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ENGINEERING
TEXAS A&M UNIVERSITY

GeoTrooper acknowledged in Paris

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The Sketch Recognition Lab (SRL) at Texas A&M University was nominated for best case study at the recent **ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2013)** in Paris, France, for the paper, "Multimodal Location-Aware System for Paratrooper Team Coordination."

CHI 2013 is the premier international conference on human-computer interaction, and this year's theme was "Changing Perspectives." The paper's authors include graduate students Danielle Cummings, Manoj Prasad, George Lucchese, Chris Aikens and **Dr. Tracy Hammond**, associate professor in the Department of Computer Science and Engineering and director of the Sketch Recognition Lab.

The GeoTrooper project addresses the complex difficulties of navigation and assembly on

the drop zone. During times of national emergencies, thousands of paratroopers will simultaneously drop out of the sky and attempt to coordinate quickly on land amongst an array of hazards, including enemy fire, darkness, confusion, and many others. Current assembly methods rely on bulky and antiquated Stiner Aids that inhibit the speed and effectiveness of such operations.

To address these difficulties, members of the Sketch Recognition Lab have created a multimodal mobile navigation system that uses ruggedized beacons to mark assembly points and heavy drop equipment and smartphones to assist in navigating to these points while minimizing cognitive load and maximizing situational awareness.

The Commanding General of the 18th Airborne Corps at Fort Bragg aided significantly with the development of the project, visiting the Sketch Recognition Lab at Texas A&M twice to evaluate and discuss solutions. Additionally, he enabled Dr. Hammond and her team twelve visits to the military base at Fort Bragg, North Carolina over a nine month time span so that they could observe and interact with the paratroopers and other officers and subject matter experts during their jump training and tests. Her discussions at the base included a presentation and discussion with General Stiner himself at the GO Airborne general officers meeting. In concert with her observation studies, Dr. Hammond even got to jump out of a plane with the U.S. Army Parachute Team, the Golden Knights.

Texas A&M's ROTC was pivotal in the success. Every other weekend, members of Texas A&M's ROTC volunteered to test and provide feedback on the system in order to ensure an ideal system. The Texas A&M Department of Military Studies was also pivotal, as instructors such as Major Trevor Voelkel provided significant feedback during the life of the project.

The GeoTrooper project began through a funded project of the DARPA IPTO program. Since then it has won several awards including the People's Choice Award at the 2011 Tapia Conference, third place at the Texas A&M CSE Fall 2011 Industrial Affiliate's Program, and first place in the graduate research oral category in math, statistics and computing sciences in the 2011 Student Research Week.