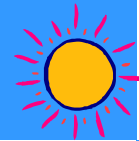




HERL Quarterly Newsletter



VOLUME 2, ISSUE 2

SUMMER EDITION
JULY/AUGUST 2003

LETTER FROM THE EDITOR

HERL would like to apologize to our newsletter readers for the delay in publishing the summer edition of the HQN. The lab has been extremely busy, especially in preparing for the upcoming RESNA conference in June. There were 39 HERL papers accepted for presentation at RESNA this year (up from 25 from last year)! HERL students Andrew Rentschler, Eliana Chaves, and Yusheng Yang won the RESNA-Whitaker Foundation Student Scientific Paper Competition Award and Diane Collins earned an honorable mention. We have featured the abstracts from these award-winning papers in the "Current Research Abstracts" section, as well as an "Agency Spotlight" article on RESNA (page 7).



HERL student Ian Rice is on his way to the Paralympics

In addition to our RESNA paper winners, several other HERL students have recently earned notable merits. We learned that Lisa Yoest, a HERL 2000 summer intern, was accepted into the Drexel Biomedical Engineering Program and received their top fellowship. HERL graduate student Ana Allegratti received a Jewish Healthcare Foundation/Coro Health Sciences Fellowship in March. Sandra Hubbard, a HERL Ph.D. student, won the University of Pittsburgh Provost's Office Pre-doctoral Fellowship in April. Finally, HERL doctoral student Ian Rice competed in a track competition in Warm Springs, Georgia and the Quad Wheelchair race at the annual Pittsburgh Marathon on May 3-4. Ian met the elite level time standards for the 200m, 800m, and 5000m races in Georgia and placed 1st in the marathon race. Ian's performance at the track competition qualified him for the Paralympic trials, pre-paralympic training camps, and also some funding. Ian will continue to compete in road race and track competitions all over the U.S. this summer in pursuit of competing in the 2004 Paralympics in Athens, Greece.



Eric and Alicia Koontz holding new baby, Seth Christopher Koontz

In other news, we would like to congratulate and wish the best of luck to HERL Faculty/Investigator Dr. Alicia Koontz, who recently became a mom. Ali and her husband Eric welcomed their first child, Seth Christopher Koontz, on May 27, 2003. Seth weighed in at 8lbs. at birth and is rapidly growing. HERL wishes the Koontzs great happiness during this exciting time in their lives!

By the time this issue of the HERL QN goes to press, HERL will once again be conducting research at this year's National Veterans Wheelchair Games in Long Beach, California. This year, we will be continuing our datalogger study, in which we will attach newly designed dataloggers to peoples' wheelchairs to collect information on distance, speed, and frequency of use. HERL will also continue the wheelchair maintenance study, in which we will collect data on how frequently wheelchair repair issues arise during real-life wheelchair use. This information can be used in conjunction with our data on wheelchair fatigue life collected in simulated setting (our wheelchair test lab) to help people select the best wheelchairs. HERL will also be conducting 2 new studies at the games: a lifestyle study, where investigators will collect information on the dietary and exercise habits of wheelchair users, and a weight and wheelchair propulsion study, which will incorporate the information collected in the lifestyle study. HERL director Rory Cooper will also be competing in swimming, track, and several slalom competitions while at the games. Also, the new HERL T-shirt, designed by HERL student Andrew Kwarciak, will make it's debut at this year's games...HERL investigators, students, and clinicians will be wearing them as well as giving some away. We hope to see you there! Thanks for taking the time to read this issue of the HERL QN...we should be back on schedule with publication. Look for the next issue in September!

-Christine Heiner, HQN Editor

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JHF/CORO Health Sciences Fellowship winner Ana Allegratti



Pitt Provost's Office Pre-Doctoral Fellowship winner Sandra Hubbard

CURRENT RESEARCH ABSTRACTS

Evaluation of the VA-PAMAID Robotic Walker

Andrew J. Rentschler, MS; Rory A. Cooper, PhD; Bruce Blasch, PhD; Michael L. Boninger, MD



Andrew Rentschler, M.S.

