



## Research at the 2008 DAV/VA Winter Sports Clinic

HERL, Walter Reed Army Medical Center, and Madigan Army Hospital researchers attended the Disabled American Veterans (DAV)/VA Winter Sports Clinic in Snowmass, CO, from March 30–April 4, 2008.

The Winter Sports Clinic promotes rehabilitation by instructing disabled veterans in adaptive skiing and other adaptive activities and sports. Participating in the games helps us to interact with and serve veterans. The clinic also gives us the opportunity to disseminate research results, educate people about our work, and recruit people who live outside of Pittsburgh to participate in our research studies.

We conducted 4 research studies at this year's event:

### Incidence of Upper Extremity Nerve Entrapments in Veterans with Major Limb Amputations

We studied nerve entrapments in the upper extremities of soldiers/veterans with major limb loss. This information is needed to develop and guide approaches to preserving arm function.

### Helping Severely Injured Service Members and Veterans Participate Fully in Society

We surveyed veterans on variables such as demographics, educational attainment, type of disability, and employment. We will study whether these variables explain injured veterans' vocational and non-vocational outcomes and which variables may be barriers to employment or successful non-vocational outcomes.

### Shoulder Muscle Activity during Wheelchair Transfers

We examined shoulder muscle activity during wheelchair transfers and while lifting the wheelchair as if to load it into a motor vehicle. We



*The 2008 WSC research team. (Back, L to R): Rob Wallach, DO, Emily Teodorski, BS, Rosemarie Cooper, MPT, Alicia Koontz, PhD, Patricia Costantini, RN, Dany Gagnon, PhD (Front, L to R): Michael DeMarco, DO, Brad Dicianno, MD, Rory Cooper, PhD, John Santa Ana DO, Jay Pyo DO*

will use the data to identify potential risks for shoulder pain and injuries and justify the use and development of new transfer assist devices that alleviate shoulder forces.

### Acute Mountain Sickness (AMS) in Veterans with Disabilities

We examined the incidence of AMS in athletes participating in high altitude sports at the National Veterans Winter Sports Clinic.

AMS is a frequent complication for military personnel, veterans, athletes, and travelers at high altitudes and is the most common high altitude illness. Information on the likelihood of developing AMS and what symptoms to expect is important for counseling and safety training for military personnel, for training medical staff, and for preparing strategies for prevention and treatment.



*WSC athlete Jake Hipps participating in a wheelchair transfer study with HERL researcher Dany Gagnon*

We also conducted the AMS study at last year's Winter Sports Clinic. Brad Dicianno, MD, HERL Associate Medical Director and principal investigator of the study, authored a journal paper on last year's AMS study results. The paper is currently in press with the Journal of Rehabilitation Research and Development. A report on the findings is planned for a future HERL newsletter after the paper is published.

This year we recruited almost 150 participants for our studies.

#### INSIDE THIS ISSUE:

Student Spotlight/HERL in the Community	2
Research Abstracts	3-5
News from RST/PM&R	6
PNC Legacy Trail Ride	7
HERL Publications	8
HERL in the Media/Awards and Accomplishments	9
Current Events	10
State of the Science Workshop on Quality of Life Technology	11

## Student Spotlight: Padmaja Kankipati

Padmaja Kankipati recently broke a new HERL record by successfully recruiting and testing 100 participants on site for an anthropometric research study to help standards committees, government officials and designers improve accessibility for wheeled mobility users in their environments.

Padmaja joined HERL in 2006 in pursuit of a PhD in Rehabilitation Science and Technology from the University of Pittsburgh. She earned a Bachelor of Engineering in Medical Electronics from Vishweswariah Technical University in India and a MS in Biomedical Engineering from Aalborg University in Denmark.

With help from her fellow HERL graduate students, Padmaja collected anthropometric data from 100 wheeled mobility device users in Pittsburgh across the USA to add to the IDEA Center's national database at the University at Buffalo. Anthropometry is the study of human body dimension. Data points on each participants' body were landmarked and then



*Padmaja conducting structural and functional assessment on an anthropometric study participant.*

digitized with an electromechanical device to obtain structural and functional reach information. Task specific maneuverability data were also collected.

Padmaja is conducting her doctoral dissertation research on a second research study where she collects biomechanical data on people with spinal cord injury during several types of wheelchair transfers. This information could be used to develop safer ways to transfer, resulting in less secondary pain and injury for wheelchair users.

