



# HERL Newsletter

VOLUME 10, NO. 1 • JUNE 2011 • News from the HUMAN ENGINEERING RESEARCH LABORATORIES

## HERL's Move to Bakery Square Begins

As visitors walk into HERL's offices and labs at the Highland Drive campus of VA Pittsburgh, they can't help but notice something different: moving boxes. Hundreds of moving boxes, stacked on top of one another, packed with both care and haste. There can be no question about it – HERL is moving.

Packing up is onerous, but the methodical approach seems to be working. "It's all going well so far – I'm just taking it a little bit at a time," said Ron Wesolowski, HERL administrative assistant, as he taped another box. "Everyone is working together as a team," added HERL bioengineer Michelle Oyster, hard at work collecting years of important records.

Meanwhile, just three miles down Route 8, the new HERL offices and lab spaces are taking shape within Bakery Square. Drywall has been painted; ceilings have been installed. Furniture has been selected and ordered, and everyone now has their seat assignments.

Administrative Officer Dana Sinciline says, "I think I speak for everyone at HERL when I say that we couldn't be more excited about moving in to our new facilities at Bakery Square. This move has been a long time coming, and we're finally in the homestretch!"

An official ribbon-cutting ceremony will be held August 1 with Department of Veterans Affairs Chief of Staff John R. Gingrich expected to be in attendance.

HERL is on the move. Please note that as of July 2011, our new address and phone numbers will be as follows:

6425 Penn Avenue  
Suite 400  
Pittsburgh, PA 15206

Phone: 412-822-3700  
Fax: 412-822-3699

Our website and email addresses will remain the same.



National Veterans Wheelchair Games honorary chairman Rocky Bleier poses with HERL director Dr. Rory Cooper at the Breakfast of Champions on March 8.



## Pittsburgh Wheelchair Games Approach

Wheelchair athletes from around the country are getting ready as the 31st annual National Veterans Wheelchair Games are almost upon us!

Games are Monday, August 1, through Saturday, August 6 with athletes arriving on July 31 and departing on August 7. The Games will kick off with a slalom demonstration on the Roberto Clemente Bridge in downtown Pittsburgh,

followed by the opening ceremonies at the David Lawrence Convention Center.

Most events will take place at the Convention Center, 1000 Fort Duquesne Boulevard, Pittsburgh. However, bowling events will be held at Princess Bowling Lanes in Pittsburgh; trap shooting will be at the Clairton Sportsmen's Club in (Continued on p. 7)

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## CURRENT RESEARCH ABSTRACTS

### Manual Wheelchair Propulsion over Cross-sloped Surfaces: A Literature Review

Cooper RA, Teodorski E, Spörner M, Collins DM

Full article published in *Assistive Technology*, pp. 42-51, Vol. 23, No. 1, March 2011.

**Introduction:** Manual wheelchair propulsion may be facilitated or impeded depending upon the surface and the environment. One such barrier may be the cross-slope of pathways traversed by wheelchair users. The Americans with Disabilities Accessibility Guidelines state cross-slopes of ramps and accessible routes should not exceed 1:50. The purpose of this systematic review was to determine the quality of the evidence on the effects of cross-slopes on manual wheelchair propulsion, and to summarize our findings. The goal was to identify and to understand the optimal design for cross-slopes that have the least negative impact for wheelchair users. Disagreement exists regarding the effects of cross-slopes on manual wheelchair propulsion. No consensus has been reached as to the effect of the forces and moments created when an individual propels a wheelchair along a surface with a cross-slope.

**Methods:** A systematic literature review was conducted to find relevant articles concerning manual wheelchair propulsion over cross-slopes. Fifty-two articles were reviewed by 15 expert reviewers. Six were identified to be relevant to manual wheelchair propulsion over cross-slopes.

**Results:** Most studies are in agreement that traversing a cross-slope in a manual wheelchair is more difficult than propelling on a level surface. However, agreement has not been reached as to the percent increase in effort or the optimal degree of cross-slopes that should be used as a maximum acceptable standard. There is a paucity of research investigating the impact of cross-slopes on wheelchair mobility and community participation, especially when it comes to the interaction with running-slope, weather and surface conditions.



