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CyberTruck Challenge

Connecting next generation talent with the heavy duty industry to keep vehicles secure.

CyberTruck Challenge Mission

- Help **develop the next generation workforce** by bringing awareness, excitement, professional involvement, and practicum based training to the heavy vehicle cyber domain.
- Help **establish community of interest for heavy vehicle cyber** that transcends individual companies or departments and reaches across disciplines and organizations to make a more universal and experienced base of engineers and managers.



Students and mentors at the 2017 CyberTruck Challenge

What is the CyberTruck Challenge

- Immersive experience in truck related cybersecurity
- Heavily practicum based
- Team based event
- Engaged industry, government, and academia to work along-side students in teams taught by industry experts – provides access to some of the best trainers and security teams in the world
- Provides “hacking” or assessment environment on real trucks and real components for about ½ of the event time
- Seeks to foster mentor-protégé relationship building between students and the professional team members
- College (graduate and undergraduate) focused

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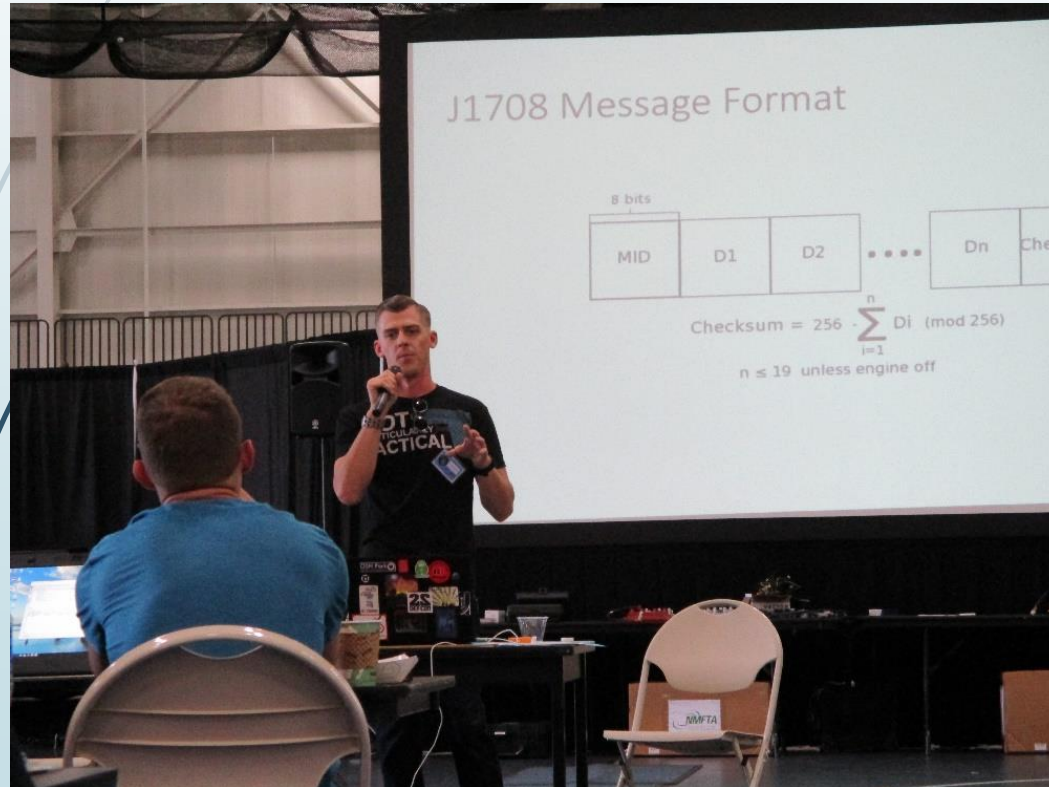
The Event

The week's schedule

Time	Sunday, 10 June	Monday, 11 June	Tuesday, 12 June	Wednesday, 13 June	Thursday, 14 June	Friday, 15 June
Before 0700	Site Closed	Site Closed	Site Closed	Site Closed	Site Closed	Site Closed
0700-0800		Free	Free	Free	Free	Free
0800-0900		Breakfast/Registration	Breakfast	Breakfast	Breakfast	Breakfast
0900-1000		Welcome and NDA	Hardware	Conducting Assessments*	Assessment	Student Team Briefs
1000-1100		Truck Systems		Assessment		Review*
1100-1200		Engines	Lunch	Lunch	Lunch	Lunch
1200-1300		Lunch	Cryptography	Assessment	Assessment	Site Closed
1300-1400		CANBUS				
1400-1500			Side Channel Analysis			
1500-1600		Dinner				
1600-1700			Arsenal Talks	Arsenal Talks	Free	
1700-1800		Free				
1800-1900			Site Closed	Site Closed	Site Closed	
1900-2000	Site Closed	Site Closed				Site Closed
2000-2100			Site Closed	Site Closed	Site Closed	
2100-2200	Site Closed	Site Closed				Site Closed
After 2200			Site Closed	Site Closed	Site Closed	
*Survey						*Survey

Instruction and Seminars

Topics related to heavy vehicle protocols, like J1939 and J1708 communications were discussed.

