

A Summer of Student Success

Student involvement and success is a critical aspect of the Borders, Trade, and Immigration Institute's Education and Training initiatives. This past summer, four students experienced that success first hand.

Sarah Donaldson, Cadet, United States Military Academy at West Point



Cadet Donaldson conducted research over the summer under the guidance of Larry Shi, Ph.D., Associate Professor at the University of Houston, and Chris Bronk, Ph.D., Assistant Professor at the University of Houston. Over three weeks, Cadet Donaldson conducted literature reviews focused on cryptocurrency, illicit marketplaces, and overall concerns of cybersecurity.

“Cryptocurrency has no borders,” said Cadet Donaldson, “because it is so international, every government would have to agree on the

level and type of regulation.”

As a cadet, and with a potential military career in cybersecurity in her future, Cadet Donaldson also discussed the Department of Defense's efforts to modernize its cyber capabilities, including defining cyberspace as its “fifth domain” in line with land, sea, air and space.



Nicholas Randol, graduate student, University of the Incarnate Word



Mr. Randol conducted research over the summer with Nursen Zanca, Ph.D., Professor and Chair of Economics in the H-E-B School of Business at UIC, as part of the Department of Homeland Security Minority Serving Institute Summer Research Team program. Luis Torres, Ph.D., Associate Dean of Research and Strategic Partnerships at the Graduate College of Social Work at the University of Houston, mentored the team as they investigated the methodology and meaning behind the Global Terrorism Index and explored the feasibility of

developing a more refined, regionally-focused index. The GTI is estimated from a database collected by the National Consortium for the Study of Terrorism and Response to Terrorism (START) DHS Center of Excellence. The GTI ranks nations based on terrorist activity factors.

The UIC Team presented their research findings to the BTI Institute Management team on 24 July 2019. The presentation was the culmination of ten weeks of research, which had four objectives: investigate the methodology and the meaning of the Global Terrorism Index; investigate the past and present trends in the GTI score for the United States; investigate the economic cost of terrorism to the U.S. economy; and investigate an alternative index, called “Regional Terrorism Index” for a metropolitan area.



Randol then presented the findings as part of the Student Poster Competition during the 2019 COE Summit in Arlington, VA on 30 July 2019. Mr. Randol also participated in a Student Grand Challenge during the Summit.



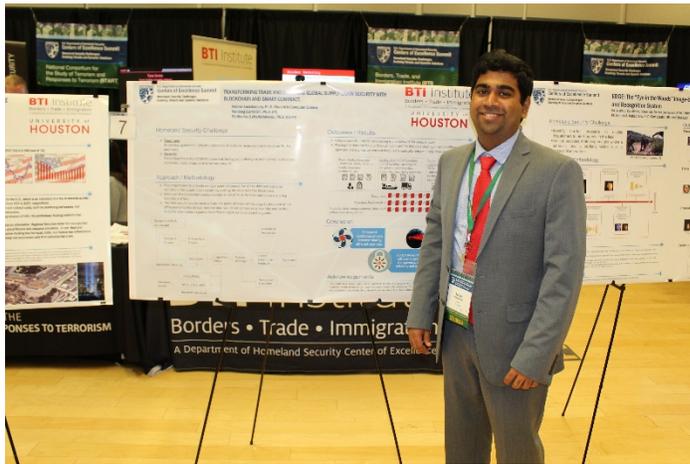
Ha Le, Ph.D. Candidate, University of Houston



Mr. Le conducted research with Ioannis Kakadiaris, Ph.D. under the project, “EDGE: The ‘Eye in the Woods’ Image-based Face Detection and Recognition System.” Mr. Le participated in the 2019 COE Summit, and submitted a poster on his research for the Student Poster Competition and participated in the Student Grand Challenge. He received first place for his poster and his grand challenge team received second place for “Drone-Based MIR Laser-Induced Thermal Imaging for Identification of Chemical Substances.”



