



I Hope You Dance

Artists and engineers collaborate to enhance lives

MERRY LYNN MORRIS MOVES her upper body with the controlled grace of a bird in flight. Morris, a dance instructor and academic adviser at USF's School of Visual and Performing Arts, is demonstrating the subtle movements required to operate the Rolling Dance Chair, a device she developed in collaboration with students and faculty in the College of Engineering that allows disabled and able-bodied dancers to interact.

Her inspiration came after working nearly a decade with mixed abilities dancers in the community. She brought her idea to Rajiv Dubey, chair of the Department of Mechanical Engineering, and Stephen Sundarrao, associate director of the Rehabilitation Engineering and Technology Program at USF. Together, they applied for and received an interdisciplinary research grant in July 2006.

Sundarrao introduced the topic to students in his Capstone

Design class, a senior-level engineering course in which students choose a problem and create a product to solve it. Engineering major Jeff Hornick and five other students accepted this assignment and developed the Rolling Dance Chair prototype, which is now patent-pending.

Whether moving backward, forward or in elegant loops, the chair provides a range of motion and versatility that standard wheelchairs do not. The prototype looks like a motorized mobility device but does not require arms or hands to operate. Instead, the machine adapts to the physical abilities of the dancer, who controls the chair's movement using his torso muscles, freeing the arms to pass gracefully from one position to another. Engineering students also modified a Segway as a second prototype, allowing the dancer to stand while working the machine with the upper body.

Morris calls the collaboration between engineering and dance "a great marriage." The crossover has facilitated a discourse among



Dwayne Scheuneman uses the Rolling Dance Chair in a performance with USF dance students

JOSEPH GAMBLE

faculty and students from all disciplines, while the project's immediate and potential benefits have extended well beyond academics.

USF student Chase Ajdinovich looks forward to a career in the arts and credits his motivation to the dance program. An engineering and dance major, he began participating in mixed abilities performances after attending Morris' dance improvisation class. For Ajdinovich, the movement elicited from the chair celebrates the diversity among dancers while sparking his creativity.

"Two able-bodied dancers can't do the same thing as a disabled dancer, and vice versa," he says. "The project has put a spin on my creativity, improvisationally and choreographically."

Dwayne Scheuneman, founder and director of REVolutions Dance, a mixed abilities dance company in Tampa, became a competitive wheelchair athlete and dancer after a 1995 accident left him a low-level quadriplegic. He has worked with Morris since 2002, and recently incorporated the chair into his practice. Since using the device, Scheuneman has realized upper-body

strength and balance he didn't know was possible.

"Discovering new movement with the chair was exciting. I can use what I've learned to help with day-to-day activities, like lifting or getting dressed," he says.

The project is rapidly gaining a wider audience. In June, Morris and Sundarrao presented their paper "Bridging Dance with Engineering to Embrace a Diverse Population: 'Rolling Dance Chair Project (USF)'" at the National Dance Education Organization Conference in Mobile, Alabama. In July, Morris, Scheuneman and USF art student Rachel Bishop demonstrated the chair's capabilities in a performance at MOSI for Disability Awareness Day.

Morris hopes the project will educate people about the advantages of pairing technology with the arts, as well as revise perceptions of people with disabilities.

"It's been a fascinating exploration," Morris says. "The project has enlarged my notion of movement." – Kathy L. Greenberg