abstract
The gap between 'advanced' prosthetic technology and commercially available prosthetic technology is vast and getting wider. Robotic arms can nearly reproduce, if not yet exceed, human-like dexterity; conversely, human-like dexterity cannot be reproduced by users of prostheses. This conundrum can be blamed entirely on the human-machine interface, which is limited by, (1) the residual abilities of the user to express his volitions and, (2) the ability of the Engineer/Machine to decipher those. The speaker will review attempts he has made at, (1) deciphering volition from various modalities, including electromyograms, surface muscle pressure, and hybrid methods, (2) training users with virtual reality and (3) designing a platform for customizing prosthetic prescriptions.

biosketch
Dr. Craelius was educated in Mechanical and Biomedical Engineering at the University of Illinois and Northwestern University. He did a 3 year Postdoctoral Fellowship at Stanford University in Neuroscience. He is Professor of Biomedical Engineering at Rutgers University, where he co-founded the First Accredited Master’s Program in Prosthetics. He produced the first multi-degree-of freedom interface for controlling a dexterous hand prosthesis. He has authored many papers in the field of Neuroscience and Biomedical Engineering.