Keshav Kasichainula, Ph.D. student, University of Houston



Mr. Kasichainula conducted research with Larry Shi, Ph.D., under the project “Transforming Trade and Ensuring Global Supply Chain Security with Blockchain and Smart Contracts.” Mr. Kasichainula participated in the 2019 COE Summit, submitting a poster on his research for the Student Poster Competition and teamed up with other students during the Student Grand Challenge. His grand challenge team received first place for their innovative approach to managing Unmanned Aerial Systems, titled

“Automated Drone Integrated Information System.”

DHS COE Summit 2019

Members of the BTI Institute management team and research committee traveled to Arlington, VA in order to participate in the DHS COE Summit 2019 from 30 July to 1 August 2019. The theme of the summit was



“Homeland Security Challenges: Evolving Threats and Dynamic Solutions.” The summit involved plenary panels, keynote speakers, student challenges, and an innovation showcase.

The COE Summit was sponsored by the national network of university-led U.S. Department of Homeland Security Centers of Excellence and several corporate sponsors including NEC Corporation of America and General Dynamics Information Technology. The members of the BTI Institute were involved in the planning process for the summit, including the co-development of one of the plenary tracks, co-chairing of the communications committee and education committee, and participation in the showcase committee.

The Executive Director co-developed a track involving Gray Zone threats. Experts discussed the ‘who’ and the ‘what’ of the threats within those areas in which both traditional state actors and non-state actors target the nation’s security in non-traditional ways.

The Gray Zone threat track also discussed soft targets within the zone, to include the ability for threats to capitalize on the opportunities presented by a seemingly unlimited number of devices and systems that can be accessed, influenced or defeated from behind a keyboard. Experts also discussed threats to large public gatherings such as concerts or sporting events and the actions that can be taken to mitigate those risks.



The Institute also hosted a booth during the Innovation Showcase. The Institute team presented current and past research initiatives as well as discussed upcoming research opportunities. Randy Capps, Ph.D., Director of Research, U.S. Programs at Migration Policy Institute, presented a poster on his previously completed project, “Sustainable Reintegration: Strategies to Support Migrants Returning to Mexico and Central America.”

Anthony Ambler, Ph.D., BTI Institute Director and Dean of the University of Houston College of Technology, gave an interview about the BTI Institute during the Summit. Highlights from the interview included a few key accomplishments and initiatives of the Institute, including curriculum development for the Border Operations Management, Trade, and Transport Security degrees and certificates.

William Bryan, the Senior Official Performing the Duties of the Undersecretary of Science and Technology and Bob Burns, Executive Director of DHS S&T’s Office of Innovation and Collaboration visited the BTI Institute booth during the Innovation Showcase and spoke of the positive work that the Institute was completing for CBP.



Engagement and Outreach

CBP Trade Symposium [23, 24 JULY 2019]



Kurt Berens, Executive Director, attended the U.S. Customs and Border Protection Trade Symposium in Chicago on 23 – 24 July 2019. Key sessions at the symposium included factors to achieve prosperity and governance security in the Northern Triangle, key customs process areas that can be improved through the 21st Century Customs Framework, and the challenges and opportunities presented by E-Commerce.

Also, the Executive Director participated in one-on-one discussions with the Directors and Executive Directors from the following DHS Centers of Excellence and Expertise: Base Metals; Machinery; Petroleum, Natural Gas and Minerals; Pharmaceuticals, Health and Chemicals.

CBP Trade Innovation Summit [7 AUGUST 2019]



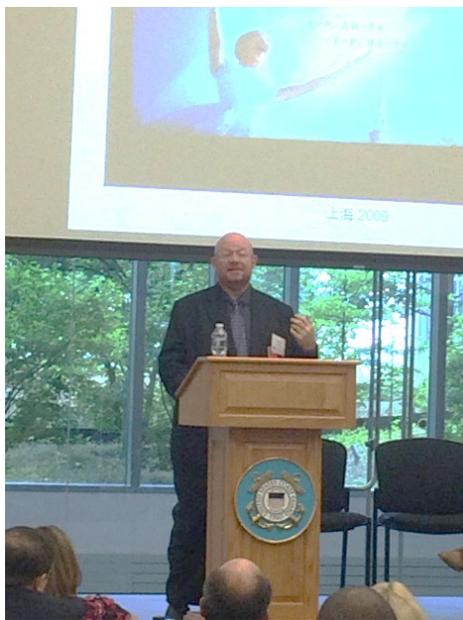
At the invitation of Vincent Annunziato, Director of Trade Transformation for U.S. Customs and Border Protection and Project Champion for BTI Institute, Kurt Berens, Executive Director, and Mark Clarke, Ph.D., Associate Provost at the University of Houston, presented during the 2019 Innovation Summit, hosted by U.S. Customs and Border Protection, Office of Trade, Trade Transformation Office, Business Transformation and Innovation Division.