Purpose of the Work. There are an increasing number of elderly visually impaired individuals in the United States that could benefit from an assistive mobility device that provides navigational assistance. This study determined the safety and performance characteristics of the VA-PAMAID. The VA-PAMAID is a walker equipped with laser and sonic sensors. A computer controls the motors that turn the front wheels. The sensors detect obstacles and landmark features and the walker then gives auditory feedback as well as actively avoids collisions with obstacles.

Procedures. The test plan developed for the VA-PAMAID was created by using information from both the ISO and ANSI/RESNA standards. The test protocol included sections for static stability, range, maximum effective speed, obstacle climbing ability, climatic conditioning, and strength testing.

Results. The VA-PAMAID traveled 10.9 km on a full charge and was able to avoid obstacles while traveling at a speed of up to 1.2 m/s. There were no failures during static stability, climatic, or fatigue testing. Some problems were encountered during obstacle climbing and sensor and control testing.

Relevance to People with Disabilities. The U.S. Census Bureau study on Americans with disabilities found that there were 7.6 million people with a visual impairment. By the year 2030, there will be 65 million people over the age of 65. Falls in nursing homes led to an annual cost of \$20.2 billion in 1994 and are predicted to cost close to \$32.4 billion by the year 2020. A walker that could provide navigational assistance in addition to support could help reduce the cost of care and increase the independence of thousands of individuals.



The VA-PAMAID Robotic Walker

-Andy Rentschler, M.S.

The Effect of Hand Contact Speed on Wheelchair Propulsion Kinetics

Yusheng Yang, M.A., Alicia M. Koontz, Ph.D., Rory A. Cooper, Ph.D., Michael L. Boninger, M.D.



Yusheng Yang, M.A.

Purpose of the work. The purpose of this study was to investigate the relationship between hand speed immediately before impact with the pushrim and wheelchair propulsion kinetics (maximum rate of loading, maximum propulsion force, and mechanical propulsion efficiency). We hypothesize that a larger difference between the hand speed prior to contact and wheel speed will necessitate greater propulsion force and a higher rate of loading. The findings may provide

valuable insight into the relationship between propulsion technique and upper extremity pain and injury among MWUs.

Subjects/Procedures. Twenty-eight manual wheelchair users (MWUs) with paraplegia enrolled in this study. Velocity of the hand and the wheel were calculated us-



The Smart^{wheel} provided forces and moments in three global reference planes.

ing a motion analysis camera system and Smart^{wheel}. The Pearson correlation test statistic was used to determine the relationship between relative speed and propulsion kinetic parameters ($\alpha=0.05$). **Results.**

Our results indicated that when subjects propelled with a slower hand speed in comparison with wheel speed, they exerted larger tangential and radial forces and had a higher rate of tangential and radial loading.

Relevance to People with Disabilities. Many veterans use manual wheelchair as their mobility tools. Our findings indicate that MWUs may be less prone to developing Carpal Tunnel Syndrome if their hand speed prior to contact is more closely matched to wheel speed.

-Yusheng Yang, M.A.

CURRENT RESEARCH ABSTRACTS

Clinical Evaluation of a Wheelchair Mounted Robotic Arm

Eliana Chaves, B.S., Alicia Koontz, Ph.D., Susan Garber, MA, OTR., Rory Cooper, Ph.D., A.L. Williams, M.S,



Eliana Chaves, B.S.

Purpose of the work.

The first aim of this study was to determine changes in the ability to perform ADL tasks with a wheelchair mounted robotic arm (WMRA). The second aim was to determine the impact of WMRA training and practice on the time taken to perform the ADL task.

Subjects.

Eleven men

with tetraplegia participated in the study.

The average age of the participants was

42 (\pm 12) years

Procedure. Subjects

were asked to complete 20 hours of

evaluation and training with the WMRA

over 10 visits. At the beginning of the

study, subjects completed 16 basic ADL

tasks without the WMRA. For each task, the subject

was classified as dependent (0), needs assistance (1), or

independent (2). Next, the WMRA was installed on the

subject's wheelchair. After a brief orientation to the

WMRA, subjects completed the 16 tasks using the

WMRA while the time to complete each task was recorded with a stopwatch in seconds. Also subjects were again evaluated for each task as either dependent, needs assistance, or independent with the WMRA. The last phase of data collection involved recording the time to complete the same tasks using the WMRA after the training and practice period. **Results.** WMRA usage led to significant improvements in the subjects' ability to accomplish 7 of the 16 ADL activities. With WMRA practice and training, the time to complete tasks also improved for 7 activities.