### Emergency Evacuation Readiness of Full Time Wheelchair Users with Spinal Cord Injury

McClure L, Boninger ML, Oyster M, Roach MJ, Nagy J, Nemunaitis G

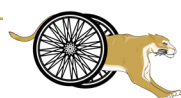
Full article published in *Archives of Physical Medicine & Rehabilitation*, pp. 491-498, Vol. 92, No. 3, March 2011.

**Purpose of the Work:** Emergency evacuation can be difficult for full-time wheelchair users with spinal cord injuries due to the lack of accessible emergency exits, vehicles and shelters. The study observes how often assistive technology (such as evacuation chairs and mechanical lifts) and human assistance is used in the evacuation process. The study also looks at specific characteristics of the participants (such as age, gender, and race) to determine if any of these factors contribute to a person's perceived ability to evacuate and having a plan.

**Subjects/Procedures:** 489 people with spinal cord injuries who use a wheelchair over 40 hours per week were asked questions about their ability to evacuate, if they had a plan for evacuation, and if they used human assistance or assistive technology (such as a chute, lift or evacuation chair).

**Results:** The results of this study show that between 69.1%-94.3% of wheelchair users can evacuate from various locations and 31.1% -79.5% have a plan for evacuation. Also, the study found that a large percentage of individuals need assistance during evacuation, but only a small percent use assistive technology to help them evacuate.

**Relevance to Wheelchair Users:** The large difference between the number of wheelchair users who think they can safely evacuate and those who have an actual plan is very large. The large difference is dangerous because past research has shown that having a plan for evacuation improves survival in an emergency situation. It is important that wheelchair users are educated on the importance of having a plan for safe evacuation and that assistive technology can be useful.



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## CURRENT RESEARCH ABSTRACTS

### Design and Development of a Lightweight Durable Adjustable Composite Backrest Mounting

Hong E, Pearlman J, Salatin B, Wang H, Liu H, Cooper RA, Hargroder T

Full article published in *Assistive Technology*, pp. 24-35, Vol. 23, No. 1, March 2011.

**Objective:** To develop a user-operated lightweight, durable, adjustable mounting system for a composite backrest system.

**Methods:** We performed a traditional design project which included ideation, prototype fabrication, engineering testing, and focus group testing. The backrest mounting design has several design iterations with advantages and disadvantages of each change. The components were designed using the 3D modeling software SolidWorks and prototyped using a Stereo Lithography Apparatus (SLA) machine (3D Systems, Inc) to verify operation. The final components of the last concept design were made from aluminum and ABS plastic, which made them durable. The Lightweight Durable Adjustable Composite (LWDAC) Backrest Mounting was tested with ANSI/RESNA durability and fatigue test standards. This study also



included focus groups to gather user and clinician feedback regarding backrest characteristics.

**Results:** The LWDAC passed all tests except the curb-drop test in a part of one test. The backrest had overall positive response from participants. The participants agreed the backrest mounting can be operated with one hand, felt comfort when seated, and wheelchair users were

interested in purchasing the backrest and clinicians indicated they would recommend the LWDAC backrest.

**Conclusion:** Through a formal design process, we have successfully developed a backrest adjustment system that is simple to use and was well received by clinicians and potential users. With further design refinement, the LWDAC is likely to improve the usability of rigid backrest systems.

### Investigation of Factors Associated with Manual Wheelchair Mobility in Individuals with Spinal Cord Injury

Oyster M, Karmarkar A, Patrick M, Read MS, Nicolini L, Boninger ML

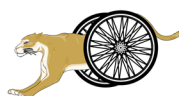
Full article published in *Archives of Physical Medicine & Rehabilitation*, pp. 484-490, Vol. 92, No. 3, March 2011.

**Purpose of work:** To measure wheelchair mobility of individuals with a spinal cord injury and to assess the relationship between wheelchair mobility and demographics, type of manual wheelchair, and community participation.