Alicia Koontz, Ph.D., RET is the lead investigator for both the anthropometric database study and the transfer study, as well as Padmaja's academic mentor.

Padmaja hopes to graduate in December of 2009 and bring her knowledge of the wheelchair biomechanics field back to her home country of India.

*-Christine Heiner*

## HERL in the Community

HERL graduate student Michelle Sporer helped the team "The Unbreakables" raise over \$800 for the National MS Society Walk in Pittsburgh on Sunday, April 20, 2008.

Keystone Paralyzed Veterans of America held their annual Open House in their Sharpsburg office on Friday, April 18 in recognition of Paralyzed Veterans of America Awareness Week. HERL faculty and staff joined in the afternoon celebration.

HERL graduate students Padmaja Kankipati, Ben Salatin, and Laura McClure participated in the Annual Healthsports adaptive Ski Classic on February 4-5, 2008 at Hidden Valley Ski resort.



*Members of Keystone Paralyzed Veterans of America (KPVA) visited HERL on March 13, 2008 to model as research participants for professional photographs. (Pictured) KPVA Member Jerry Baylor participates in a shoulder ultrasound study with HERL grad students Jen Collinger and Ian Rice.*

## CURRENT RESEARCH ABSTRACTS

### Preliminary Outcomes of the SmartWheel Users' Group Database: A Proposed Framework for Clinicians to Objectively Evaluate Manual Wheelchair Propulsion

Rachel E. Cowan, MS; Michael L. Boninger, MD; Bonita J. Sawatzky, PhD;

Brian D. Mazoyer, PTA; Rory A. Cooper, PhD

Full article published in *Archives of Physical Medicine and Rehabilitation*, pp. 260-268, Vol. 89, No. 2, February 2008.

**Purpose of the Work:** Currently, objective numbers that describe how the average user pushes their wheelchair are not available to clinicians for use during a wheelchair evaluation. The purpose of this study was to describe a reference set of numbers and an application process that clinicians could use to make judgments about how a change in the user or chair affected how the user pushes.



*The SmartWheel, a device invented at HERL to collect wheelchair propulsion data*

**Subjects/Procedures:** Six different research groups contributed 128 subjects to a database. All subjects pushed their wheelchair from a standstill to their preferred push speed across tile, carpet, and up a ramp. A SmartWheel™ was attached to one side of their chair while they pushed to collect information about how they pushed.

**Results:** A set of graphs were generated to describe how much force a person used to push at a given

speed and how often they touched the rim at that speed. A way for clinicians to use the graphs to evaluate how people push was described to use the graphs. The results demonstrated that, as the surfaces got harder to push across, subjects used more force, slowed down, and touched the wheel less often at a given speed.

#### Relevance to Wheelchair Users:

Clinicians should be able to use these results to help the manual wheelchair users understand how changes in their wheelchair, push technique, and or their strength/weight/endurance affects how they push their wheelchair. In addition their clinician can tell them how they compare to a large group of manual wheelchair users. These pieces of information could be used for insurance justification.

*-Rachel Cowan, Ph.D.*

### Curb Descent Testing of Suspension Manual Wheelchairs

Andrew Kwarciak, M.S., Rory Cooper, Ph.D., Shirley Fitzgerald, Ph.D.

Full article Published in *Journal of Rehabilitation Research and Development*, pp. 73-84, Vol. 45, No. 1, 2008.

**Purpose of the Work:** Manual wheelchair users are exposed to harmful vibrations on a regular basis from rolling over obstacles and uneven surfaces. One way users may protect themselves is by using a suspension manual wheelchair.



*Elastomer suspension system of the E&J Barracuda.*

**Methods:** We investigated the ability of suspension manual wheelchairs to reduce seat vibrations during 2", 4", and 6" curb drops.

**Results:** Suspension wheelchairs were able to reduce vibrations during the 2" drops, but they became less successful as curb height increased. Though curb drops are specific tasks, they demonstrated the benefits and limitations of the wheelchairs.

#### Relevance to Wheelchair Users:

Consumers and clinicians should consider these results when selecting a wheelchair for everyday use.

*-Andrew Kwarciak, M.S.*

## CURRENT RESEARCH ABSTRACTS

### Participatory Design in the Development of the Wheelchair Convoy System

Vinod Sharma, Richard Simpson, Edmund LoPresti, Casimir Mostowy, Joseph Olson, Jeremy Puhlman, Steve Hayashi, Rory Cooper, Ed Konarski, Barry Kerley

Full article published in the *Journal of NeuroEngineering and Rehabilitation*, [open access](#), Vol. 5, January 2008.

