UNIVERSITY OF MINNESOTA

Minnesota Robotics Institute

ROB 8970 **ROBOTICS COLLOQUIUM** **FALL 2025**

Class Report – Lecture 8 (10/24/2025)

Speaker : Prof. Andrew H. Hansen

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Prof. Andrew H. Hansen's talk introduced *RECOVER – Development and Translation of Rehabilitation Technologies to Promote Activities and Participation of Veterans*, an led effort to build practical rehabilitation technologies that help veterans in daily life. He showed and discussed collaborations between engineers, doctors, and veterans to create solutions that improve movement for daily tasks with comfort, and independence. For example, he talked about new prosthetic leg and wheelchair concepts, all the technology he demonstrated was very interesting and customer/experiments feedback was very positive. Anohter thing was changing prototypes into real clinical products, navigating regulation, reimbursement, and adoption. Overall, the message was that thoughtful design plus patient feedback can meaningfully improve quality of life for veterans or anyone who needs it.

Questions

- Could future prosthetic devices make use of smart sensing/adaptive control to personalize stiffness, damping, or gait support for each individual user?
- Have there been studies or experiments to test whether prosthetic devices can be tuned to do much more than just mimicking human movements, like going beyond limits of movements of joints in normal human to achieve new functional advantages?

Comments

- The talk showed how engineering & innovation can directly transform lives, especially when combined with real patient feedback and clinical experiences and knowledge.
- I liked how he connected technical design with empathy, discussing body image, participation, and the human side of rehabilitation.
- His practical explanation/experience of the translation process from concept to licensing and real use made the challenges of medical technology development very clear.

What I Liked

- The lecture was deeply engaging and filled with real-world examples. Prof. Hansen's enthusiasm and humor made the talk very engaging and interesting.
- I especially liked hearing stories from veterans using the standing wheelchair, they showed the emotional impact of engineering.

Overall Assessment

This lecture was a powerful example of human-centered robotics and biomedical engineering. By combining engineering design, rehabilitation science, and patient collaboration, his work bridges the gap between invention and meaningful use. It was both technically informative and emotionally impressive, a reminder that the ultimate goal of robotics and assistive technology is to restore dignity, confidence, and independence.