

# Seattle Institute for Biomedical and Clinical Research

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## Feature



**Glenn Klute, PhD**

**G**lenn K. Klute, PhD, is a Core Investigator at the VA RR&D Center of Excellence for Limb Loss Prevention and Prosthetic Engineering, an Affiliate Associate Professor at the University of Washington in the Department of Mechanical Engineering and the Department of Electrical Engineering, and serves as an IRB co-chair at the VAPSHCS. In 1999 he received a PhD in Bioengineering from the University of Washington. He has authored 35 manuscripts and is funded by the Department of Veterans Affairs, Department of Defense, National Institutes of Health, and the Department of Education.

Dr. Klute's research explores the complex relationship between prosthetic interventions and the people who wear them. His aim is to improve prosthetic prescriptions by investigating the efficacy of prosthetic components used in current clinical practice and by developing novel approaches intended to improve the current standard of care for Veterans with lower limb amputations. His research has included testing the efficacy of vacuum-assisted suspension systems, computerized prosthetic knees, shock absorbing pylons, torsional pylons, and powered prosthetic ankles. Some of his projects have required development of novel instruments including a thermal conductivity instrument to measure thermal properties of prosthetic liners and sockets, an optical limb scanner to measure the shape and volume of residual limbs, and a portable system to measure residual limb skin temperature during daily activity. He and his team have also built several prototype prostheses, including a pylon with controllable torsional properties, a powered ankle capable of sideways flexing, sockets for prostheses that use evaporation and pumps to keep the socket cool and dry, and also sockets that provide subtle vibration as feedback to the wearer.

Dr. Klute and his VAPSHCS colleagues were recently awarded a grant from the Department of Defense which is administered by SIBCR. A collaborative effort between MIT, University of Michigan, and VAPSHCS, this project aims to develop a prosthetic knee-ankle-foot system that actively coordinates the actions of the knee and ankle joints by using sensory data to detect user intent, provide appropriate control, and understand how lower limb amputees actually use their prosthesis. The VAPSHCS team's role is to develop instruments embedded in the prosthesis to measure the activities of the user, collect electromyography (EMG) signals from the residual limb, and to develop software to use the EMG data to control the prosthesis. Tests of the prosthetic limb with Veterans is planned to begin in 2011.

### MARK YOUR CALENDARS

- ★ **Annual Members Meeting:** Please join us on April 19, 2010 at 4 pm in Building 1, Room 240.
- ★ **Employee Appreciation:** Come celebrate on May 26, 2010 at 10 am in Building 1 Room 240. We will be honoring employees who have been with us for five, ten and fifteen years. All are welcome!

*Refreshments will be served.*

### Grant News

- ★ SIBCR and our Principal Investigators received a total of 31 newly funded grants in fiscal year 2009. Congratulations to all of the PIs who received funding and thank you to everyone for your effort.
- ★ NIH has implemented an Enhanced Peer Review initiative. Restructured application packages and instructions will be required for all applications submitted for due dates on or after January 25, 2010. More information can be found on the NIH website <http://enhancing-peer-review.nih.gov/>.

### Welcome to New Employees!

Catherine Atteridge, Teresa Kalet, Richard Bridgan, Brenna Cholerton, Bergetta Dietel, Thy Do, Eric Epler, Adam Harvey, Carrie Kincaid, Juliet Ladenburg, Vardah Malik, Vanessa Penski, Robert Plumley, Aleen Saxton, Elise Wright, Dana Varon, Heli Venkov, and Alice Victoria.