The topic of the presentation centered around the Innovation Economy at the University of Houston and the success derived from student-comprised “E-Teams” regarding the successful transition of intellectual property and as an experiential learning opportunity.

Office of Trade Leadership Training Offsite [13 AUGUST 2019]

The BTI Institute coordinated and hosted a panel centered on China and its impact on trade at the request of Deputy Executive Assistant Commissioner Cynthia Whittenburg. The topics included an economic, political and social trends survey of China, technological and workforce drivers in China, and Chinese investments in South America.

Richard Willson, Ph.D., BTI Institute Research Committee member and Professor at the University of Houston, moderated the panel that included Steven Lewis, Ph.D., Fellow at the Baker Institute at Rice University, Todd Ratcliffe, President and CEO of the Pharmaceutical Security Institute, Patrick Schaefer, Executive Director of the Hunt Institute, and Peter Li, Ph.D., Assistant Professor at the University of Houston. Kurt Berens, Executive Director of BTI Institute, gave introductory remarks and a brief overview of the mission and efforts of the BTI Institute.



Lewis [photo left] presented a “Survey of China.” He stated that the middle class in China is still growing and discussed the consumer tendencies of that class. He stated that the middle class in China is an international consumer. Additionally, he stated that China corporations and consumers see themselves as transnational consumers, consuming goods and services across international borders on a regular basis.

Li [photo right] presented “China & Global Wildlife Trafficking.” He stated that the global illegal wildlife trade generates between \$7 billion and \$23 billion in illicit revenue annually.

“Chinese citizens have a significant footprint on illicit wildlife trade,” said Li.

Chinese tourists were the top spenders in international

tourism as reported by the World Tourism Organization.

According to Li, over 66% of wildlife trafficking through China is done for commercial trade, including Ivory from elephants, tiger farming, and bear bile production.

Ratcliffe presented on the impact of counterfeit pharmaceuticals and online pharmacies. Schaefer presented on trends in maritime shipping data to and from China.



Champion Onsite [9 September 2019]