**Subjects/Procedures:** Participants for this study were recruited from 6 Model Spinal Cord Injury Systems. One hundred and thirty two people with a spinal cord injury who use a manual wheelchair as their primary means of mobility completed the study. All participants completed a questionnaire and had a data-logging device attached to their wheelchair for a two week period. The questionnaire included demographics, wheelchair information, and community participation. The data-logging device was custom designed at the Human Engineering Research Laboratories to enable the measurement of wheelchair activity (e.g. distance, speed, and amount of time actively using wheelchair).

**Results:** Age was found to be significantly related to average speed traveled per day. Whites were found to travel significantly further and accumulate more minutes per day compared to minorities. Individuals who were employed traveled significantly further, faster, and for more minutes per day compared to those who were not employed. A moderate relationship was found between wheelchair mobility data and community participation score.

**Relevance to Wheelchair Users:** Results from this study provide a better understanding of the mobility patterns of manual wheelchair users and indicate that there are demographic factors that may be influencing manual wheelchair mobility. Results also show that the data-logging device may be measuring different aspects of participation compared to the community participation questionnaire.





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## CURRENT RESEARCH ABSTRACTS

### Reliability and Validity Analysis of the Transfer Assessment Instrument

McClure L, Boninger ML, Ozawa H, Koontz AM

Full article published in *Archives of Physical Medicine & Rehabilitation*, pp. 499-508, Vol. 92, No. 3, March 2011.

**Purpose of the Work:** People with mobility impairments who rely on wheelchairs perform transfers frequently to do basic activities of daily living, such as getting into and out of bed, on and off a tub/shower seat, commode, and motor vehicle seat. Unfortunately, transfers have been found to be key activities leading to the development of shoulder pain and injury. Therapists spend a lot of time in rehab teaching transfer skills in a manner that will reduce the amount of stress placed on the upper extremity, but there is currently no outcome measure to objectively evaluate the quality of a transfer. This paper describes the development and assessment of the reliability and validity of a new clinical outcome measure to evaluate the quality of a transfer.

**Subjects/Procedures:** 40 people who use a wheelchair over 40 hours per week were asked to perform 1-4 transfers to and from a height adjustable mat table. Three physical therapists used the newly developed outcome

measure to assess the quality of the transfer. Study participants returned 4-72 hours later and repeated the same protocol.

**Results:** No adverse events occurred during testing and the tool was found to be easy to use in a clinical setting. Intra-rater reliability (one person evaluating the same participants at two different time points) was found to be fair to good. Inter-rater reliability (three raters evaluating the same participants at the same time) was found to be acceptable. The reliability of each individual item of the outcome measure was assessed. The items that were found to have low reliability will be revised.

**Relevance to Wheelchair Users:** The newly developed outcome measure was found to be a reliable way to evaluate the quality of a transfer. This tool will allow therapists to provide better training to people who perform transfers and decrease the amount of upper extremity pain people have when they transfer.

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## Mark McCartney is HERL's 2010 Employee of the Year

Better late than never! Now that 2011 is half over, we're just now getting around to reporting that Mark McCartney, HERL's senior machinist, was awarded Employee of the Year back in February.

Zack Mason, Research Engineering Coordinator at HERL, had this to say about Mark: "I'm sure all the faculty, staff and students know that their projects would never have been completed without Mark's expert knowledge, guidance, and diligent assistance. He frequently goes above and beyond the call of duty in order to not only make sure that the parts and devices for HERL's projects are fabricated correctly, but also work in the most efficient way possible. Also, and I think most of HERL's personnel would agree, I have learned more from Mark McCartney in 2 years at HERL than the vast majority of my years in school and in the work force."

Mark joins other Employee of the Year recipients such as Emily Teodorski (2007), Michelle Oyster (2008), and Mary Goldberg (2009). Congratulations, Mark!



