

## **Abstract**

Traveling wave piezoelectric ultrasonic motors (PUMs) are ideal actuators for a variety of important applications including medical and space robotics, haptic interfaces, and positioning devices. Consisting of a single moving part, the motors are much simpler mechanically than other drive systems that require transmissions and brakes. Many potential PUM applications require accurate real-time control of output torque, which is difficult due to the highly nonlinear PUM dynamics. This paper reviews the development of a model-based PUM torque regulation algorithm and applications of the algorithm. The paper then examines the stability of the torque control and demonstrates it experimentally.

## **Citation**

“Stable Torque Regulation of Piezoelectric Ultrasonic Motors”, Dabney, J. B., Harman, T.L., Ghorbel, F. H, American Society of Civil Engineers, Earth and Space 2008, Long Beach, CA, March, 2008