Relevance to Wheelchair Users.

The use of robotic technology in the rehabilitation of individuals with disabilities is in its initial stage and has demonstrated some promise in assisting individuals with achieving independence. Although the application of robotic technology for aiding with activities of daily living (ADL) is not widespread, it has the potential to augment a person's ability to perform daily tasks. As such, these devices can lead to improved independence (reduced need of attendant care), enhanced self-esteem, increased mental stimulation, and improved interaction and control over the living environment.

-Eliana Chaves, B.S.



The Wheelchair Mounted Robotic Arm

devices can lead to improved independence (reduced need of attendant care), enhanced self-esteem, increased mental stimulation, and improved interaction and control over the living environment.

-Eliana Chaves, B.S.

Satisfaction of Individuals in the Community with Wheelchairs and Service Delivery

Diane Collins, M.A., OTR/L, Shirley Fitzgerald, Ph.D., Stephanie Martin, B.S., Brad Impink, B.S., Rory Cooper, Ph.D.



Diane Collins, M.A., OTR/L

Purpose of the Work: Almost 30% of assistive technology is prematurely abandoned by its users. Mobility aides, including canes, walkers, and wheelchairs (WC's), are the most frequently abandoned devices, typically abandoned in the first year of device ownership. As almost 1.7 million Americans use WC's today, abandonment of these devices can result in serious functional and mobility consequences, as well as inappropriate

financial expenditures. Dissatisfaction with wheelchair design and service delivery results in premature abandonment of wheelchairs or may lead to secondary complications.

Subjects/Procedures: A group of 80 individuals rated

their satisfaction with their wheelchairs and the service delivery they received. Thirteen aspects of wheelchairs and service delivery were examined.

Results: Individuals who used manual wheelchairs had significantly higher ratings in overall satisfaction, comfort, fit, and ease of transporting the wheelchair, than those who used powered wheelchairs (excluding scooters). However, wheelchair satisfaction was the same regardless of evaluation site (AT clinic, rehab hospital, or direct sales).

Relevance to Wheelchair Users: Individuals who design, manufacturer, and service, as well as prescribe, purchase, and use wheelchairs need objective feedback on the performance and comfort of wheelchairs. Making informed decisions can lead to the production of better quality wheelchairs, as well as prevention of premature abandonment of these expensive pieces of assistive technology.

-Diane Collins, MA, OTR/L

WOULD YOU LIKE TO RECEIVE THE HERL QUARTERLY NEWSLETTER BY E-MAIL?



Many of our readers have e-mailed me, asking to receive the HERL Quarterly Newsletter by e-mail. Until now, we have not distributed the HQN electronically, although we have always posted all back issues of the newsletter on our website, www.herlpitt.org. Because of the great number of people who have expressed interest in electronic distribution, we have begun compiling an e-mail distribution list of our readers. If you have previously contacted HERL and given us your e-mail address, we will automatically begin e-mailing the HQN to you rather than snail-mailing it to you. The electronic version of the newsletter will be in PDF format, meaning you will need Acrobat Reader to open and read it. You can download Acrobat Reader for free on the web, at www.adobe.com. We will also include an alternate, text-only version of the newsletter.

If you have received a paper copy of this issue of the newsletter, then we do not currently have your e-mail address on file. If you would prefer to receive this newsletter electronically, please e-mail me at heinercm@pitt.edu and I will add your e-mail address to the electronic distribution list.

If you do not have an e-mail address or do not want to receive the HQN by e-mail, then you don't need to do anything. We will continue to mail paper copies of the newsletter to you.