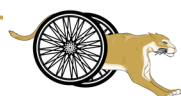
Mark's staff photo



Lego League Robot Camp, 2002



HERL's 10th anniversary, 2004



# VIPs Visit HERL

Researchers at the Human Engineering Research Laboratories have been showing off their work to some very important visitors lately.

On April 14, HERL was treated to a visit from Dr. Holly H. Birdsall, the Department of Veterans Affairs' Acting Deputy Chief Research and Development Officer. On April 22, HERL welcomed visitors from the Industrial College of the Armed Forces at the Department of Rehabilitation Science and Technology space at Bakery Square.

Dr. Birdsall was quite impressed with her tour of the HERL labs and project demonstrations, and the ICAF students, who were primarily interested in robotics, enjoyed their tour as well.



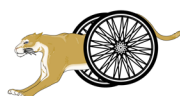
*Dr. Cooper, Tanya Liu, and Dr. Birdsall share a laugh.*

## *Pictures from Bakery Square*



## National Veteran Small Business Conference and Expo Offers Networking and Federal Contracting Opportunities

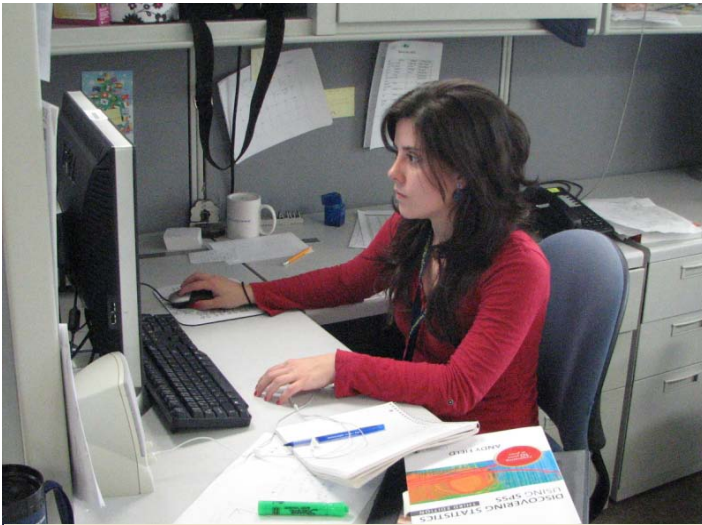
The U.S. Department of Veterans Affairs (VA) will host the National Veteran Small Business Conference and Expo, August 15-18th, 2011, at the Ernest N. Morial Convention Center in New Orleans, Louisiana. The largest nationwide conference of its kind, the National Veteran Small Business Conference and Expo provides Veteran-Owned and Service-Disabled Veteran-Owned Small Businesses (VOSBs and SDVOSBs) with an opportunity to learn, network and market their businesses. The conference will offer a variety of sessions on navigating the Federal acquisition process including finance, compliance, business development, marketing, strategy, contract management, human resources, technology, and program management. A VA Open House has been added to the event to give Veterans from both the conference and local region the opportunity to experience the wide range of resources available to the Veteran community. The National Veteran Small Business Conference and Expo is open to both government and non-government personnel. For more information and to register for the conference, go to [www.nationalveteransconference.com](http://www.nationalveteransconference.com).





# Two Win RESNA Student Paper Competition

RESNA conducts a student scientific paper competition each year. Full time students in either an undergraduate or graduate academic program are eligible for the competition. To enter the competition, students submit a paper through the Scientific Paper submission. The papers are then reviewed with other scientific papers. However, those student papers that are accepted for presentation at the conference are then moved to a second review process, specifically for the student scientific paper competition. Winners are selected and their papers are presented during a platform session at the RESNA Conference. This year, two HERL students were selected as competition winners and presented their research at the RESNA Conference in Toronto on June 8.