**Purpose of the Work:** The Wheelchair Convoy System (WCS) is being developed to allow a single caregiver to move multiple individuals without removing them from their wheelchairs. The WCS will consist of a manual wheelchair frame with motorized rear wheels, a processor, and a flexible cord linking each wheelchair to the wheelchair in front of it.

**Subjects/Procedures:** An iterative cycle of development and evaluation was followed through five prototypes of the device. The design that emerged by the end of the fifth development cycle bore little resemblance to the initial design, but successfully met the project's design criteria.

**Results:** The third and fourth prototypes were evaluated



*Semi-Autonomous Wheeled Mobility System (Prototype 3)*

in unmanned field trials at J. Iverson Riddle Development Center. The prototypes were used to form a convoy of three wheelchairs that successfully completed a series of navigation tasks.

#### Relevance to People with

**Disabilities:** In long-term care environments, residents who have severe mobility deficits are typically transported by having another person push the individual in a manual wheelchair. This practice is inefficient and encourages staff to hurry to complete the process, thereby setting the stage for unsafe practices. Furthermore, the time involved in assembling multiple individuals with disabilities often deters their participation in group activities.

*-Rich Simpson, Ph.D.*

### Shoulder Biomechanics During the Push Phase of Wheelchair Propulsion: A Multi-Site Study of Persons with Paraplegia

Jennifer Collinger, BS, Michael Boninger, MD, Alicia Koontz, PhD, Robert Price, MSME  
Sue Ann Sisto, PT, Michelle Tolerico, MS, Rory Cooper, PhD

Full Article Published in *Archives of Physical Medicine and Rehabilitation*, pp. 667-676, Vol. 89, No. 4, April 2008.

**Purpose of the Work:** Repetitive loading of the upper limb during wheelchair propulsion contributes to the high incidence of shoulder pain among manual wheelchair users. The purpose of this study was to investigate shoulder biomechanics during wheelchair propulsion in a large group of individuals with paraplegia.

**Subjects/Procedures:** Sixty-one individuals, collected at three sites, propelled their own wheelchair on a dynamometer at three speeds (self-selected, 0.9 m/s, 1.8 m/s) while the SmartWheel™ recorded pushrim forces and arm motion was monitored. Forces and moments at the shoulder joint and upper arm motion during wheelchair propulsion.

**Results:** Joint loading increased as people pushed their chair at a faster speed. Body weight was the primary subject characteristics that impacted shoulder forces. Peak shoulder joint loading occurs when the arm is extended and internally rotated which may leave the shoulder at risk for injury.

**Relevance to Wheelchair Users:** Body weight maintenance, as well as other interventions designed to reduce the force required to propel a wheelchair, should be implemented to reduce the prevalence of shoulder pain and injury among manual wheelchair users.

*-Jen Collinger*

## CURRENT RESEARCH ABSTRACTS

### Effectiveness Evaluation of a Remote Accessibility Assessment System for Wheelchair Users Using Virtualized Reality

Jongbae Kim, PhD, David M. Brienza, PhD, Robert D. Lynch, FAIA,

Rory A. Cooper, PhD, Michael L. Boninger, MD

Full article published in *Archives of Physical Medicine and Rehabilitation*, pp. 470-479, Vol. 89, No. 3, March 2008.

**Purpose of the work:** While home modification has come to be recognized as an important intervention strategy for the quality of life of people with disabilities, the availability of skilled professionals with experience in home modifications for accessibility is limited. A Remote Accessibility Assessment System (RAAS) which can enable clinicians to assess the wheelchair accessibility of users' homes from a remote location was developed. This system used three-dimensional (3D) image reconstruction technology to analyze accessibility of the target built environment in the Virtualized Reality (VR). Our objective was to determine the value of the RRAS in assessing a built environment's accessibility by calculating the congruence level between the RRAS and Conventional In-Person (CIP) method.

**Procedure:** A home physical environment was divided into several problem areas such as entrance, hallway, bathroom, and living room. Each problem area was identified by several tasks that might be performed in it. All possible tasks in each area within each home were evaluated using two methods: RAAS and CIP. Each method was performed by a different home modification specialist.

