1086-VD-1595 **Amalia Rusu** (arusu@fairfield.edu) and **Stephen B Mislich*** (200906004@panthers.greenville.edu), 315 E. College Avenue, Greenville, IL 62246-1145, and **Lukas Missik** (lukasmissik@college.harvard.edu) and **Benjamin Schenker** (schenk@cooper.edu). *Cyber Security with Handwritten CAPTCHA.*

Protecting resources in cyberspace from unauthorized access by machines is critical. A reverse version of Alan Turing's test, with the machine acting as the judge, called CAPTCHA (Completely Automatic Public Turing test to tell Computers and Humans Apart), is currently used in Cyber security. Most of the CAPTCHAs in commercial use take advantage of superior human ability in reading machine printed text with others exploiting the gap in facial recognition, image understanding and object identification. However, many are proven vulnerable or have been broken. Since automated recognition of unconstrained handwriting continues to be challenging for the optical character recognition systems, handwriting recognition is a better alternative for CAPTCHA. We present handwritten CAPTCHA which features synthetically generated English handwriting that has been transformed according to specific principles of cognitive psychology. These transformations ensure that our CAPTCHAs are both easily interpretable by humans and unrecognizable by machines. Early testing results indicate that users are readily able to solve these CAPTCHAs due to Gestalt principles and Geon theory, while machines cannot currently make use of these cognitive aids, thus making them a viable solution for Cyber security. (Received September 23, 2012)