Maria Toro Hernandez

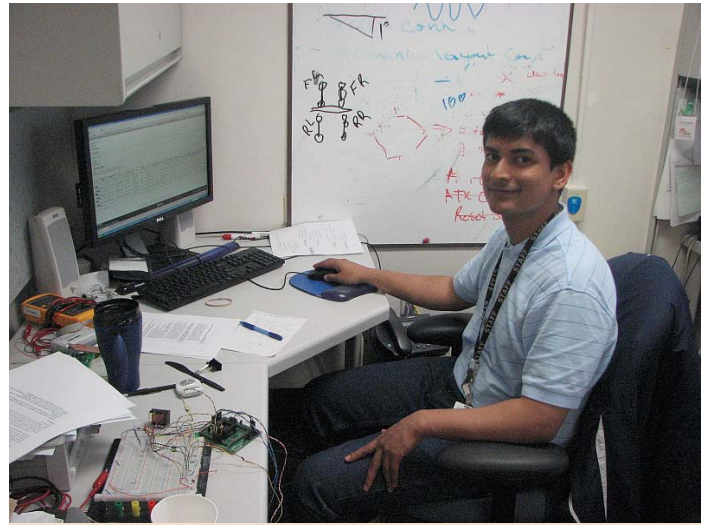
## Setup Helps Independent Transfers

Congratulations to Maria Toro Hernandez, a RESNA winner for 2011. She also won the RESNA student paper competition last year.

Maria's research focuses on transfers, and specifically how high or how low a transfer setup can be without problems.

Maria tested transfers into a transfer station that mimic amusement park rides and compared them with current transfer guidelines. The results showed that most current transfer setups into rollercoasters need to be improved.

**Citation:** Toro Hernandez ML, Koontz AM, Cooper RA. The impact of transfer setup on the performance of independent transfers: Preliminary results. *Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Toronto, Ontario, Canada, June 8, 2011.*



Shivayogi Hiremath

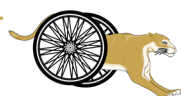
## Devices Predict Energy Expenditure

Shiv is a previous winner of the competition, also winning in 2010.

Shiv's research follows directly from his award-winning 2010 research on the SenseWear device, which is an activity monitor on the market for ambulatory population without disabilities.

Shiv's paper outlines activity-specific mathematical equations that can be used in a SenseWear device to estimate energy expenditure in manual wheelchair users with spinal cord injury.

**Citation:** Hiremath S, Ding D. Predicting energy expenditure of manual wheelchair users using a wearable device. *Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Conference, Toronto, Ontario, Canada, June 8, 2011.*



# Cooper Receives Public Service Award, Inducted into PA Military Hall of Fame

The accolades keep coming for Human Engineering Research Laboratories director Dr. Rory Cooper.

On February 21, University of Pittsburgh Chancellor Mark A. Nordenberg announced he had named Dr. Cooper as recipient of the 2011 Chancellor's Distinguished Public Service Award. This high honor is given to faculty members who perform academic activities that provide extremely significant public or community benefits and have a long-term impact on the University and the community at large. In his notification letter, Nordenberg cited Dr. Cooper's "distinguished academic appointments ... your nine issued or pending patents ... and your receipt of countless honors [including] the highest forms of recognition from the Department of Veterans Affairs" as examples of the work deserving of the award. Dr. Cooper was recognized at the University of Pittsburgh Honors Convocation on February 25 and will be further recognized at a ceremony later this summer.

Dr. Cooper was honored once again on June 2 when he

was inducted into the Pennsylvania Department of Military and Veterans Affairs Hall of Fame at Fort Indiantown Gap in Annville, PA. Major General Wesley E. Craig of the Pennsylvania Army National Guard, in his message to Dr. Cooper informing him of his selection, noted that "[t]his auspicious occasion not only recognizes your significant achievements, but also the honor and prestige that you have brought upon the Department, the Pennsylvania National Guard and its members. Election to the Hall of Fame is the highest honor bestowed by the Department."