**Subjects:** Three houses were recruited. Nine cases of three exemplar subjects and three houses were evaluated.

**Results:** The proportion of overall agreement was high at 94.1% and the overall sensitivity and specificity was reported as 95.6% and 90.3% respectively. As a significant Kappa coefficient of .857 and the 95% Confidence Interval of Odds ratio of [104.062, 404.921] were calculated, a high level of overall agreement rate was shown. And high p-value (.868) of the McNamar test implied that there was no marginal homogeneity, that is, no tendency to identify the task incorrectly in the positive or negative direction.

**Relevance to Wheelchair Users:** This system proved that virtual reality and 3D reconstruction technology may provide an effective means to investigate the architectural features of a built environment without an expert visiting the site. This system could become an efficient tool for the service provider and can provide expert service to underserved veterans that would otherwise be unavailable.

- Jong bae Kim, Ph.D.

## Life at HERL by Juanjo Vazquez





## Wheelchair and Scooter Users Needed

The Department of Rehabilitation Science and Technology at the University of Pittsburgh is conducting a research study that is designed to evaluate the effectiveness and usability of different wheelchair securement technologies in public transportation vehicles. This will be done by modifying a Port Authority Transit bus to include 3 different wheelchair securement stations. Eligible subjects will then ride the bus through a test course 3 times, once in each station, in order to assess each system. A survey will be completed for each securement station.

In order to be eligible for this study, you must be:

- At least 18 years old.
- A user of a manual wheelchair, powered wheelchair or motorized scooter.
- A user who stays in their wheelchair/scooter when riding in any type of vehicle.
- Able to transfer (with assistance) to a wheelchair or scooter that is similar to your regular wheelchair or scooter type, but has been modified for testing.
- Able to sit in a wheelchair (on your own seat cushion) for about 2.5 hrs.

Although your participation will not provide you with any immediate benefit, it may increase the safety of all WMD users (including yourself) when using public transportation in the future. Upon completion of the entire study (fitting session and test course), a check will be mailed to you in the amount of \$75.

For more information about participation in this study, please call or send an e-mail to:

Linda van Roosmalen, Principal Investigator  
412-586-6911 [lvanroos@pitt.edu](mailto:lvanroos@pitt.edu)

Erik Porach, Research Specialist 412-586-6918  
[eap26@pitt.edu](mailto:eap26@pitt.edu)



## News from The Department of Physical Medicine and Rehabilitation

Each year, NIH posts its funding data for the previous fiscal year. In 2007, the University of Pittsburgh Department of Physical Medicine and Rehabilitation ranked 2<sup>nd</sup> in overall NIH dollars among PM&R departments.

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PM&R's fourth annual **Institute for Rehabilitation and Research (IRR) Day** will be held on Friday, June 6, 2008 at the Thomas E. Starzl Biomedical Science Tower, S100 on the University of Pittsburgh Campus. The goal of IRR Day is to showcase research completed by students, residents, and fellows working in the field of rehabilitation through abstract competition in various categories.

2008's IRR Day is being held in conjunction with the Pennsylvania Academy of Physical Medicine and Rehabilitation (PAPMR), who have planned a joint meeting for that day. The joint meeting will be divided into 2 sessions; a morning PAPMR session and an afternoon IRR Day session. Between the two activities will be an open poster viewing session and poster grand rounds where attendees can view posters and will hear formal presentations by selected participants. The full day meeting is open to anyone who wishes to attend the conference; however, participation in round table discussions during the PAPMR session is restricted to PMR residents in Pennsylvania residency programs.

Registration Deadline: May 23, 2008. For more information please visit <http://www.rehabmedicine.pitt.edu> or contact Mary Synnott at [synnottm@upmc.edu](mailto:synnottm@upmc.edu) or 412.648.6137

# pittsburgh

250  
imagine what you can do here.



Pittsburgh 250 – the yearlong celebration of the 250th anniversary of the naming of our region in 1758 – is gearing up.

In late September and early October, organizers are planning to cut the ribbon on a Pittsburgh 250 signature project, the final segment of the Great Allegheny Passage bike and hiking trail connecting Washington, D.C. to Pittsburgh. Designated as a National Scenic Trail, the Passage creates a seamless connection between two major urban centers, encouraging active recreational use along its 335 miles. At never more than a two percent grade, it has been called “the most accessible great trail experience in the world.”

The Passage, together with the C&O Canal Towpath, follows the trail blazed by a young George Washington during the years leading to the French and Indian War. Trail users can follow in Washington’s footsteps and experience some of the most important stories about our nation’s founding – whether biking, hiking, using a wheelchair or pushing a stroller.