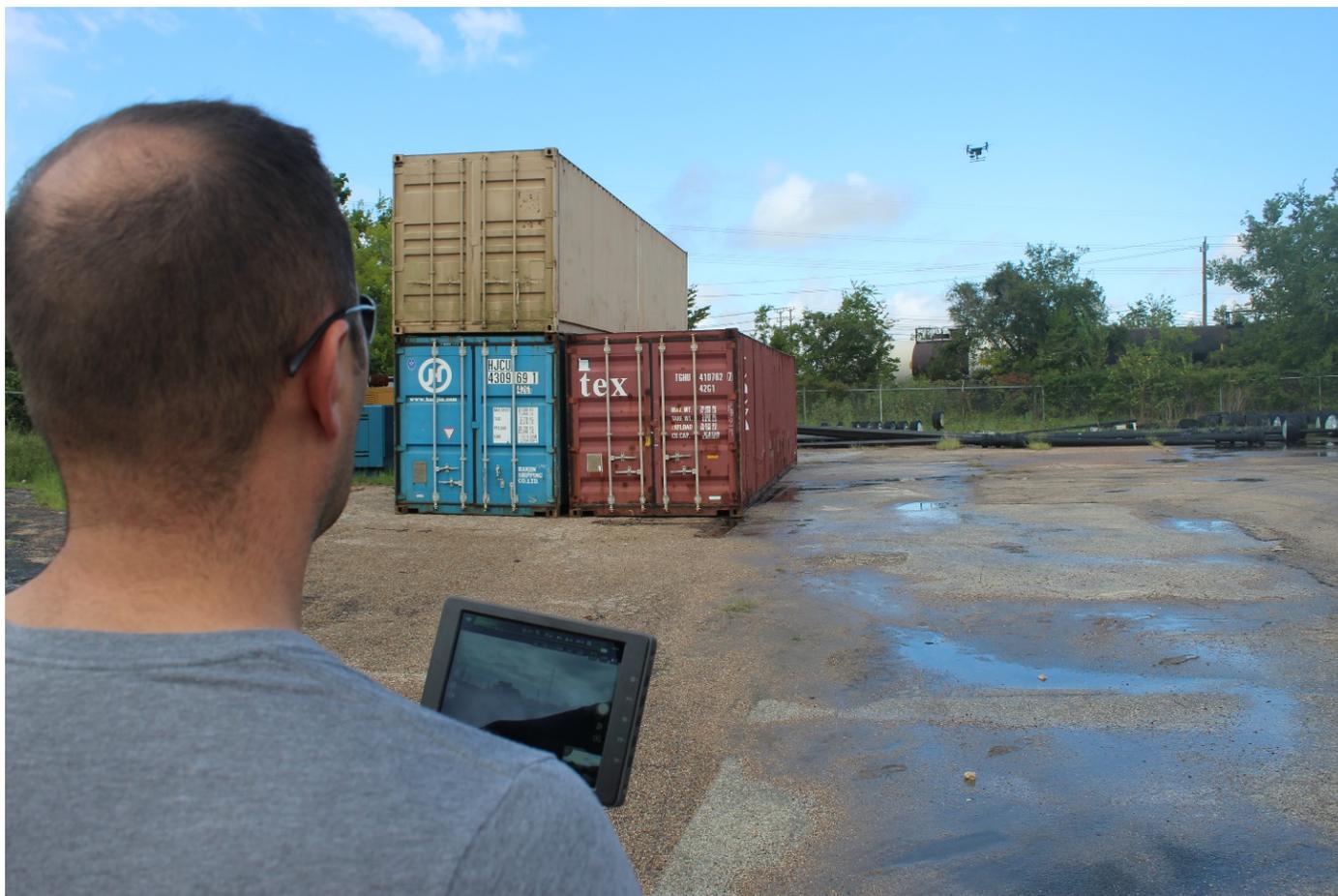


Vincent Annunziato, Director of Trade Transformation for U.S. Customs and Border Protection and Project Champion for BTI Institute conducted an in-person quarterly meeting at the University of Houston. Annunziato is Project Champion for the project "Transforming Trade and Ensuring Global Supply Chain Security with Blockchain and Smart Contracts." The Co-Principal Investigators, Larry Shi Ph.D., University of Houston, and Eleftherios Iakovou, Ph.D., Texas A&M University, updated the Champion and the BTI Institute management team on the status of the project's milestones and deliverables. The team's goals for the project included exploring innovative opportunities provided by blockchain and smart contracts for the purpose of transforming operations of relevant CBP components to improve global supply chain data exchange and to ensure trade compliance.

Unmanned Aerial System Testing [26, 27 September 2019]



Ben Rohrbaugh and Dave Hansell, Co-Principal Investigators with Lantern UAS LLC, conducted system calibration and test flights at the University of Houston for their project "Exploring Homeland Security Applications for Unmanned Autonomous Systems at Maritime Ports." The team utilized shipping containers staged at the UH Technology Bridge, an innovation park suited for large research laboratories, pilot-scale facilities, and light manufacturing. The goals for the project include assessing the feasibility of utilizing UAS-based sensors to enhance maritime port security, including detection of radiation, stowaways, and seal tampering.



Dave Hansell pilots the team's UAS in order to conduct scanning operations of staged shipping containers at UH Technology Bridge.

All stories and images contained in this Newsletter can be found on the BTI Institute website with additional content in some cases. Please visit www.uh.edu/bti/ for more.

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