The Paralyzed Veterans of America (PVA) also named Dr. Cooper as the recipient of the 2011 PVA Cliff Crase Award for Professionalism. This award was established in 2007 to honor Cliff Crase, late editor of PVA's *PN* magazine and founder of its sister publication

*Sports 'n Spokes*. It is given to exceptional PVA members who have served the PVA in an exemplary manner and have "exhibited truly professional traits that others admire and would be well-served to emulate." This honor is not given annually, but only when the PVA Executive Committee and Board of Directors feel a member is deserving of the honor. Dr. Cooper will be given the award at the PVA Annual Awards Brunch in Woodlands, Texas, on August 27.

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## Games ... *Cont. from p. 1*

Side Academy in Fox Chapel. A draft schedule for the events has been put together, and the final schedule will be available by July 25 at the Keystone PVA website (<http://www.kpva.org/>). All events at every venue are free and open to the public.

Pittsburgh last acted as host for the Games in 1998. This year, 23 local Pittsburgh athletes have qualified for the Games, and 11 athletes from the United Kingdom will also be participating.

Local cable provider Comcast has donated airtime to promote the Games. Public service announcements have featured HERL director Dr. Rory Cooper and Steelers legend Rocky Bleier and can be seen on the NVWG website at <http://www.pittsburgh.va.gov/NVWG/TV.asp>.

Volunteers are still needed before and during the Games. Call Richard Kiehn at 412-654-4582 or email [Richard.Kiehn@va.gov](mailto:Richard.Kiehn@va.gov). Any other questions? Visit the NVWG website at <http://www.pittsburgh.va.gov/NVWG>, call 412-954-5985, or email [2011NVWG@va.gov](mailto:2011NVWG@va.gov).







## *Cooper & Laferrier Shine at National VA Research Week Event*

HERL Director Dr. Rory Cooper and HERL physical therapist, student, and Veteran Justin Laferrier were invited to speak on the theme of "Discovery and Collaboration for Exceptional Health Care" at the Department of Veterans Affairs National Research Week symposium at VA headquarters in Washington, DC, as part of the festivities during the VA's National Research Week.

Their presentation, entitled "VA/DoD Model of Collaboration and the Impact on Veterans," discussed the continuing partnership between HERL and the Walter Reed Army

Medical Center and the work that has resulted from this teamwork. Besides a great deal of published research, the collaboration has resulted in the quarterly State of the Science Symposia (see below) and the book *Care of the Combat Amputee*, published in 2009 by the Borden Institute. Another manuscript, *The Warrior Transition Leader Medical Rehabilitation Handbook*, is currently in the editing stage.

After Dr. Cooper outlined the many forms of collaboration between HERL and the WRAMC, Justin Laferrier gave his views as a Veteran.



## *State of the Science Symposium on Universal Design Draws 85 to Bethesda*

The latest installment of the State of the Science Symposium series, on the subject of Universal Design, was held at the National Intrepid Center of Excellence (NICoE) at the National Naval Medical Center in Bethesda, Maryland on May 6, 2011. 85 people were in attendance.

Vice Admiral John M. Mateczun provided opening remarks on the brand-new Walter Reed Medical Center for all branches of the Armed Forces. Following that, Dr. Molly Story of the Food and Drug Administration discussed the principles of universal design. William Botten of the U.S. Access Board then summarized the guidelines of the Americans with Disabilities Act.

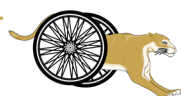
Following a break, Dr. Aaron Steinfeld of Carnegie Mellon University outlined what his lab is doing in the field of accessible public transportation research, after which HERL's Dr. Dan Ding presented information about health

and wellness at home.

Lunch was provided by the generous support of the Paralyzed Veterans of America. After lunch, Jonathan Kuniholm, a Veteran and PhD candidate from Duke University, made an impassioned presentation regarding participatory design and the problems of orthopedic devices in the marketplace. Afterwards, the University of Pittsburgh's Dr. Ashli Molinaro discussed the use of universal design on the Internet.

Several representatives from Clark Realty (developers), IDEO (designers), and Michael Graves & Associates (architects) talked about new housing options for Wounded Warriors, after which John Coltellaro of the University of Pittsburgh described methods in clinical rehabilitation.

See pictures from the Symposium on the next page!