The *PNC Legacy Trail Ride* will celebrate the completion of this exciting new recreational asset. Taking place over the course of a week, The *PNC Legacy Trail Ride* will connect trail towns and thousands of people of all ages in Maryland, West Virginia and Pennsylvania. A half-dozen simultaneous Trail Town Celebrations on Saturday, September 27 will encourage residents to connect with their trails, get out and get active.

A centerpiece of the activities is the October 4 community trail ride along the last 16 trail miles

## Pittsburgh 250 is on a Roll: Join the *PNC Legacy Trail Ride* October 4<sup>th</sup>!

(including the nine miles being constructed to ‘Close the GAP’). Families and children of all ages may join a ride from McKeesport to Point State Park, even if for only a few blocks. Bring your children and grandchildren – on their bikes, trikes, in-line skates, skateboards, wheelchairs and any other way they get around – for the community ride to Point State Park. The trail will be divided into zones suitable for riders of different experience levels and will culminate in a community festival that afternoon at Point State Park. Registration will begin in June.

Another keystone of the *PNC Legacy Trail Ride* is a first-of-its-kind event: the 24-hour Legacy Trail Relay, October 3-4, during which teams of cyclists will convey Congressional proclamations to the people of Pittsburgh by riding through the night from Mile Zero in Washington, D.C. to Point State Park in Pittsburgh.

Kicking off on October 4 and ongoing through November 30 is the two-month birthday party, *Pittsburgh 250 Celebrates: A Festival of Light and Music*. Don’t miss this unrivaled portfolio of innovative arts and

cultural events showcasing the internationally acclaimed culture that our region has to offer. Just imagine what you can do here! **Learn more about all of these events and more at [www.imaginepittsburgh.com](http://www.imaginepittsburgh.com).**

### Key Dates:

- Trail Town Celebrations, September 27
- PNC Legacy Relay, October 3-4
- **PNC Legacy Trail Ride, October 4 (communitywide)**
- Pittsburgh 250 Celebrates: A Festival of Light and Music, October 4-November 30

HERL is helping the Allegheny Conference on Community Development organize a team of people with disabilities to ride in the PNC Legacy Relay, a 2 day overnight relay ride from Washington, DC to Pittsburgh, PA, on October 3-4, 2008. If you are interested in riding, please contact Annmarie Kelleher at HERL: 412-365-4850, or [kellehera@herlpitt.org](mailto:kellehera@herlpitt.org).

# HERL PUBLICATIONS

Crane B, Holm M, Hobson D, Cooper RA, Reed MP, A Dynamic Seating Intervention for Wheelchair Seating Discomfort, **American Journal of Physical Medicine and Rehabilitation**, pp. 988-993, Vol. 86, No. 12, December 2007.

Brewer B, McDowell SK, Worther-Chaudhari LC, Post-stroke Upper Extremity Rehabilitation: A Review of Robotic Systems and Clinical Results, **Topics in Stroke Rehabilitation**, pp. 22-44, Vol. 14, No. 6, November/December 2007.

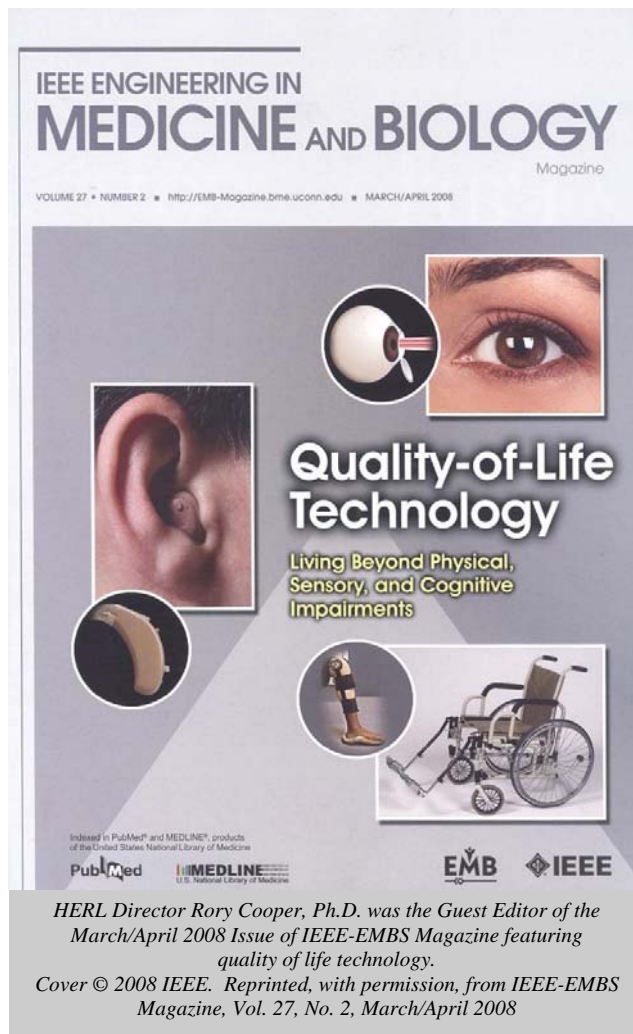
Jan YK, Brienza DM, Geyer MJ, Karg P, Wavelet-Based Spectrum Analysis of Sacral Skin Blood Flow Response to Alternating Pressure, **Archives of Physical Medicine and Rehabilitation**, pp. 137-145, Vol. 89, No. 1, January 2008.

