



The Young Dole Scholars pause during their Washington Conference. Front (left to right) Sascha Bittner, Derek Hoeing. Back (left to right) Mary Zappa, Jan Sendzik, Jaime Hardt and Eric Hearst



Jaime Hardt (center) with, left, Dudley S. Childress, Ph.D., Director of NU PRL & RERC and, right, Tamar Heller, Ph.D., Director of the Rehabilitation Research and Training Program on Aging with Mental Retardation, University of Illinois at Chicago.

Dole Foundation/NIDRR Young Scholar tries out biomedical engineering in a Northwestern University internship

By Jaime Hardt

Hello. My name is Jaime Hardt and I am a junior at Northwestern University, majoring in engineering. This past summer, I had the opportunity to intern at NU's Prosthetic Research Laboratory and Rehabilitation Engineering Research Program in Chicago. This internship was funded by The Dole Foundation and NIDRR's Young Scholars Program. The purpose of this internship program was to interest undergraduate students with disabilities in areas of research that impact disabled individuals.

I was excited to get started. First, I needed to pick a project. I decided to study something I have had a good deal of experience with for the past nineteen years -- cerebral palsy. You see, I have cerebral palsy and was interested in learning more about it.

Choosing a research topic

Using the Human Mechanics Measurement Laboratory located in the Northwestern University PRL & RERP, I decided to analyze and compare my gait with that of a subject my own age, a volunteer summer intern, who does not have cerebral palsy. The study was supervised by Dr. Dudley Childress and a number of his graduate students.

We looked at a number of components of gait. We studied walking speed, vertical displacement, step rate, stride length and other aspects of ambulation.

Then it was off to Washington, D.C. for a four-day conference. This conference was a chance to meet the other eight Young Scholars and their mentors and to learn what each one

was doing. Each Scholar gave a presentation on their work. The topics of the presentations ranged from assistive technology for disabled parents (e.g. cribs and playpens at wheelchair height) to improvements for the Dragon Dictate system, which enables a person to operate a computer through voice commands. We also heard from a number of leaders in the disability field. It proved to be a very informative and enjoyable couple of days.

Analyzing the data

After the conference, it was back to steamy Chicago. It was mid-July and I still had two more months in which to continue my research. While we had taken data for a wide range of walking speeds (very slow to very fast), due to the limited amount of time, we had only focused on the data taken at our natural speeds for the presentation at the conference in Washington, D.C. Now we processed and analyzed the rest of the data.

The results were interesting. In general, we found that in almost every aspect of ambulation that we compared, my data changed faster as walking speed increased than did that of the other subject. For example, I would "bob" up and down increasingly more than she would as we walked faster and faster.

Working on this project, as well as being around the many different people here who are working on a variety of different projects dealing with prosthetics, orthotics and walking in general gave me a great opportunity to get a feel for what biomedical engineering really is. It has been really enjoyable. I'd like to thank the sponsoring organizations, Dr. Childress, and the other people from the Northwestern University PRL & RERP who helped to obtain and analyze the data. ♦