

A large Volvo truck is the central focus, parked in a spacious industrial workshop. In the foreground, several people are seated at a long table, working on laptops. The scene is dimly lit, with the truck's headlights and the workshop's overhead lights providing illumination. The overall atmosphere is one of focused activity and collaboration.

CyberTruck Challenge

Talent Generation and Community Building

2022 Program Review



Mission Statement

Develop talent for the next generation workforce by bringing awareness, excitement, professional involvement, and practicum-based training to the heavy vehicle cybersecurity domain.

Establish community of interest for heavy vehicle cybersecurity that transcends individual companies or departments and reaches across disciplines and organizations to make a more universal and experienced base of engineers and managers.

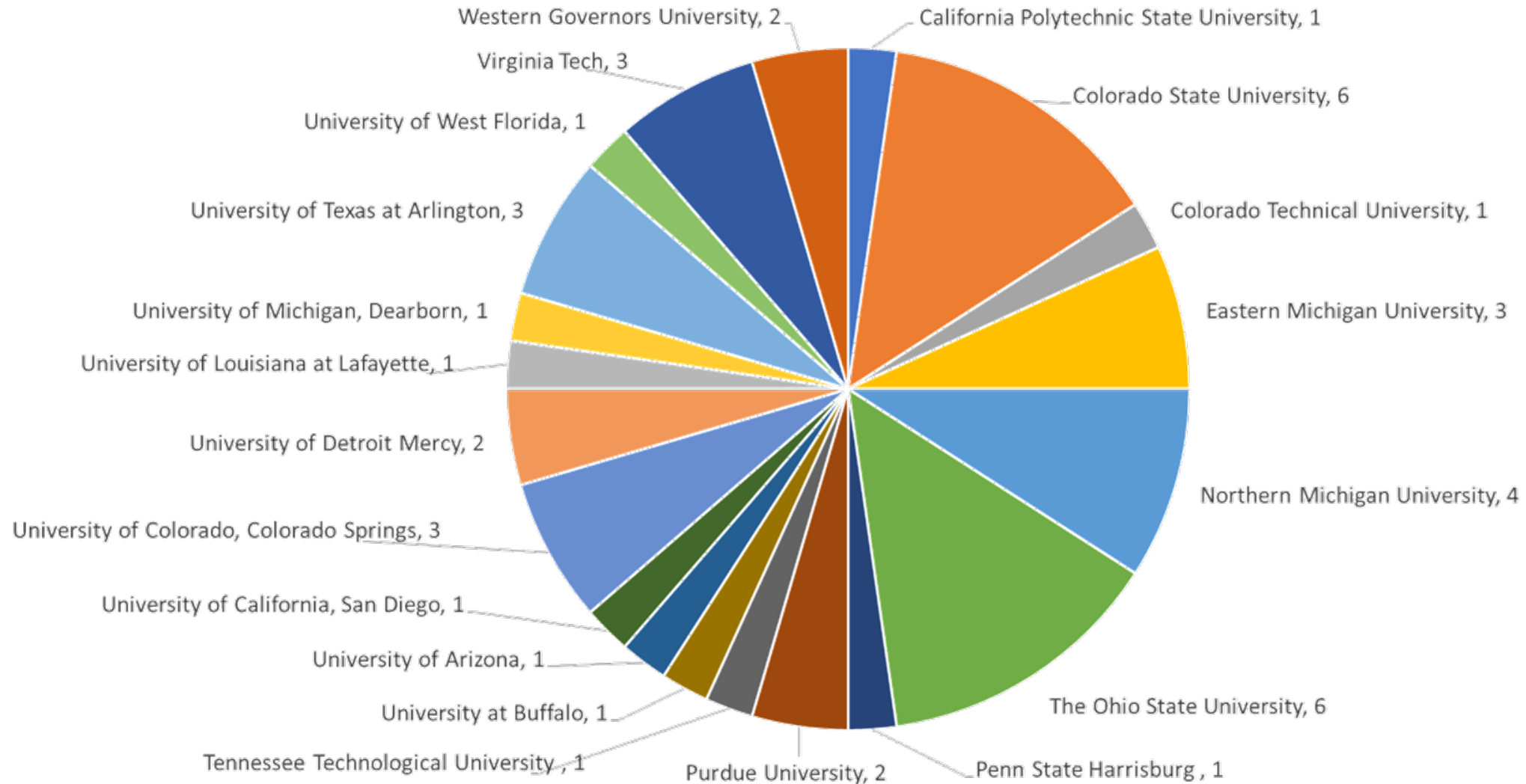
Class of 2022



Photo taken on June 22, 2022 in the Sports and Expo Center of Macomb Community College, Warren, Michigan