# Symposium Sights



*Michael Graves (Michael Graves & Associates) & Dr. Rory Cooper*



*Dr. Ashli Molinero (University of Pittsburgh)*



*William Botten (U.S. Access Board)*



*Jonathan Kuniholm (Duke University)*



*John Coltellaro (University of Pittsburgh)*



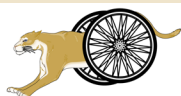
*Dr. Dan Ding (HERL)*



*Vice Admiral John M. Mateczun*



*Dr. Aaron Steinfeld (Carnegie Mellon) and COL Paul Pasquina*



# Successful First Year for the University of Pittsburgh/ UPMC Rehabilitation Institute Pilot Grant

Just a little over a year ago, the University of Pittsburgh/UPMC Rehabilitation Institute (RI) announced a new pilot grant program. In partnership with the RI, the Department of Physical Medicine and Rehabilitation (PMR), and the School of Health and Rehabilitation Sciences (SHRS) provided \$200,000 to fund the program. The first full year of the RI-Pilot Grant program has come to a close and projects funded in the second cycle of the grant have recently been awarded. We are very pleased to recognize the following awardees of funding over the past year.

1st Cycle Awardees (April 1, 2010- March 31, 2011):

- Fabrisia Ambrosio, PhD: “Electrical Stimulation Rejuvenates the Regenerative Potential of Aged Skeletal Muscle in Mice”
- Jennifer Collinger, PhD: “An Acute Electrocorticography (ECoG) Brain-Computer Interface (BCI) for Individuals with Spinal Cord Injury”
- Terry Breisinger, MPT, NCS: “Sensitivity and Specificity of the Stroke Assessment of Fall Risk (SAFR)
- Elizabeth Skidmore, PhD: “Strategy Training to Improve Stroke Rehabilitation Outcomes”

2nd Cycle Awardees (April 1, 2011- March 31, 2012):

- Gwendolyn Sowa, MD, PhD: “Unraveling Intervertebral Disc Mechanobiology to Facilitate Rational Design of Exercise Protocols”
- Brad Dicianno, MD: “Building Specialty Health Homes through Gain Sharing”
- Kelly Noone, MOT: “The Effect of a Standardized Bowel Management Program on Functional Independence”
- Sara Piva, PT, PhD: “Feasibility of a Comprehensive Behavioral Intervention in Total Knee Arthroplasty”

The Call for Proposals for the third cycle of funding will be announced in September of this year with funding beginning in April 2012. For a full description and list of rules for the RI Pilot Grant, go to <http://www.rehabmedicine.pitt.edu>.

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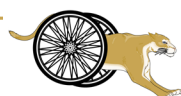
## HERL Says Goodbye to Jijie Xu

Jijie Xu was a Post Doctoral Research Associate with HERL until February, 2011, when he departed for Cupertino, CA to begin a new position as a hardware development engineer with Lab 126.

Jijie joined HERL in October of 2009 as a trainee on Dr. Ding’s Advanced Rehabilitation Research Training grant which was funded by the Department of Education and was designed to increase the number of rigorously trained and scientifically productive engineering researchers in the field of rehabilitation science and engineering.

While at HERL, Jijie assisted the HERL graduate students who are leading the Personal Mobility and Manipulation Appliance (PerMMA) project with design, testing and further development. PerMMA is a nationally recognized robotic mobility device designed to aid people with disabilities perform activities of daily living tasks and is a collaborative effort with the Engineering Research Center at Carnegie Mellon University.

As Principal Investigator on the study “Personal Mobility and Manipulation Appliance (PerMMA),” Jijie conducted a performance evaluation of the PerMMA cooperative/interdependent control. The cooperative/interdependent control is a combination of PerMMA’s local and remote controls. Local mode allows the user to have full control of PerMMA and remote mode gives a caregiver for the user full control of PerMMA’s mobility and manipulation. To complete this evaluation, Jijie had participants with lower and upper extremity impairment complete a pre-evaluation questionnaire. After instruction and a practice session with PerMMA where they performed activities of daily living tasks, the participants  
(Continued next page)





# *New beginnings, but the same dedication*

Happy summer! Can you believe this issue marks the **10th anniversary** of the HERL Newsletter? To commemorate the occasion, you'll see some pretty major design changes beginning with this issue. I'd love to hear your thoughts about the design change and your suggestions about how we can make the Newsletter even better.

