

A nighttime photograph of a city skyline, likely Seattle, with numerous skyscrapers illuminated. A prominent cylindrical building on the right has a blue light ring at its top. A black rectangular box is overlaid in the center, containing white and green text.

Building a Winning Cyber Team

Cracking the NSA Codebreaker Challenge

Presenters



- Dr. Carlo Sapijaszko is an engineer and an educator. He currently holds a Senior Dean position at Strayer University managing Technology and Professional Studies programs. For over 25 years, Dr. Sapijaszko combined a blend of electrical and computer engineering and higher education skills to design innovative and pedagogically-rich academic programs.
- Dr. Darcel Ford is an investigative digital forensics tester. She teaches cyber security courses at Strayer University and leads students in National University Challenges and Capture the Flag events. In 2019, she received the Teacher Excellence Award; in 2022, she received the Student Centric Award. Darcel holds a Ph.D. in Information Systems Management, a Master's in cyber security, the C|EH, C|HFI, and Security+ certifications.



Who We are as Strayer University?

Accredited institution and member of the Middle States Commission on Higher Education (MSCHE).

Designated as a Center of Academic Excellence in Cyber Defense in 2022.

Total enrollment of 36,661 students as of December 31, 2022

Student profile as of December 2022:

71% Female / 25% Male / 4% Other

2% Asian

55% Black or African American

8% Hispanic or Latino

29% White

4% Two or more races

2% Other Race or Ethnicity





What Motivated us to Compete ?

The National Centers of Academic Excellence in Cybersecurity designation requirements section 2d. Students Participation in Extracurricular Activities.

...activities...which may include experiential learning activities, local/regional/national cyber exercises and competitions, outreach to community colleges and high schools.

Doing the right thing:

Students benefit from opportunities to network with one another while sharpening their cyber skills.

Provides opportunities for student leaders to exercise their leadership skills.





What Motivated us to Compete ?

Strayer University's motivation is propelled by our students. Since March 2021, we have forged a spirited and highly competitive team whose members have dubbed themselves the “Strayer R4pt0r\$”.



The team has genuinely thrived on competing in cyber challenges, creating self-designed Capture the Flag (CTF) portals, and folding challenge-related content into authentic in-course learning experiences.



Challenge Engagements

Challenges the Strayer team has engaged in

- Quarterly Strayer Cyber Challenges
- Cyber Challenge Tasks
 - Reverse Engineering
 - Web Hacking
 - Forensics
 - Software PWN
 - Cryptography
- NCyTE Career Challenge
- NICE-Challenge Portal
 - Used daily by cybersecurity and information technology students.



- NSA Codebreaker 2022
 - Strayer University 5th Place
- MISI Hack the Universe Events
- Hack the Building 2.0
- Hack Railroad
- Avenger-Con 7
- Hack the Box CTF Events
- CTF University 2022
- Cyber Apocalypse 2023
- Hack The Boo



What is the NSA Codebreaker Challenge ?

The 2022, NSA Codebreaker Challenge consisted of a diverse array of tasks with varying difficulty. Schools were ranked according to the total number of points accumulated by their students.

For example, students were tasked with saving victim data from a ransomware attack, requiring skills and knowledge in reverse engineering, website analysis and security, cryptography, software development, and log analysis.

The challenge was designed to spur students to utilize their technical skills, intuition and common sense to solve real-world scenarios.

How Did Our Team Do?

<https://nsa-codebreaker.org/leaderboard>

Rank ▲	School	Task 0	Task A1	Task A2	Task B1	Task B2	Task 5	Task 6	Task 7	Task 8	Task 9	Score ▼
1	Georgia Institute of Technology	200	174	151	164	133	89	89	76	42	19	282,570.00
2	Oregon State University	153	130	109	130	106	13	12	10	8	7	80,013.00
3	University of California, Santa Cruz	71	60	52	61	54	14	13	11	9	8	79,011.00
4	University of Texas at Dallas	141	121	90	124	91	26	25	17	6	3	64,141.00
5	Strayer University	34	16	13	16	12	7	7	7	7	6	52,724.00
6	University of North Georgia	123	103	81	101	72	24	20	9	3	2	46,303.00
7	Dakota State University	73	42	30	35	21	10	10	10	5	4	43,643.00
8	Texas A&M University - College Station	100	56	28	49	18	7	7	7	5	4	40,720.00



How Did We Assemble the Student Team?

- Cyber challenges require a diverse set of skills, including programming, networking, cryptography, and reverse engineering.
- The university features a cybersecurity center, which welcomes students interested in cyber challenges and capture the flag events.
- Ads were placed on the university's IT Career Community Facebook group to attract students interested in cyber challenges.



How Did We Assemble the Faculty Team?

- The Program Dean nurtured the opportunity for faculty to coach the cyber team.
- Once the faculty team was in place, members were encouraged to stay up-to-date on the latest cybersecurity trends and technologies.
- Faculty were encouraged to hold weekly meetings with students to provide support and foster effective teamwork.
- Recruitment of new faculty members was conducted to ensure that our organization has a strong bench of knowledge and expertise on how to stay ahead of cyber threats.

How Did the University Support the Team?

- The University offers academic programs, workshops, and certification courses to support the development of cybersecurity skills and knowledge.
- Students, including those on the cyber team, pursued industry internships and opportunities to help them advance their skills through real-world experience.



A night cityscape with a large black and white silhouette of a cat jumping or falling in the foreground. The background shows a dense urban environment with many lit-up buildings and a prominent curved skyscraper on the right. The sky is a deep blue, suggesting dusk or dawn.

Thank You