2022 Student and University Participation

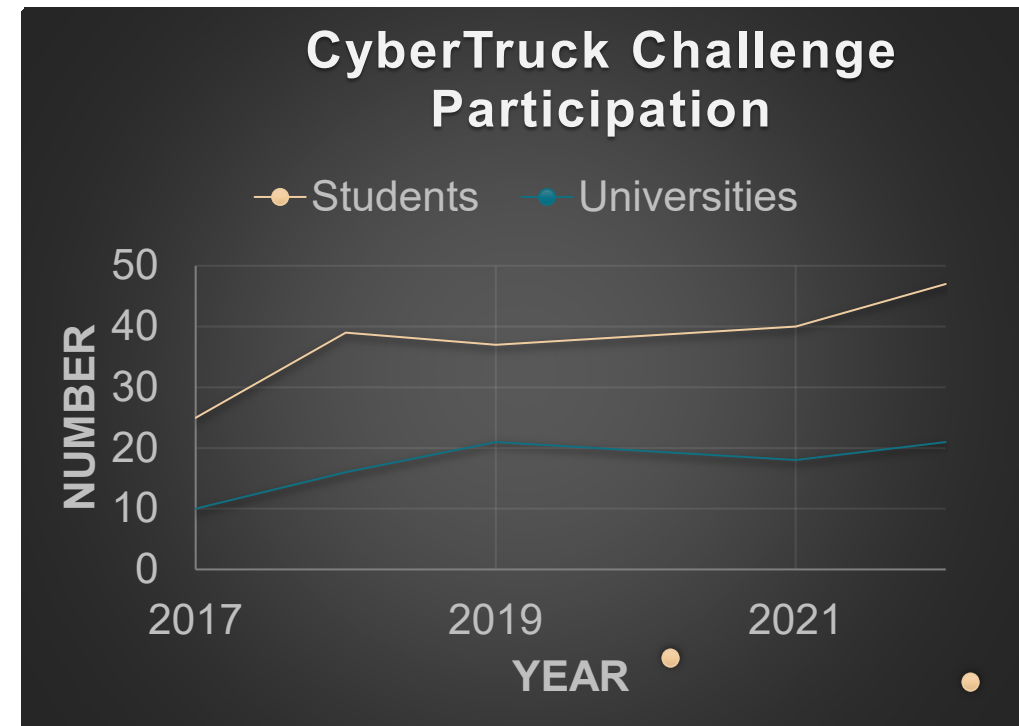
44 Students from 20 Universities



Student Participation Growth over 5 Years



Year	Students	Universities
2017	25	10
2018	39	16
2019	37	21
2021	40	18
2022	47	21



Student Expectations

All student expenses are covered, including:

- Travel
- On-site Meals
- Lodging

Student participants are expected to:

- Apply to the program in the spring
- Address the importance of the mission
- Answer a technical question on J1939
- Attend the entire program
- Actively participate in the assessments
- Present results at the end of the week
- Become ambassadors for the CyberTruck Challenge and vehicle cybersecurity



Thank you to the CyberTruck Challenge sponsors



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BOSCH



U.S. Department of Transportation
Federal Motor Carrier Safety Administration



SYSTEMS ENGINEERING
COLORADO STATE UNIVERSITY

Munich RE 

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It can be done

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CALSTART

Sponsorship Growth over 5 Years



Original Equipment
Manufacturers



Tier I Suppliers and
Telematics Providers



Security Companies
Academia, Government

Please Visit www.cybertruckchallenge.org for information regarding sponsorship

Description of Activities



Real Trucks

Sponsors bring new truck-tractors as assessment targets. Company engineers work with students and mentors.



Real Hackers

Experienced mentors from professional security firms help coach students through exercises and security related assessments.



Real Fun!

Students have a unique opportunity to solve challenging problems, learn from experts and experience engineering in the heavy-duty industry.