Sharma V, Simpson RC, LoPresti E, Mostowy C, Olson J, Puhlman JR, Hayashi S, Cooper RA, Konarsky E, Kerley B, Participatory Design in the Development of the Wheelchair Convoy System, **Journal of NeuroEngineering and Rehabilitation**, [open access](#), Vol. 5, January 2008.

Kim JB, Brienza JB, Lynch RD, Cooper RA, Boninger ML, Effectiveness Evaluation of a Remote Accessibility Assessment System for Wheelchair Users Using Virtualized Reality, **Archives of Physical Medicine and Rehabilitation**, pp. 470-479, Vol. 89, No. 3, March 2008.

Cowan R, Boninger ML, Sawatzky BJ, Mazoyer BD, Cooper RA, Preliminary Outcomes of the SmartWheel Users' Group Database: A Proposed Framework for Clinicians to Objectively Evaluate Manual Wheelchair Propulsion, **Archives of Physical Medicine and Rehabilitation**, pp. 260-268, Vol. 89, No. 2, February 2008.

Cooper RA, Quality of Life Technology: A Human Centered and Holistic Design, Special Quality of Life Technology issue of **IEEE-EMBS Magazine**, pp. 10-11, Vol. 27, No. 2, March/April 2008.



Simpson R, Making Better Decisions: Modeling the Assistive Technology Assessment, Special Quality of Life Technology issue of **IEEE-EMBS Magazine**, pp. 23-28, Vol. 27, No. 2, March/April 2008.

Pearlman J, Cooper RA, Krizack M, Lindsley A, Wu Y, Reisinger K, Armstrong W, Casanova H, Chhabra HS, Noon J, Lower-limb Prostheses and Wheelchairs in Low Income Countries: An Overview, **IEEE-EMBS Magazine** (special Quality of Life Technology issue), pp. 12-22, Vol. 27, No. 2, March/April 2008.

Kwarciak AM, Cooper RA, Fitzgerald SG, Curb Descent Testing of Suspension Manual Wheelchairs, **Journal of Rehabilitation Research and Development**, pp. 73-84, Vol. 45, No. 1, 2008.

Simpson RC, LoPresti E, Cooper RA, How Many People Would Benefit From a Smart Wheelchair? **Journal of Rehabilitation Research and Development**, pp. 53-72, Vol. 45, No. 1, 2008.

Collinger JL, Boninger ML, Koontz AM, Price R, Sisto SA, Tolerico M, Cooper RA, Shoulder Biomechanics During the Push Phase of Wheelchair Propulsion: A Multi-Site Study of Persons with Paraplegia, **Archives of Physical Medicine and Rehabilitation**, pp. 667-676, Vol. 89, No. 4, April 2008.

Heiner CM, Cooper RA, Pasquina PF, Rehab Road Map, **Paraplegia News**, pp. 46-52, Vol. 62, No. 2, 2008.



## ACCOMPLISHMENTS AND AWARDS



*Brad Dicianno, MD*

**Dr. Brad Dicianno** won the 2008 Association of Academic Physiatrists (AAP) Best Faculty Paper Award for his paper “Isometric Joystick Control Interfaces for Individuals with Spastic Cerebral Palsy”

Other 2008 AAP Awards:

**Dr. Stephen Brose**, a University of Pittsburgh Dept. of Physical Medicine and Rehab (PM&R) resident, won Best Presentation for his paper on HERL research, “Shoulder Ultrasound Abnormalities, Physical Examination Findings and Pain in Manual Wheelchair Users with Spinal Cord Injury.”