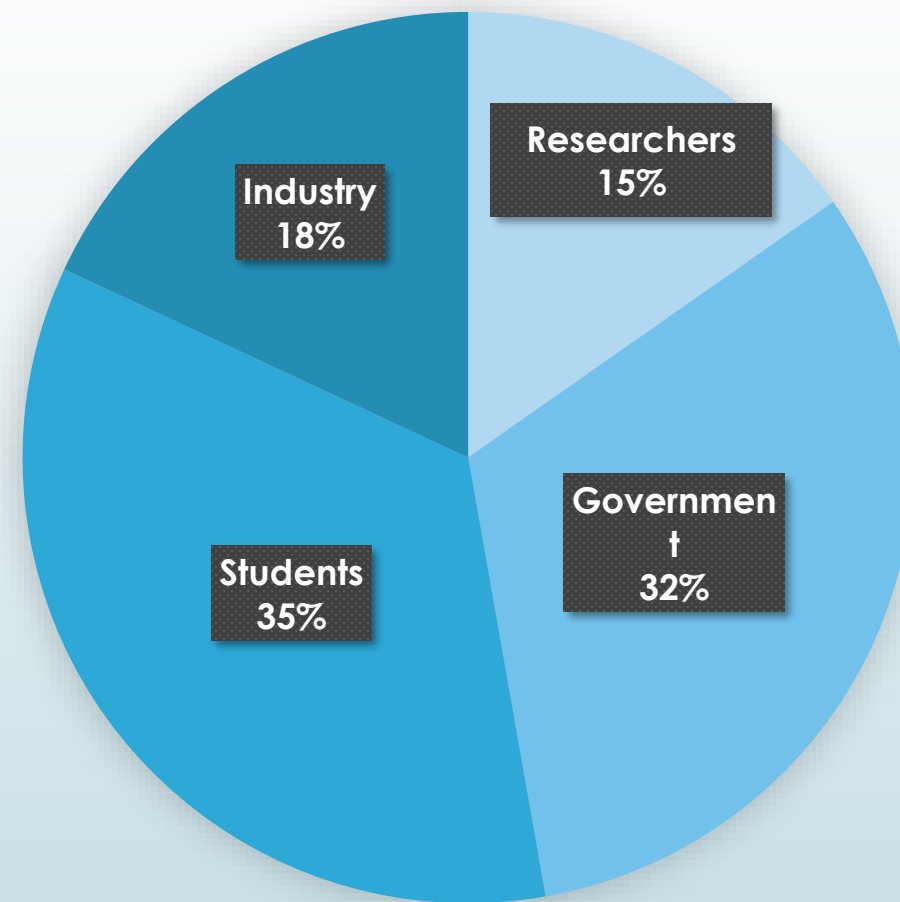


The CyberTruck Challenge was modeled after the successful SAE Battelle Cyber Auto Challenge. There were a few Cyber Auto graduates at the inaugural event.

Who Attends?

- University Students
- Security Researchers (Ethical Hackers)
- Government
 - Dept. of Defense
 - Dept. of Transportation
 - Others
- Industry
 - OEMs
 - Suppliers
 - Fleets
 - Technicians

2017 Participant Composition



Rarely do these groups get a chance to meet, learn and do research together.

Assessment Period



Mitch, a security researcher, explains key software features for students as they assess the heavy vehicle systems.



Matt acts as a mentor for a Virginia Tech student during the assessment period.

End of Week Presentations



Colorado State University student demonstrating his work at the end of the CyberTruck Challenge.

Big Benefits for All Attendees

- Networking for professionals.
- Students were inspired and learned a lot.
- Suppliers have clearer understanding and new ideas.
- Researchers learned new tricks and honed skills.
- Industry scouted promising talent.
- Manufacturers gained unique design feedback.