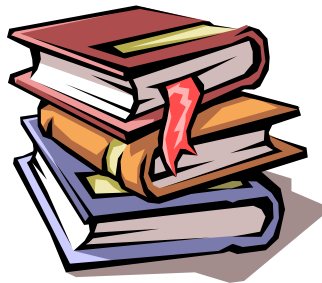
We also encourage our readers to please visit our website, www.herlpitt.org to read even more about the work we do. We will continue to archive old issues of the HERL Quarterly Newsletter on our website. *-Christine Heiner, Editor*

RECENT HERL PUBLICATIONS

Wainner RS, Fritz JM, Irrgang JJ, Boninger ML, Delitto A, Allison S, Reliability and Diagnostic Accuracy of the Clinical Examination and Patient Self-Report Measures for Cervical Radiculopathy, **Spine**, Vol. 28, No. 1, pp. 52-62, January 2003.

Cooper RA, Boninger ML, Cooper R, Robertson RN, Baldini FD, Wheelchair Racing Efficiency, **Disability and Rehabilitation**, Vol. 25, Nos. 4-5, pp. 207-212, February 18-March 4, 2003.

Boninger ML, Cooper RA, Fitzgerald SG, Lin J, Cooper R, Dicianno B, Liu B, Investigating Neck Pain in Wheelchair Users, **American Journal of Physical Medicine and Rehabilitation**, Vol. 82, No. 3, pp. 197-202, March 2003.



Cooper RA, Boninger ML, Cooper R, Dobson A, Kessler J, Schmeler M, Fitzgerald SG, Technical Perspectives: Use of the Independence™ 3000 IBOT™ Transporter at Home and in the Community, **Journal of Spinal Cord Medicine**, Vol. 26, No. 1, pp. 79-85, Spring 2003.

Nelson A, Ahmed S, Harrow J, Fitzgerald SG, Sanchez-Anguiano A, Gavin-Dreschnack D, Fall Related Fractures in Persons with Spinal Cord Impairment: A Descriptive Analysis, **SCI Nursing**, Vol. 20, No. 1, pp. 30-37, Spring 2003.

HERL IN THE MEDIA

Paraplegia News, February 2003, Page 59: New Grant/Conferences & Symposiums

Paraplegia News, February 2003, Pages 30-31: IBOT Update

New Mobility, February 2003, Page 16: Wheelchair Research: HERL Newsletter

Paraplegia News, February 2003, Page 67: KPVA and HERL. Page 23-26: Wanted: Democracy in the Marketplace

Pitt Chronicle, February 24, 2003: Pitt Awarded National Model System to Study Traumatic Brain Injury

RR&D Update, February/March 2003: In the News: Michael L. Boninger

Engineering Today, Vol. 29, 2003, Page 32: Class Notes: Rory Cooper

Paraplegia News, April 2003, Page 35: Motorized Assistance

Pitt Magazine, Spring 2003, Page 6: Honor Roll: Rory Cooper

University Times, April 17, 2003, Page 6: People of the Times: Michael L. Boninger

MERITS of Pittsburgh, Volume 3, Issue 1, 2003: New Research Funding: Rory Cooper

VA **wheelchairInfo**: A Valuable Online-Resource on Wheelchair Technology

VA wheelchair INFO is a website that provides a customized entry point into an extensive compilation of resources on the topic of seating and wheeled mobility technology. It offers a cost-effective way to elevate the wheelchair technology knowledge of both veterans and clinicians who want access to contemporary information and knowledge related to wheelchair selection and use. The website *VA wheelchair INFO* has been a useful addition to the overall mission of the WaRT. As a website with its own look and feel, it creates a customized Internet focus for the VA Healthcare System consumer—the veteran—and the VA clinician. It enables these individuals to use a cost effective and widely available technology to learn more about current seating and wheeled mobility technologies. It encourages the exchange of information on selecting a wheelchair, using a wheelchair and living daily in a wheelchair. Its goal is to empower Veterans who use wheelchairs and their families by educating them on gaining access to up-to-date information and knowledge related to wheelchair technology and its successful application. VA wheelchair INFO users are able to benefit from resources that are specifically oriented to VA Healthcare System oriented.

