

Aaron Batista
Assistant Professor of Bioengineering
Member, Center for the Neural Basis of Cognition

Neural Prosthetics: Present and Prospects

Neural prostheses offer the promise of restoring some motor function to paralyzed individuals. Remarkable improvements in the speed and accuracy of these devices have been made over the last few years. Advances in neural prosthetics are driven by basic science discoveries about arm movement control. This talk will outline the most recent developments in the field. Then, I will present some new findings about how the brain controls arm movements, and discuss how this new picture can yield further improvements in neural prostheses. The talk will conclude with an overview of what my lab at Pitt will be working on in the near future.

Specifically, I will present recent findings which show that visual sensory signals and motor signals are tightly linked in some regions of the brain that control movements. This visual information can potentially provide useful feedback, or it can be a hindrance, if it is not accounted for. I will show how the visual information can be used constructively to improve the performance of neural prostheses. Our future work will explore strategies to enhance feedback, and therefore controllability of a prosthesis, by using non-visual information.