Protections and Confidentiality

- The CyberTruck Challenge is pro-Industry
- All participants sign a Non-disclosure agreement
 - Protect Brands
- Sponsors can withhold their logo and remain anonymous.
- Industry sponsors can redact photos and content.
- In 2018 we will not allow media in the event spaces.
- All notes and work product are destroyed on the last day.
- Computers are reformatted.
- No social media during the event.
- No phone or photos (other than the designated event camera to take sanctioned photos)

US Army TARDEC & Commercial Truck Cybersecurity Challenge Sponsored by Michigan Defense Center's Protect and Grow Initiative (hereafter "CyberTruck Challenge") Terms of Participation/NDAs

Version: 2017_1/kh

As a participant in the CyberTruck Challenge, Participant understands that he/she may be privy to information of a confidential and/or sensitive nature throughout the duration of the event. Participant further understands that the unauthorized disclosure of such information could cause irreparable harm to the company and/or companies to which such information is lawfully titled. With these considerations in mind, Participant hereby agrees to the following:

1. Participant understands that he/she shall not use information of a confidential or sensitive nature to further his/her personal interest, nor shall he/she violate the privacy and confidentiality of information entrusted to him/her or to which he/she may gain access, unless disclosure is otherwise required by legal authority.
2. Participant will diligently protect all confidential and sensitive information from unauthorized disclosure, including, but not limited to face-to-face discussions with outside parties and social media engagement (i.e., Facebook, Tweeting, blogging). Participant shall, at all times, abide by PROTOCOLS as separately set forth and distributed to all Participants in association with CyberTruck Challenge.
3. Participant will seek guidance from the Michigan Defense Center or an event staff member (designated as "release coach") when unsure of the correct decision regarding appropriate use, confidentiality, or access of information, and will do so BEFORE sharing any information.
4. Participant will immediately report any incidents of personal noncompliance or noncompliance of colleagues with the terms of this agreement to his/her supervisor or an appropriate event staff member.
5. The obligations with respect to disclosing and using Confidential Information, as set forth herein, are not applicable if the same is:
 - (a) shown by Participant to be in the public domain at the time of receipt or that it came into the public domain thereafter through no act of Participant in breach of this Agreement or of any other party in breach of any other obligation of confidentiality owing to Discloser, or
 - (b) contained in written records in Participant's files prior to the date of its receipt from Discloser, or
 - (c) disclosed or used with the prior written approval of Discloser, or
 - (d) demonstrated in written records by Participant to have been developed independently of disclosures made hereunder, or
 - (e) lawfully disclosed on an unrestricted basis to Participant by a third party under conditions permitting such disclosure, or

Growing Involvement

Growing Student Participation

- Added 6 colleges (100% increase)
- We have more students (but are always looking for more)
- Both graduate and undergraduate

Participating Universities



■ Oakland U (MI)	■ Queens College (ON)	■ U-Tulsa
■ VT	■ U-Alabama	■ U Mich
■ Penn State	■ Colorado State	■ Eastern Michigan
■ George Mason	■ U of California	■ Military schools

Growing Industry Participation

2017

- 3 trucks
 - 1 OEM
 - 1 Carrier
 - 1 Military
- 9 NAMED sponsors
- Sponsor provided ECUs

2018

- 6 Trucks
 - 3 OEMs (named sponsor PACCAR)
 - 1 Supplier (Cummins)
 - 1 Carrier (Old Dominion Freight Line)
 - 1 Military
- 16 NAMED sponsors
- Sponsor provided ECUs and diagnostic tools
- Arsenal Talks by industry focus on tools and techniques their products enable

Outcomes

Student Reactions

“The biggest benefit for me was probably talking with all the professionals in industry. Talking to them about what they did just affirmed that I want to work in the same field.”

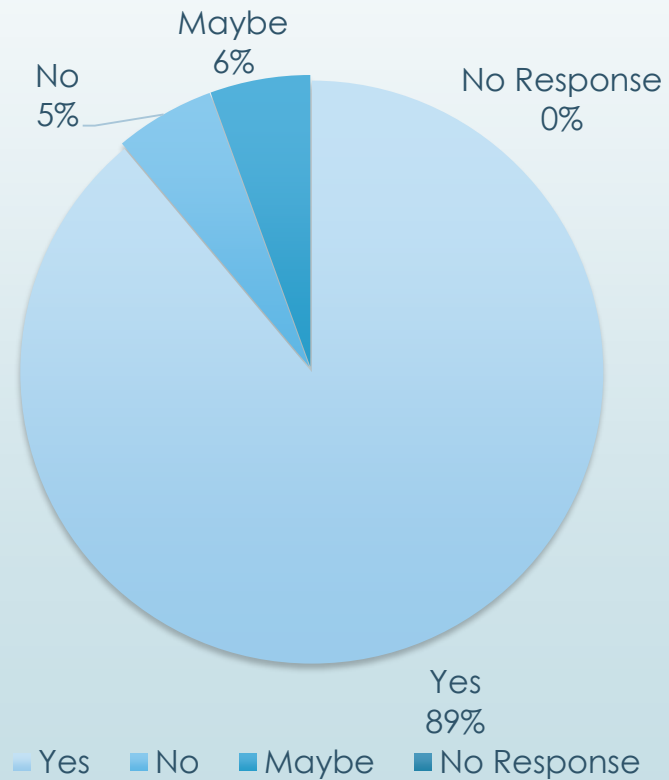
-- John Maag, University of Tulsa Electrical Engineering, Class of 2019