Incidentally, the Newsletter isn't the only thing undergoing a redesign. As I write this, designers on the University of Pittsburgh Marketing Communications team are hard at work on a new, improved HERL website, and we hope to roll this out at the same time we move to Bakery Square. So don't be surprised if one day soon you visit [herlpitt.org](http://herlpitt.org) and discover something entirely different from what you're used to!

There's something else that's new: HERL has a Facebook page! Search for us under "Human Engineering Research Laboratories" or just go to our page at <http://www.facebook.com/herlpitt>. If you're on Facebook, be sure to Like us and watch your news feed for updates!

If you're on one of our mailing lists - whether electronic, postal, Facebook, or anything else - your opinion is very important to us. Please feel free to get in touch with us via the methods on the back page if there's something specific you'd like to see or some way we can communicate with you more effectively. And if you like HERL and enjoy reading the newsletter, pass it on! Lend someone your copy or let them know how to get on our mailing lists. (And if you're reading this on our website, why not subscribe now at <https://list.pitt.edu/mailman/listinfo/herlnewsletter?>)

Thanks for being part of HERL. We hope the next ten years of news is as interesting and productive as the first ten!

## FROM THE EDITOR'S DESK



*Left: Zack Mason prepares to crate a newly-constructed throwing chair. HERL's shop team built four throwing chairs, for use in the discus, shotput, and javelin events, for the Warrior Games at the Olympic Training Center in Colorado Springs.*

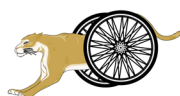
## *Jijie ... Cont. from previous page*

completed a post-evaluation questionnaire.

Results of this study suggest that using PerMMA is easy to learn and very useful to this group of participants. Also, positive feedback was given towards accepting assistance or utilizing the cooperative/interdependent control.

Jijie's research experience spans over 8 years and includes robotics, automation, control science and engineering, system theory, modeling and simulation. He has published papers in peer-reviewed research journals and International conferences.

Jijie is now reunited with his wife and young daughter in California. -Andrea Bagay







## Human Engineering Research Laboratories



VA Center of Excellence for  
Wheelchairs and Associated  
Rehabilitation Engineering



University of Pittsburgh  
NIDRR Model Center on  
Spinal Cord Injury



Part of  
Quality of Life  
Technology Center  
A National Science Foundation  
Engineering Research Center

Rory A. Cooper, PhD  
*Director*

Michael L. Boninger, MD  
*Medical Director*

Jonathan Pearlman, PhD  
*Associate Director of Engineering*

Alicia Koontz, PhD, RET  
*Associate Director for  
Research Capacity Building*

Brad Dicianno, MD  
*Associate Medical Director*

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[mil72@pitt.edu](mailto:mil72@pitt.edu)  
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412-822-3658

To subscribe to the electronic mailing list:  
<https://list.pitt.edu/mailman/listinfo/herlnewsletter>

Check us out on Facebook at  
<http://www.facebook.com/herlpitt>

## ARE YOU INTERESTED IN ASSISTIVE TECHNOLOGY RESEARCH?

The Human Engineering Research Laboratories (HERL) is recruiting individuals interested in participating in research studies for the ASSISTIVE TECHNOLOGY REGISTRY.

If you would like to be notified of research studies related to assistive technology for which you may be eligible to participate, contact The Human Engineering Research Laboratories and join the Assistive Technology 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 assistive technology (e.g. wheelchair, scooter, prosthesis, etc) please contact a Clinical Coordinator at (412) 822-3700 or [herlregistry@shrs.pitt.edu](mailto:herlregistry@shrs.pitt.edu).

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