots (And So Can You!)

Jill Greczek took a moment to tell us about her work in the field of robotics.

By Alyssa Nabors

Jill Greczek is a grad student at the University of Southern California, and she robots for a living. As part of the Interaction Lab under Prof. Maja J. Matarić, she studies socially assistive robotics, a subfield of human-robot interaction (HRI).

Specifically, she studies non-contact, rehabilitative interaction between a person and a humanoid robot. Jill was able to give us a little time to talk about her work towards figuring out how humanoid robots are going to fit into our everyday lives in the future.

**The Anglerfish:** So, Jill, what are you specifically researching?

Jill Greczek: My research interests are in long-term health behavior change. My vision is being able to send robots home with people when they are diagnosed with a chronic condition to help them incorporate often

radical changes into their everyday lives.

This idea was inspired by my own diagnosis with Type 1 diabetes. When you go to the doctor one day and come home and suddenly your entire life has changed, that's hard.

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It's not something you get used to in a week. And it turns out, how you handle this sudden change within the first few months of diagnosis dictates how active of a role you will take in managing your condition going forward. I want to give everyone all the support they need in order to implement new changes in their lives and take charge of their health care...I'm excited to be a part of a such a young field, because I'll be one of

**TA:** What's the biggest challenge you face in your work?

the people helping to define it.

JG: The biggest challenge -- but also the most exciting aspect -- of my work is that there are so many unknowns. Every aspect of an interaction between a person and humanoid robot has some level of uncertainty. Because robots have bodies, especially when they have humanoid bodies, we expect them to act like us, because that is the only way we know how to understand someone else. Is our robot sending the right verbal and nonverbal signals to the person? Well, what are the right signals, anyway?

In order to find out what the right signals are, we have to go see how people do it. Psychological, sociological, and neuroscience literature have lots of different models and theories about how people do things. We read those papers, and then we try to turn those ideas into

we try to turn those ideas into numbers that a computer can understand. The thing about people is, we can only be so accurately described by numbers. So, our robots do their best based on the approximations we create for them. If there isn't an answer, then we have to create one. That's basically what research is all about.

**TA:** What misconception (due to pop culture or otherwise) about your work would you most like to correct?

JG: Real-life robots are not like robots on TV or in the movies. Not even close! Robots are

just computers with bodies, and they can only be as smart as computers, which are only as smart as the people who programmed them...Robots can't learn new things, or generalize skills, unless we tell them how...There is a

things, or generalize skills, unless we tell them how...There is a lot of potential, but it is limited by our own understanding of ourselves and the world we live in.

TA: What's your advice to aspiring roboticists? JG: There are many aspects of robotics besides human-robot interaction...There are so many roboticists who do so many interesting things. The best place to start is to do undergraduate research. Go find a professor that is doing research you are interested in and ask them to let you work in their lab. Everybody likes to talk about their research, so don't be intimidated. Look for ways to get funded for a summer research experience, like the CRA-W DREU - that's what I did! The only way

If you'd like to learn more about the USC Interaction Lab: http://dft.ba/-USCInteraction

to find out if you like research is by doing it.

If you'd like to learn more about the CRA-W DREU: http://dft.ba/-DREU

## Want To Learn To Robot?

By Lindsay Gossett

FIRST Robotics was founded by Dean Kaman in order to get young people involved with STEM (Science, Technology, Engineering, and Mathematics). If you want to get involved with robotics, here's how you can!

If you or someone you know is in elementary school, specifically ages 6-9, they can be in a Junior FIRST LEGO League. They learn about robotics and engineering through the use of LEGOs and creating a model with those robots that is aimed towards accomplishing a goal. The intensity of these leagues depends on the maturity of the children involved, but it's a lot of fun for everyone.

For the 9-16 year olds, get involved in FIRST LEGO League! You'll design, build, program, and test a robot made out of LEGO blocks, which is a great way to get started with learning a programming language and seeing how a design team actually works.

There are two options for high schoolers - the FIRST Tech Challenge (FTC) and the FIRST Robotics Competition (FRC). In FTC, teams of up to 10 students can design, build, and program a robot using a variety of coding languages and reusing the same basic parts from year to year in order to achieve specific goals. In FRC, which I was a part of, students design, build, and code a obot from scratch in 6 weeks. To quote to FIRST website, "it's as close to 'real-world' engineering as students can get."

People who are in college and who have graduated college, particularly people who study or work in engineering fields, can be mentors to any of the teams mentioned above. The mentors and volunteers help kids with everything from engineering and mechanics to scouting, writing awards essays, and managing budgets.

Many community centers and schools have robotics programs you can join. To find out more about how you can get involved, go to www.usfirst.org.



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