“This experience is amazing. I would never get an opportunity to work with an actual vehicle if it wasn't for the CyberTruck Challenge.”

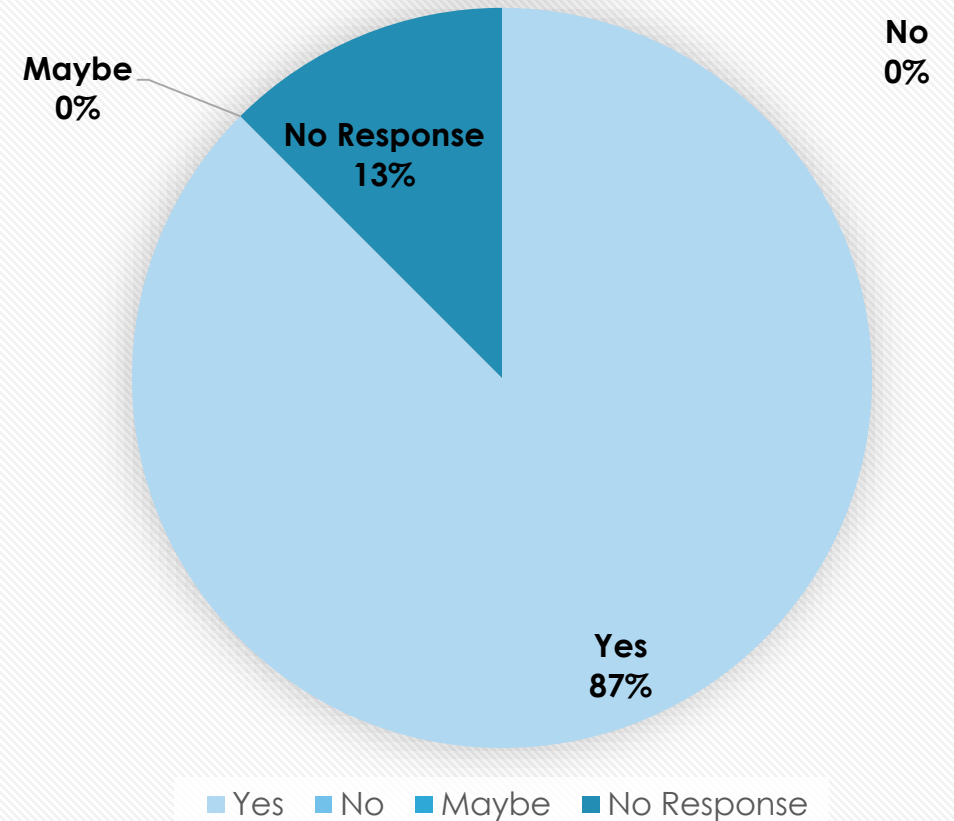
-- Subhojeet Mukherjee, Ph.D. Candidate in Computer Science, Colorado State University

