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## Computer Science Colloquium

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# Video-based Communication Interfaces for People with Severe Paralysis

Margrit Betke  
Boston University

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Olsen 311

Refreshments at 2:30, Talk from 3:00-4:00

Active minds can be trapped in non-responsive bodies. People who are severely paralyzed and nonverbal from cerebral palsy, stroke, multiple sclerosis, ALS, or brain injury often are very limited in the kinds of gestures they can use to communicate with friends, family, and caregivers. Some people can move their heads or eyes. Some can blink or wink. Our goal is to create technology that enables people with severe paralysis to communicate their thoughts and emotions and apply their intellectual potential.

In this talk, I will describe some of the interfaces we have been developing. An early effort was the Camera Mouse, a system that tracks a computer user's movements with a video camera and translates them into the movements of the mouse pointer on the screen. It has been commercialized and is used by people in homes, hospitals, and educational facilities. Other interfaces can detect a user's gaze direction, eyebrow raises, blinks, or hand signals to control the computer. I will also discuss challenges to designing interactive applications that enable users with disabilities enter messages, create art, play games, or navigate the internet at an effective rate.

### Biography:

Margrit Betke earned a PhD degree in Computer Science and Electrical Engineering from MIT in 1995. She is currently an Associate Professor and Director of Undergraduate Studies in the Computer Science Department at Boston University. She has won an NSF Career award to develop human-computer interfaces for rehabilitation. She is also working in the areas of medical imaging and infrared video analysis of bats.