In addition, they are able to easily link to an extensive website called WheelchairNet. WheelchairNet is a virtual community that exists only in “cyber space.” It was created in January of 1999 by grants from the US Department of Education/National Institute for Disability and Rehabilitation Research (NIDRR). Although virtual in definition, WheelchairNet is organized along the lines of a real town. It is populated, managed and visited by wheelchair users, their family members and health professionals. The goal of WheelchairNet is to provide information, links and resources for adaptive living when using a wheelchair. It also links to information on mobility-related products, assistive technology devices, wheelchair standards and safety, and so on. Its purpose is to empower wheelchair users and their families by educating them on matters pertaining to funding, consumer laws, protection and advocacy, etc.

VA wheelchair INFO continues to grow, attract email queries and add content to meet the needs of its users. We are looking forward to a future committed to providing information, creating links and making available resources to veterans and VA clinician.

-Akon Enyenihi

Faculty Profile: Rich Simpson, Ph.D., ATP

Dr. Rich Simpson received the B.S. in Computer Science from Virginia Tech University in 1992. He earned M.S. degrees in Bioengineering (1994) and Electrical Engineering and Computer Science (1995) and a Ph.D. in Bioengineering (1997) from the University of Michigan.

In 1999, Dr. Simpson founded a company called AT Sciences in Houston, Texas. The company’s mission is to research and develop technology that people with disabilities and rehabilitation professionals can use. As the President of AT Sciences, Dr. Simpson led projects to improve computer access for people with visual impairments and to develop a revolutionary power wheelchair called the “smart wheelchair.” When completed, the smart wheelchair will provide independent mobility to non-ambulatory people who have visual impairments. Sensors on the smart wheelchair will be able to detect and allow the chair to avoid obstacles and drop-offs such as stairs, curbs, and potholes.

Dr. Simpson joined Pitt’s Department of Rehabilitation Science and Technology (RST) as an Assistant Pro-



Richard C. Simpson, Ph.D., ATP

fessor in 2000. He brought AT Sciences with him to Pittsburgh. Although Ed LoPresti is now the owner of AT Sciences, Dr. Simpson continues to collaborate with the company on the smart wheelchair project.

Dr. Simpson has also been enthusiastically involved with the Rehabilitation Engineering Society of North America (RESNA) conferences since 1997. He has served as a paper reviewer for the Computer Applications and Augmentive Communications special interest groups and Vice-Chair and Chair for the Universal Access special interest group. Dr. Simpson has also served as the Chair of the student scientific paper competition and has been the Science Chair for the entire conference

since 2001.

Dr. Simpson shared his computer and robotic expertise when he volunteered to be the mentor for “Team Sojourner (SoJo)” at Tech-Link’s first junior-high school robotics camp in November, 2002. Dr Simpson led Team SoJo in designing the competition’s “Best-Looking Robot.”

-Christine Heiner

FEATURED STAFF MEMBER: PAULA STANKOVIC



Paula Stankovic and daughters Sasha, 8 (right) and India, 5 (left).

No one has worked at the Human Engineering Research Laboratories longer than our Research Coordinator, Paula Stankovic. She was here from the beginning, starting as Dr. Rory Cooper's assistant when he came from California to Pittsburgh to start HERL in 1994. Back then, HERL consisted of only 2 graduate students and Paula who oversaw all clerical, clinical, and administrative duties. Over the years, the lab has expanded to over 25 graduate students and interns, and Paula assumed the title of Research Coordinator. Paula submits and tracks HERL's numerous research grants, prepares our annual reports, submits our tech transfer and invention disclosures, coordinates and updates the HERL website, and organizes our seminars and lectures, all while managing our lab directors' hectic schedules. Paula also maintains HERL's policies and procedures manual, oversees the clerical staff, orientates new grad students, assists with the summer internship program, and maintains HERL's employee records. Most importantly, everyone at HERL knows that if they have a question, they should ask Paula, because no one else has performed as many different duties in the lab as she has! Paula has also volunteered her time to help organize extracurricular HERL activities such as the FIRST competition, Hope Network's ski clinic at Hidden Valley, the Tech-link Lego League Robotics Camps, and most recently the HERL Panthers who participated

in the Easter Seals of Western PA, "Walk with Me."

