Carnegie Mellon Embedded Systems Club
2025-26 Sponsor Packet

Our History

The Carnegie Mellon Embedded Systems Club (CMESC) was founded in 2025 by members of the CMU MITRE Embedded CTF (eCTF) team. We realized that, given the interdisciplinary nature of embedded systems and hardware security, organizing our team into a club would allow us to better manage our efforts and share our knowledge.

The official mission of CMESC is to “provide Carnegie Mellon students with hands-on experience in embedded systems through projects, skill-building, participating in embedded systems competitions, and industry connections”.

Demographics

Currently, CMESC has 20 active members, who are mostly current or former competitors on the CMU eCTF team.

Type	Percentage
Undergraduate	15%
Graduate	85%

Major	Percentage
Electrical & Computer Engineering	20%
Information Security	40%
Information Technology - Information Security	20%
All others	20%

Current activities

Currently, the club's main activity is organizing the student team that competes in the annual MITRE Embedded CTF (eCTF) competition.

Background: eCTF

The MITRE Embedded CTF is a 13-week embedded security competition that takes place each spring. Student teams from around the world must design a secure embedded system during the **Design Phase**, and attempt to break the security of other teams' designs during the **Attack Phase**. Success in the eCTF requires deep engineering expertise across multiple disciplines, such as cryptography, embedded systems, hardware design, and DevOps.

Achievements

CMU has won the eCTF every year since 2022, and our firmware designs have never been successfully attacked since 2023.

Year	Overall Placement	Additional Awards
2019	2nd	Responsible Disclosure, Best Writeup
2022	**1st**	SCA Master
2023	**1st**	Hardware Hacker
2024	**1st**	Responsible Disclosure
2025	**1st**	
2026	Ongoing	

Future Plans

We are constantly researching new techniques to maintain our lead in the eCTF. Currently our main focuses are:

- SCA-resistant and fault-tolerant firmware
- Custom attack hardware for fault injection and power analysis
- Automation of attacks and analysis using LLM agents

We also hope to expand our presence at CMU beyond eCTF by hosting more events and meetings, with the goal of establishing CMESC as a highly active technical club. For example, we want to teach basic hardware hacking to a wider audience through events where we provide simple targets and cheap tools. (Fault injection can be performed with as little as $10!)

Sponsorship

Expenses

Running a first-place eCTF team can be rather expensive, often up to 5 figures of cost per year. Here are some (non-exhaustive) examples of our expenses:

- Design
    - Server infrastructure for CI and testing
    - Microcontroller dev kits for every team member
    - Misc hardware used for development
- Attack
    - Fabricating custom attack hardware
        - At least one custom PCB per year
    - Hardware tools for attacks
        - ChipWhisperer
        - Oscilloscopes & logic analyzers
    - Analysis software (e.g. Binary Ninja)
- Logistics
    - Food orders for meetings
    - Team swag (hoodies, etc)
    - Travel expenses to present at the eCTF Awards Ceremony in Boston
- Future plans
    - LLM credits for agent-accelerated attacks
    - Hardware resources for new projects
        - Trainings to introduce more students to hardware hacking
        - Developing custom hardware attack tools

Sponsorship levels

Tier	Bronze	Silver	Gold	Platinum	Soldermask
Amount	< $1,000	$1,000+	$2,500+	$5,000+	$10,000+
Logo on club website	Yes	Yes	Yes (Big)	Yes (Big)	Yes (Big)
Logo on all club merch	No	Yes	Yes (Big)	Yes (Big)	Yes (Big)
Logo on all club presentations	No	Yes	Yes	Yes (Big)	Yes (Big)
Send out recruitment messages and materials	No	No	Yes	Yes	Yes
Direct access to club member resume collection	No	No	No	Yes	Yes
Logo on club designed PCBs	No	No	No	No	Yes
Company speaker sessions	0	0	0	1/semester	2/semester

If a different sponsorship scheme would better suit your needs (e.g. donations of desired materials or tools instead of cash), we are happy to work with you directly to explore all possible options.

Contact us!

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