

2018 SAE CyberAuto Challenge:

Professional Team Member Roles and Expectations

Each team member plays a crucial role, with each individual bringing their knowledge, perspective and experience to create a positive learning environment.

OEM Engineer:

- Participate on the team for the entire week (Sunday late afternoon through Friday)
- Is "Vehicle Owner" for the team and is ultimately responsible for vehicle
- Serves as the ultimate industry technical expert for the provided vehicle - does not need to be a cyber expert, but must be an engineering expert for the platform (developer or engineer)
- Guide student exploration without spoon-feeding them; creating a positive learning environment for students
- Technically describe what the things the students are "seeing" on a vehicle mean, so they can better learn the system
- Sufficient interpersonal skills to work with the different cohort members (Government, Suppliers, Academia, Students, and Hackers)
- Sufficiently comfortable with hackers / researchers for a constructive rapport with them during the event

Benefits for the OEM Engineer:

- Develop future talent pipeline for automotive industry
- Raise awareness of high tech automotive job opportunities
- Develop and deepen automotive (supplier) engineer, researcher and government peer to peer relationships
- Develop a cyberauto "community of interest"
- Personnel recruitment / internship opportunity

Supplier Engineer:

- Participate on the team for the entire week (Sunday late afternoon through Friday)
- Technical engineering expert: developer, designer, QA engineer, electrical engineer, etc.
- Direct knowledge with 1+ ECUs in modern vehicles
- Direct knowledge of how the ECUs perform in system
- Assist cohort/team with technical knowledge and help OEM engineer with specific module technical issues
- Technically describe what the things the students are "seeing" on a vehicle in their area of knowledge, so students can better learn the system
- Works well with students as well as other professionals; creating a positive learning environment for students

Benefits for the Supplier Engineer:

- Develop future talent pipeline for automotive industry
- Raise awareness of high tech automotive job opportunities
- Personnel recruitment / internship opportunity
- Develop a cyberauto "community of interest"

- Develop and deepen automotive (OEM) engineer, researcher and government peer to peer relationships

Government Participant:

- Participate on the team for the entire week (Sunday late afternoon through Friday)
- A government expert in one of the following fields: engineering, R&D, policy, administration, operations; normally from DOD, DOT, or DHS at Federal; State government personnel determined by the State.
- Watch and interact with team dynamics; assisting in creating a positive learning environment for students
- Contribute in area of expertise; help to technically describe things the students are "seeing" on a vehicle, so they can better learn the system
- Use the event to inform within capacity and/or function of government (e.g. if a policy expert participating in the event, explaining how assessing level of effort to achieve certain results and understanding learning curves can help inform policy)

Benefits for the Government participant:

- Develop and deepen automotive (OEM/supplier) engineer and researcher peer to peer relationships
- Develop future talent pipeline in cybersecurity (ensuring a well-trained and educated workforce)
- Develop a cyberauto "community of interest"
- Raise awareness of high tech cybersecurity jobs
- Personnel recruitment / internship opportunity

Researcher / "Hacker":

- Participate on the team for the entire week (Sunday late afternoon through Friday)
- A security researcher ("White Hat"), can be from industry, government, or academia
- Ideally with direct automotive experience, but general IT will suffice
- Must have actually successfully breached a defended system (this is practicum, not theory - we want people who can break in)
- Understands common security approaches and vulnerability assessment techniques, etc.
- Willing and able to coach, helping both the students and professionals by showing tricks of the trade and helping them to understand the attacker's perspective
- Expected to take a leadership role during Thursday (not a dictator, but this is really the day researchers/hackers to show the process/technique/etc. of an attack or assessment.

Benefits for the Researcher:

- Develop and deepen automotive (OEM/Supplier) engineer and government peer to peer relationships
- Develop a cyberauto "community of interest"
- Develop future talent pipeline in cybersecurity
- Raise awareness of high tech cybersecurity jobs
- Personnel recruitment / internship opportunity

STEM Educator:

- Participate on the team for the entire week (Sunday late afternoon through Friday)

- Acts as teacher, counselor, and "coach" for students; primarily focused on HS student involvement and growth
- Able to stand in and provide additional instruction, as needed, to a HS student
- Must be technically capable with CS, engineering, or math background; automotive experience a favorable option
- Must stay housing with students and act as supervisor during off-coursework times
- Understands each facility's emergency procedures and acts as the team's "captain" in case of an emergency (attendance and assembly area)
- Expected to take advantage of learning moments and use some evening time to either prepare for the next day or review critical items from past days
- Expected to take a strong position in developing the final report (which is from the HS and college student perspective)
- Responsible for attendance of students (HS & College) - determining if they are all present in the morning, after any movement to/from the facility (especially Tuesday afternoon off site activity), and following any breaks
- Responsible for ensuring HS & College students return to dorms (are boarded on bus/transport)
- Able to assist in work-ahead modules to prepare students for the event (normally this work ahead on-line instruction is held from March - May)
- Able to assist in final HS student selection based on students' demonstrated capabilities during the work ahead period (prior to Challenge week)
- Able to provide feedback on draft instructor presentations (prior to Challenge week) to ensure the message and instruction is appropriate for HS students (as well as the rest of the cohort - this event is intended to "stretch" everyone)

Benefits for the STEM Educator:

- Develop a deeper connection between secondary and post-secondary classroom courses and real-world application of concepts
- Develop future talent pipeline in cybersecurity and in the automotive industry

Facilitator:

- Participate on the team for the entire week (Sunday late afternoon through Friday)
- Acts as team member advocate
- Keeps the team on time per the schedule; handles logistical issues for the team
- Responsible for organizing the final report/presentation for Friday morning
- Responsible for ensuring the notebooks and work products are captured at end of course (to then hand over to SAE Challenge Staff)
- Interacts well with HS and College students
- Works well with students as well as other professionals; creating a positive learning environment for students
- Technical capabilities nice, but not critical
- Optionally can perform technical tasks, too
- Coordinates with Point of Contacts (POCs) at Delphi and the SAE Challenge staff to help work through logistical issues

Benefits for the Facilitator:

- Develop and deepen automotive (OEM/supplier) engineer, researcher and government peer to peer relationships
- Develop future talent pipeline in cybersecurity and in the automotive industry