Paula is just as busy outside HERL, especially with her two daughters, Sasha and India. Paula is a founding Board member in TANAC, a Junior Tamburitzan group her children participate in. The group celebrates the musical and dance traditions of Eastern Europe. Paula has also become the liaison between St. Bonaventure School and the VAPHS Volunteer Service, making sure that all the beautiful artwork done by the elementary school children gets distributed to the Veterans on holidays and special occasions. When asked, Paula noted that HERL is like her third child "usually in need of attention, but always something to be proud of."

-Christine Heiner

CURRENT EVENTS

The Allegheny District Chapter of the **National Multiple Sclerosis Society** will be holding it's a **MS 150 Bike Tour** in Altoona, Pa, on **August 9-10, 2003**. The tour is geared for riders of all ages and abilities, but many participants are serious cyclists and athletes. Participants can register as individuals or as team members. **Each cyclist agrees to raise a minimum of \$200 in pledges in order to participate.** Prizes are awarded based on amount of pledges raised for the National Multiple Sclerosis Society. **All reservations must be made through the National MS Society.** For more information or to register, contact Marsha Rapp by e-mail at marsha.rapp@pax.nmss.org or by phone at 1-800-544-5250 or 814-696-1017, or visit the Allegheny NMSS chapter website, <http://www.nmss-pgh.org>.

If you know of a current event or have an ad that you would like to post in the HERL Quarterly Newsletter, please contact Christine Heiner at (412) 365-4854 or by e-mail at heinercm@pitt.edu



SUMMER FUN!



Saturday, August 23, 2003, 8am-5pm—Altamonte Sports will be holding a **FREE Water Ski Clinic** at Cranes Roost in **Altamonte Springs, Florida**. The clinic is open to all individuals who have physical and/or developmental disabilities. Participants will receive instruction on customized equipment and will get to ride the water with qualified assistants. Free brown bag lunch and commemorative T-shirt! The deadline for registration is August 15. Contact Anne O'Brine-Satterfield at (863) 967-2575, annsitski@aol.com, or Jerrey Thurston, 407-468-7958, jerreyt@altamonte.org. For more information on Altamonte Sports and other upcoming water ski events for people with disabilities, visit <http://www.altamontesports.org/waterski.asp>



Adventure Pursuit - provides kayaking/canoeing/camping adventures to everyone, specializing in individuals with physical and mental challenges. Adventure Pursuit is an adventure club located in Parkersburg, WV that specializes in kayaking for people with disabilities. **Our adventures and opportunities are open to everyone.** For more information on Adventure Pursuit and their upcoming activities, visit their website at <http://www.adventurepursuit.org> or call (304)485-0911.

AGENCY SPOTLIGHT: RESNA

In August of 1979, Douglas Hobson, Colin McLaurin, James Reswick, Anthony Staros, and Joseph Traub created RESNA while at a meeting of the Inter-Agency Conference on Rehabilitation Engineering. With only \$1,000 provided by Robert Graebe of Roho R&D Inc. for supplies, and working out of Jim Reswick's office at Rancho Los Amigos Medical Center and Jan Little's spare bedroom, the society was on it's way. RESNA, which is an acronym for "Rehabilitation Engineering and Assistive Technology Society of North America," was created to promote the transfer of science, engineering and technology to help individuals with disabilities. RESNA is an interdisciplinary association with a variety of goals, driven by the desire to promote and advance assistive technology. Over the years, RESNA has grown to it's current roster of 1700 members to more than 31 countries.

RESNA has received federal funding for projects such as developing wheelchair-testing standards, assessing manpower and training needed to provide rehabilitation technology through state rehabilitation agencies, and developing culturally sensitive training materials for assistive technology.

In 1995, the organization began developing a program to certify professionals working as assistive technology service providers. Because of RESNA, professionals can now obtain certification as an Assistive Technology Practitioner or an Assistive Technology Supplier.

