Abstract. This talk discusses the development of the Treadport locomotion interface as a rehabilitation tool for gait therapy, specifically for incomplete spinal cord injuries. Key features are a large belt, horizontal tether force, 3-wire body weight support system, a stereo projection display, and self-directed speed control. The Treadport can safely depict walking tasks closer to real-world walking tasks than is possible with today's clinical devices. Challenging tasks can be created in the virtual environment that serve also to motivate patients to exercise harder and longer. Patients trained on the Treadport show substantially improved gait parameters such as leg symmetry, cadence, and joint range.

Bio: John M. Hollerbach is Professor of Computing, and Research Professor of Mechanical Engineering, at the University of Utah. He is Director of the University of Utah Robotics Center. He also directs the Robotics Track, a joint graduate program between the School of Computing and Department of Mechanical Engineering. From 1989-1994 he was the Natural Sciences and Engineering/Canadian Institute for Advanced Research Professor of Robotics at McGill University, jointly in the Departments of Mechanical Engineering and Biomedical Engineering. From 1982-1989 he was on the faculty of the Department of Brain and Cognitive Sciences and a member of the Artificial Intelligence Laboratory at MIT; from 1978-1982 he was a Research Scientist. He received his BS in chemistry ('68) and MS in mathematics ('69) from the University of Michigan, and SM ('75) and PhD ('78) from MIT in Computer Science. Presently he is Editor of the International Journal of Robotics Research. His research is focused on haptic and locomotion interfaces, and medical robotics.

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