CyberTruck Challenge 2022 Schedule

Version:20220619

	Sunday, 19 June	Monday, 20 June		Tuesday, 21 June		Wednesday, 22 June	Thursday, 23 June	Friday, 24 June	Time				
		Group A	Group B	Group A	Group B								
Before 0700	Site Closed	Site Closed							Before 0700				
0700-0730		Breakfast							Breakfast	0700-0730			
0730-0800		<div>Welcome // NDA</div> <div>Safety and Orientation</div> <div><div>Vehicle Network Security</div><div><div>Ghidra</div></div></div> <div>Legal Briefing</div> <div><div>Assessment</div><div>Assessment</div></div>							Student Team Briefs (30 minutes each group)	0730-0800			
0800-0830										0800-0830			
0830-0900										0830-0900			
0900-0930										0900-0930			
0930-1000										0930-1000			
1000-1030										1000-1030			
1030-1100										1030-1100			
1100-1130										1100-1130			
1130-1200										Awards	1130-1200		
1200-1230		Lunch							Lunch	1200-1230			
1230-1300		<div>Truck Systems and J1939</div> <div><div>Software RE</div></div> <div>Trucking Industry</div> <div><div>Ghidra</div></div> <div><div>Assessment</div><div>Assessment</div></div>							Site Closed	1230-1300			
1300-1330										1300-1330			
1330-1400										1330-1400			
1400-1430										1400-1430			
1430-1500										1430-1500			
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1630-1700										1630-1700			
1700-1730										1700-1730			
1730-1800										1730-1800			
1800-1830	Informal Welcome Reception (offsite)	Dinner								1800-1830			
1830-1900		<div>Introduction to Learning Platforms</div> <div>Assessment Preparation</div>								1830-1900			
1900-1930										1900-1930			
1930-2000										1930-2000			
2000-2030	Site Closed	Free		Assessment	Free			2000-2030					
2030-2100								2030-2100					
2100-2130		Free						2100-2130					
2130-2200								2130-2200					
After 2200		Site Closed							After 2200				

Snacks will be served each afternoon.

*Survey

*Survey

Legend	Topic	Instructor, Affiliation	Verified
Lecture / Demo	Welcome and Review	Karl Heimer [MEDC] & Sponsor Representatives	Yes
Volvo Side	Embedded Firmware Patching	Ang Cui, Edward Larson [Red Balloon Security]	Yes
Cummins Side	Decompilation with Ghidra	Justin "Ozzie" Osborn [JHU-APL]	Yes
Meals	Software Reverse Engineering	Erin Cornelius [GRIMM]	Yes
"Hacking"	Truck Systems and J1939	Jeremy Daily [Colorado State University]	Yes
Free	Android	Eduardo Novella [Now Secure]	Yes
Site Closed	Cryptography	Ben Gardiner [NMFTA]	Yes
Off Site	Vehicle Network Security	Hannah Silva [Leviathan Security]	Yes
	Trucking Industry	Urban Jonson [Serjon]	Yes

Truck Systems and SAE J1939

By Jeremy Daily

Associate Professor of Systems
Engineering at Colorado State



SYSTEMS ENGINEERING
COLORADO STATE UNIVERSITY



Software Reverse Engineering

By Erin Cornelius

Senior Security Researcher



Trucking Industry

By Urban Jonson

SVP Information Technology and
Cybersecurity



SERJON



Cryptography

By Ben Gardiner

Researcher, National Motor Freight
Traffic Association, Inc.



Heavy Vehicle Network Security

By Hannah Silva

Security Researcher



Using Ghidra

By Justin “Ozzie” Osborne

Security Researcher



JOHNS HOPKINS
APPLIED PHYSICS LABORATORY



Android Security

By Eduardo Novella

Mobile Security Researcher



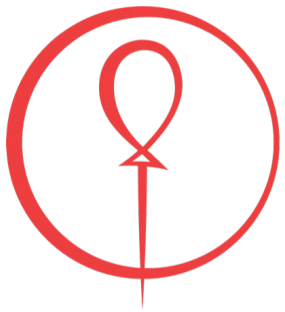
NowSecure™



Patching Embedded Systems

By Wyatt Ford and Andrés Hernández

Software Engineers at Red Balloon
Security



Red Balloon Security





Assessment Period: Forming Teams

A typical team would include

- 4-6 Students
- 1-2 Mentors
- 1-3 Industry
- 1-2 Government
- 1 named Vehicle Boss

Vehicle Bosses can stop an assessment at any time.

Results and presentations only go to the vehicle boss.

Students from the same school are encouraged to join separate teams.

In 2022, 8 teams were formed

Each team has 30 minutes to present their results at the end.

Assessment Period: Applying the hands-on lecture content



Assessment Period: Students Explore with Mentors



Student Presentations

Results from the assessment are presented to the other participants.

This is a CLOSED event; only participants who have agreed to the non-disclosure agreement can attend.

Student reports are not archived or available to be released.

Results from the assessment are communicated to the equipment engineers



Save the Date

CyberTruck Challenge 2023
June 12 – 16, 2023
Macomb Community College
Warren, Michigan

www.cybertruckchallenge.org

THANK YOU!

- 👤 *CyberTruck Challenge Organizers*
- ✉ *info@cybertruckchallenge.org*
- 🌐 *www.cybertruckchallenge.org*



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