**Janet Leath**, a PM&R medical student, won Best Medical Student Paper for “Nerve Conduction Study Findings in Manual Wheelchair Users with Spinal Cord Injury.” Dr. Michael Boninger and Dr. Jennifer Yang mentor Ms. Leath.

**Alexandra Jefferds** received the Sean and Stephanie Shimada Award, a \$500 scholarship awarded to a graduate student in the University of Pittsburgh Department of Rehabilitation Science and Technology demonstrating a strong interest in the field.

**Dr. Alicia Koontz** was elected to the Professional Standards Board (PSB) Executive Committee of the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA).



*Alicia Koontz, PhD*

## HERL IN THE NEWS



**www.researchcrossroads.com, September 2007:** Research Crossroads  
[http://www.ResearchCrossroads.com/index.php?option=com\\_comprofiler&task=userProfile&user=639585](http://www.ResearchCrossroads.com/index.php?option=com_comprofiler&task=userProfile&user=639585)

**Exceptional Parent Magazine, p. 50-51, November 2007:** 2007 da Vinci Award Winners

**VA Rehab Research and Development, November 2007:** VA Center Directors Meeting - Nov. 1-2, 2007, Seattle Washington

**Pittsburgh Post Gazette, November 2007:** Robotic Aids for the Disabled and Elderly  
<http://www.post-gazette.com/pg/07318/833537-115.stm>

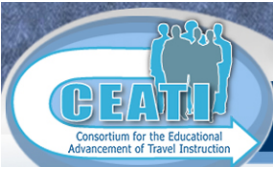
**The Physiatrist, November 2007:** Snap Shots from the 2007 Annual Assembly

**Venture 2007 KANSAI (Japanese Television Show), December 15, 2007:** Cutting edge research at HERL

**inMotion, p. 14-19, November/December 2007:** The Shape of Things to Come

**Pitt Alumni Connections, p. 6-7, Winter 2007:** New Center Applies Technology, Brain Power in Search of a Better Life

**Pittsburgh Post Gazette, February 20, 2008:** Self Sufficient and Going Strong at 77, with Spina Bifida  
<http://www.post-gazette.com/pg/08051/858670-114.stm>



## Travel Conference to focus on Disability-Related Travel Issues

The Consortium for the Educational Advancement of Travel Instruction (CEATI)

was created to enhance through education the knowledge and skills of those professionals who are teaching travel skills to people with disabilities and seniors. CEATI pledges to provide skill development through in-service courses and published papers. Members of the Board of Directors include experienced practitioners in the fields of travel instruction and orientation and mobility instruction. CEATI consists of a dedicated group of professionals who believe in the right of every individual to have freedom of movement to the maximum degree possible and to be instructed by the knowledgeable professionals from the field of travel instruction.

CEATI will be holding their Fall 2008 Conference, Travel Instruction Across the Continuum: A conference designed for Travel Instructors, Special Educators, Orientation and Mobility Specialists, Physical Therapists, Occupational Therapists, Senior Citizen Service Providers, and Mass Transit - A Competency Based Approach, on October 10-11, 2008 at the Best Western Parkway Center Inn - 875

Greentree Road - Pittsburgh, PA 15220.

Conference highlights will include:

- Topics related to teaching persons with cognitive and/or physical disabilities
- Certification in wheelchair securement - (Limited Enrollment)
- Evaluating community based environments for safe instruction
- Teaching for problem solving skills: Promoting independence in thinking
- Procedures and emergency evacuation of a mass transit vehicle
- Professional portfolio development
- Liability issues and considerations

The October 10 afternoon session will be conducted at HERL, where and speakers from the Rehabilitation Engineering Research Center on Transportation Safety will join us to present the latest research in mobility devices.

