

Message from the Director

It is a great privilege to greet you as the new director for the Borders, Trade, and Immigration Institute.

I am excited about this opportunity to work with the Department of Homeland Security and the expansive network of academic and industrial researchers available to solve homeland security problem sets.

I have had the opportunity to speak to leadership from the Office of University Programs at the Department of Homeland Security Science & Technology directorate and “boots-on-the-ground” operators from Customs and Border Protection who are thankful for what BTI Institute has produced in the past and excited about the potential innovations the institute can develop in the future.

I believe we are working in a critical space. The mission to help DHS secure the border, facilitate legitimate trade and travel, and ensure the integrity of the immigration system is far reaching but achievable through collaboration and timely execution focused on the men and women of DHS that will be using the results of our research.

I personally want to thank everyone who has been a part of building the BTI Institute. I am thankful for the established foundation and look forward to the next chapter for the institute.

Dr. Tony Ambler
Dean, College of Science and Technology



Showcase of Innovation and Expertise

When you set some of the brightest minds in academia to solving national security challenges, the results are innovative solutions that equip operators and inform policy makers. Those results were on display at the Department of Homeland Security Centers of Excellence Summit hosted by George Mason University May 30 - 31, 2018 in Arlington, Virginia.



The specific problem set of securing the borders, facilitating legitimate trade and travel, and ensuring the integrity of the immigration system was addressed by researchers and staff from our Institute. The summit consisted of plenary panel sessions, an innovation showcase and a student poster competition.

As an example of facilitating legitimate trade and travel, Ben Melamed, Ph.D. and Wei Wei Chi, Ph.D., both from Rutgers University, presented their Port of Entry Simulation System. The system creates detailed, 3D and 2D models layered over realistic geographic data of the specific port being modeled. The flows of traffic for both personal vehicles and commercial vehicles are then animated allowing POE managers and operators to see a real-time simulation of the port. Additionally, the analysts and port directors can inject scenarios into the simulation, allowing them to plan for "what if" scenarios that will affect the movement through their port.

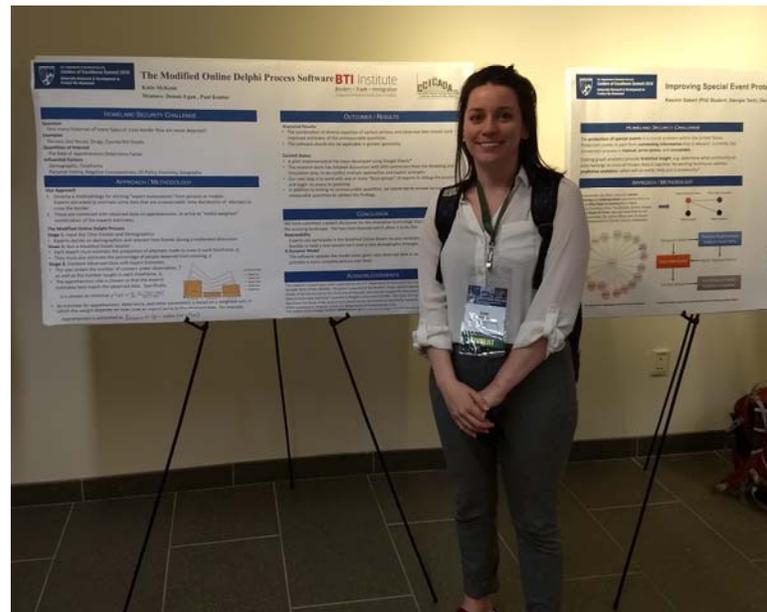
As an example of securing the borders, Ioannis Kakadiaris, Ph.D., with the University of Houston, presented his Artificial Intelligence based facial recognition software. The current phase of his software can accurately match photographs with a variety of facial angles to an "on file" facial photograph such as a passport or driver's license photograph. The next step of the project is to test the software in an environment in which the facial captures are from trail cameras in various light conditions. This will allow operators at along the border to quickly and accurately identify people crossing the border in unauthorized areas.

During the plenary panel themed around cross-border movement of people and goods, Victor Manjarrez, Jr., associate director of the Center for Law & Human Behavior at University of Texas at El Paso, discussed the cross-border movement of people and goods in today's environment.

Two students associated with the BTI Institute presented during the student poster competition.

Victor Reyes, Jr. (pictured bottom left), from the University of Texas at El Paso, presented his research project, *Homeland Security Symposium Series*. The series brings subject-matter experts from a variety of disciplines to present trends from the ever-changing environment of homeland security to practitioners and first-responders.

Katie McKeon (pictured bottom right), from Rutgers University and the Command, Control, and Interoperability Center for Advanced Data Analysis, a DHS COE, presented her project, *The Modified Online Delphi Process Software*. The project lays out an equation from which, by combining observed data and expert analysis, an improved estimate of unobserved instances of unauthorized movement of goods and people can be calculated. This would allow operators to better resource and anticipate changes in trends.



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