RESNA holds an annual conference in June for rehab



engineers, educators, therapists, and other professionals interested in technology and disability. For Pitt's Department of Rehab Science and Technology and HERL, the RESNA conference is the most important and most attended conference of the year. Almost every RST and HERL student and faculty member submits papers to the conference and many participate in various conference activities, whether it be

volunteering, lecturing, or teaching. The conference also serves as the ultimate forum for our students to meet vendors and rehab professionals and see rehab technology in action in the real world.

HERL director Dr. Rory Cooper has been heavily involved with RESNA for many years. He has been a RESNA member since 1988. He has also served on the RESNA Technical Guidelines and Quality Assurance Committees and has worked closely with the organization to develop ANSI/RESNA standards. In 2000, RESNA honored Dr. Cooper with their Distinguished Service Award and their Mentor and Fellow Awards in 2002. Dr. Cooper was on the RESNA Board of Directors from 1997 until 2002, when he became RESNA's current President-Elect.

For more information about RESNA, visit their website, www.resna.org, or please contact them through one of the following methods:

Phone: (703)-524-6686 Fax: (703)-524-6630

TTY: (703)-524-6639

E-mail: info@resna.org

-Eric Wood, Ali Ulerich, Christine Heiner

FEATURED HERL STUDENT: Andrew J. Rentschler



Andy Rentschler, M.S.

HERL doctoral student Andy Rentschler has been with HERL since 1996, starting as a Carnegie Mellon undergraduate summer intern. Andy stayed after obtaining his B.S. in Mechanical Engineering and eventually was accepted into the Pitt Bioengineering dual masters and doctoral program. Andy has always been an independent, self-motivated worker, who is always eager to help anyone with any HERL

research project. Andy was instrumental in designing and building the equipment we use in our wheelchair testing lab. He has also helped keep our work testing wheelchairs against ANSI/RESNA standards for outside companies rolling along smoothly.

Andy just recently completed his master's degree work. In his thesis, he compared 5 different electric powered wheelchairs on how well they performed against wheelchair testing standards. Andy has been working on his doctoral degree project, the VA-PAMAID Robotic Walker (see research abstract, page 2.) The walker helps visually impaired elderly patients to avoid obstacles and drops by verbally warning them and then steering itself away from them when it senses danger. The Robotic Walker is a collaborative project between HERL and Dr. Bruce Blasch at the Atlanta VA Medical Center.

Andy won a 2003 RESNA-Whitaker Scientific Student Paper award for his work on the Robotic Walker. Andy hopes to finish his doctoral degree project within the year. Andy is still deciding on a career path after he earns his Ph.D. but says eventually he would like to move out west with his girlfriend, Kim.

-Christine Heiner

Human Engineering Research Laboratories

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E-mail any comments, corrections, or questions concerning
the newsletter to the editor, Christine Heiner at:
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VA Center Of Excellence For Wheelchair
And Related Technology
University of Pittsburgh Model Center on
Spinal Cord Injury

Rory A. Cooper, Ph.D.
Director

Michael L. Boninger, M.D.
Medical Director

Shirley G. Fitzgerald, Ph.D.
Associate Director of Research,

Donald M. Spaeth, Ph.D., ATP
Associate Director of Engineering



Interested in Participating in a HERL Research Study?

Research studies at our laboratories involve participants who utilize manual or power wheelchairs as a means for mobility. The majority of our studies involve a visit to the Human Engineering Research Laboratories located at the Highland Drive VA Medical Center in Pittsburgh, PA. However, some of our studies are survey based and do not involve travel. If you are interested in obtaining further information about how you can participate in current or future studies, please contact Annmarie or Rosi, Clinical Coordinators for the Human Engineering Research Laboratories at (412) 365-4850. We look forward to hearing from you.

*If you're interested in participating
in a HERL Research Study, contact
our clinical coordinators Rosemarie
Cooper or Annmarie Dobson at
(412) 365-4850.*

You can now receive the HQN by e-mail! If you would like to receive this newsletter electronically, send an e-mail to heinercm@pitt.edu. We will automatically e-mail the newsletter to all recipient e-mail addresses on file. Also, don't forget that all issues of the HQN are available on our website, www.herlpitt.org.