Outcomes

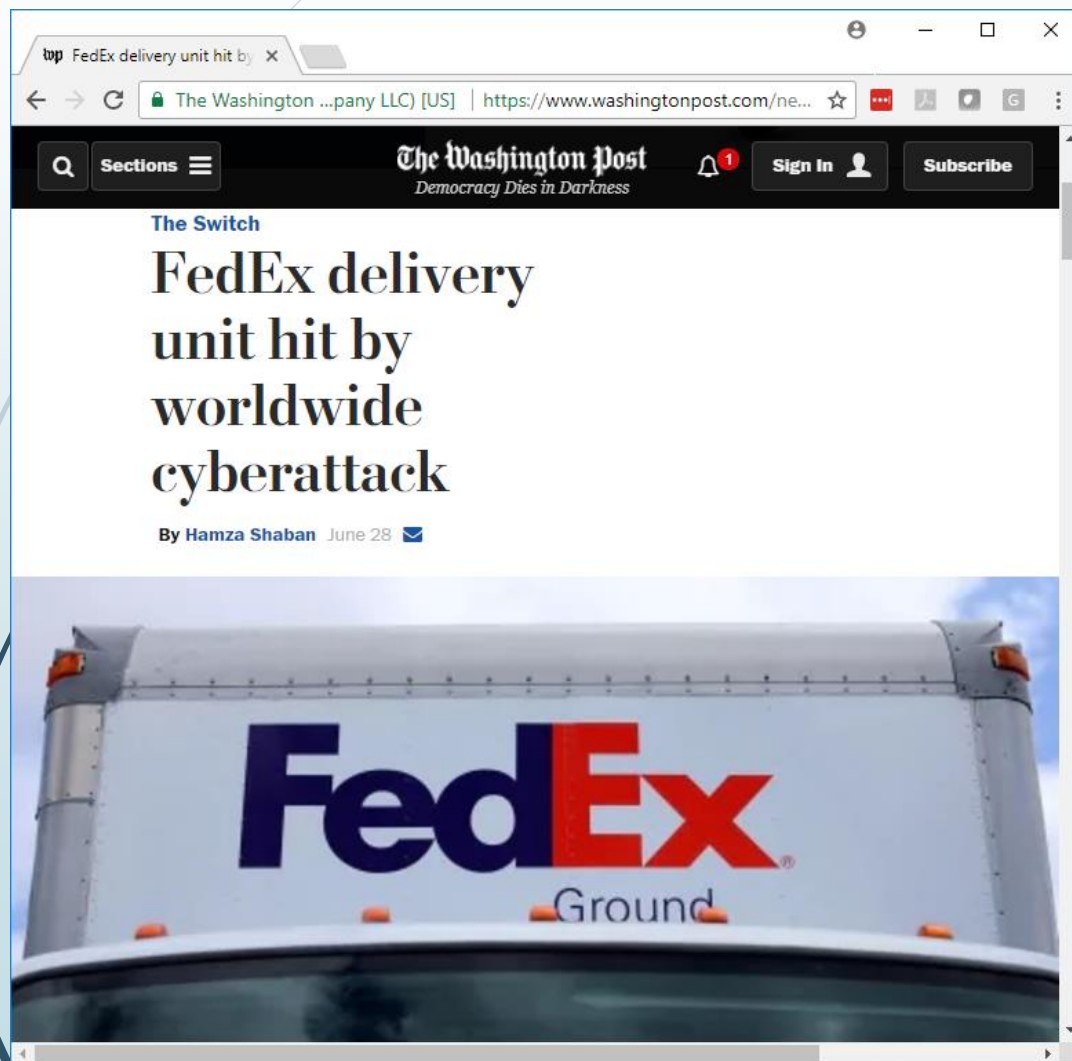
Has attending made you MORE likely to enter this industry?



Have you found a mentor?



Why the CyberTruck Challenge?



- ▶ The transportation industry faces cybersecurity threats
 - ▶ Ransomware is real – What's next?
- ▶ We have a shortage of cybersecurity talent – especially in heavy duty.
- ▶ The industry needs a forum/mechanism for creative discovery of cyber attack surfaces to be used in design processes.
- ▶ To help understand risks associated with the promising benefits of advanced technologies, like telematics, platooning, and remote over-the-air (OTA) updates/programming.

Special "Thank You" to our Named Sponsors



**MICHIGAN
DEFENSE CENTER**
MICHIGAN ECONOMIC
DEVELOPMENT CORPORATION



GEOTAB
management by measurement



PACCAR



Visit us: 2nd Annual Cyber Truck Challenge June 11-15, 2018 in Warren, MI



How can you help in 2019 (3rd Annual)?

- Fleets: Please ask your vendors to participate.
 - OEM Sales and Marketing need to agree that this is a good idea based on customer input.
- Suppliers and OEMs: Send, vehicles, assets and engineers
- Academics: Nominate students to participate
- Government: Suggest program managers who would be interested in funding the program.
- Researchers: Be a mentor or instructor
- Be a logo sponsor:
 - Platinum: \$25,000
 - Gold: \$10,000
 - Silver: \$5000



Contact and Information

CyberTruck Challenge
is now a Michigan registered
non-profit.

Stay tuned to
www.cybertruckchallenge.org
for more information.

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