For updates on the conference, visit CEATI's website at: [www.ceati-travelinstruction.org](http://www.ceati-travelinstruction.org)

Or contact Glenn Beigay at (412) 605-9898

## Upcoming Events

**Support for Returning Veterans - A Community Event** is scheduled for **May 14th, 2008** at Soldiers & Sailors National Military Museum in Pittsburgh, PA. The intent of this conference is to help providers, veterans, and family members better understand some of the physical and behavioral health issues associated with reintegration into the community. The conference is free of charge, however there is a \$25 fee for continuing education credits. The preregistration deadline is May 7. Contact: Kimberly Hall, 412-244-1244, [kimberlyhall@comcast.net](mailto:kimberlyhall@comcast.net)

Save the date: **The Third OIF/OEF Community Response Symposium** will be held at Hiram G. Andrews Center in Johnstown, PA, on **August 14, 2008**. Anyone who works with veterans is encouraged to attend, as the symposium will address returning veterans' needs. Last year's event featured world renowned experts from Walter Reed Army Medical Center, the VA, the Department of Defense, and the

Defense and Veterans Brain Injury Center, and covered topics ranging from amputations, brain injury, and post-traumatic stress disorder. For more information on this year's event, please contact the Veteran Community Initiatives, Inc. at 814-255-7209, or [vvlp@surfshop.net](mailto:vvlp@surfshop.net)

Helping Hands for Wounded Veterans (HHWV) will be hosting a **paintball tournament for people with disabilities**. They are looking for both sponsors and participants of all ages and abilities for this event to be held at American Paintball Park in Greensburg, PA on **August 23 - 24th, 2008**. For more information, please contact Andy Pope, 724-600-4965, or visit <http://www.hhwv.org/>. HHWV is a non-profit organization with a mission to help wounded soldiers and non-military people with disabilities return to work using assistive technology.

## State of the Science Workshop on Quality of Life Technology

Throughout the 1960's, the cartoon family "The Jetsons" lived in the year 2062 and utilized mind-bending technology such as the house cleaning services of Rosie the robot maid to fold up flying cars. Today, the technology of the Jetsons is not that far fetched thanks to researchers at the University of Pittsburgh (Pitt) and Carnegie Mellon University (CMU). Researchers from both universities have come together to form the Quality of Life Technology (QoLT) Center, an Engineering Research Center funded by the National Science Foundation. The QoLT Center researchers are working to make innovative assistive technology become a reality.

On January 18<sup>th</sup>, QoLT researchers hosted a State of the Science Workshop at Walter Reed Army Medical Center (WRAMC), discussing advances that will improve people's quality of life in the future. The goal of the center is to serve as a means to improve the lives of people with disabilities and the aging population by making friendly, intelligent technology that will monitor and communicate with people, understand their needs, and provide safe environments with assistance where it is needed in order to improve quality of life. The QoLT is

divided into four families of engineered systems including active home technology, personal mobility and manipulation appliances, virtual coach development, and safe driving technologies, all of which rely on vision and perception technology.

Additionally, policies which determine the funding of assistive technology, the design of public facilities, and how to objectively measuring quality of life were discussed.



*HERL graduate student Hongwu Wang demonstrating the Smart Controller project*

Graduate students from both CMU and Pitt presented posters on their research projects. The QoLT Center is working to design, create, and test innovative assistive technologies that will allow individuals with disabilities and people who are aging increase and maintain independence in their everyday lives. Workshop attendees also had the opportunity to tour the Blueroof Technologies module home. Blueroof Technologies have begun to develop natural environment test beds on a 10-acre area of land that will hold 15-20 new single family

houses in McKeesport, PA. This will be the site where many QoLT technologies will be trialed for the first time.



*The University of Pittsburgh and Carnegie Mellon QoLT students who helped make the April State of the Science Workshop a success*

While flying cars may not be available with in the next ten years, we will certainly see robots working along side of people helping to improve their quality of life. The next workshop, State of the Science on Spinal Cord Injury, was held April 11, 2008. Information

about this, and future State of the Science Workshops, can be found at [www.herlpitt.org](http://www.herlpitt.org) or by contacting Mary Hershberger at 412-365-4850.

*- Michelle Sporer and Sara Sibenaller*



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For Wheelchairs and  
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University of Pittsburgh  
NIDRR Model Center on  
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Part of  
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## ARE YOU INTERESTED IN WHEELCHAIR RESEARCH?

The Human Engineering Research Laboratories is recruiting individuals interested in participating in research studies for the **WHEELCHAIR USERS REGISTRY**. If you would like to be notified of Wheelchair related Research Studies for which you may be eligible to participate, contact The Human Engineering Research Laboratories and join the Wheelchair Users Registry. This is an informational resource and notification of a study does not obligate you to participate. You do not need to be located in nor are you required to travel to Pittsburgh in order to participate in research studies. If you are at least 18 years of age, and use a wheelchair or scooter, please contact **Emily, Annmarie, or Michelle** for more information.

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