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Immediate Release

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Search Narrows for World's Top Student Hackers and Cybersecurity Protectors: Countdown to NYU CSAW Finals

World's Largest Student-Led Security Competition Announces 400 Students Who Will Compete in Brooklyn, France, India, Israel, Mexico, and Tunisia

BROOKLYN, New York, Tuesday, October 30, 2018 – After besting a record-breaking 3,500 teams from more than 100 countries, an elite corps of high school, college, and graduate students will advance to the finals of the world's biggest student-led cybersecurity contest: the New York University Tandon School of Engineering's annual CSAW games.

Organizers this week released the names of winning teams in the preliminary rounds.

The scale of CSAW, in this, its 15th year, is evident in its global reach: 397 finalists from around the world will travel to academic sites across four continents to compete in the final rounds November 8-11, 2018:

- NYU Tandon in Downtown Brooklyn, New York
- Indian Institute of Technology, Kanpur (IIT Kanpur)
- Grenoble-INP Esisar in Valence, France
- Ben-Gurion University and the University of Haifa in Israel (with IBM Research-Haifa and the IBM Cyber Security Center of Excellence)
- Universidad Iberoamericana (Ibero) in Mexico City

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- Higher School of Communication of Tunis (Sup'Com) in Ariana, Tunisia

More than bragging rights are at stake: NYU Tandon will offer more than **$1 million in scholarships** to all high school finalists in the CSAW Red Team Competition in Downtown Brooklyn. And the NYU Center for Cybersecurity will award **full tuition and fellowships to first-place winners in three collegiate-level competitions** at all of the hubs. (Scholarships are contingent upon admission to NYU Tandon and satisfactory academic progress.)

Competitions at CSAW, which was formed in 2003 as a small local competition by Nasir Memon, professor of computer science and engineering, have expanded to eight events, evolving to meet the changing threat landscape. The newest contest is **Hack3D, which explores vulnerabilities in 3D printing**. Meanwhile, the high school competition – once covering only forensic skills – now offers a taste of how corporations and institutions train defenders for real-world attacks.

"For 15 years CSAW has changed and grown to reflect the manifold complexities of the threat landscape; but it is also a change agent for social good," said Ramesh Karri, director of CSAW, professor of electrical and computer engineering at NYU Tandon, and co-founder and co-chair of the NYU Center for Cybersecurity. "Events like the Hardware Security Challenge generate new avenues of research leading to innovative approaches to defending devices we use every day; and competitions like the CSAW Red Team Challenge have inspired thousands of students to pursue fields with high demand for new talent and fresh ideas. We are especially gratified that CSAW has inspired students to pursue engineering, math and science who may have never have considered STEM fields otherwise."

Three all-girl high school teams will compete in Brooklyn this year – reflecting the longstanding commitment by NYU Tandon and CSAW to employ the games as a gateway to a field in which women comprise only 14 percent of the current workforce in the U.S.

Among them is a team from New York City Schools that participated in NYU Tandon's summer intensive, Computer Science for Cyber Security, in Brooklyn's Sunset Park neighborhood. It is part of NYU Tandon's Center for K-12 STEM Education STEMNow program, one of the largest university-based K-12 STEM education programs in the city. The other two all-girl teams come from schools that frequently produce CSAW finalists: Montgomery Blair High School in Silver Spring, Maryland, and Piedmont Hills High School in San Jose, California.

Visitors are welcome to attend the keynote panel discussion at NYU Tandon by distinguished CSAW alumni starting at 6 p.m. on Thursday, November 8, as well as the competitions on Friday, November 9, but tickets are limited and registration is required at smd8@nyu.edu. For the full agenda of the final round at NYU Tandon, visit https://csaw.engineering.nyu.edu/intl-locations/nyu-tandon/agenda

Capture the Flag

Players of all levels and ages from around the world registered for Capture the Flag (CTF), the flagship event of CSAW that tests hacking and protection skills. After 48 hours of around-the-clock software hacking contests, a top-notch group of undergraduates was selected from more than 2,700 teams from 107 countries to compete at one of the six finalist hubs. Ten teams from the United States and Canada will compete in CTF finals at NYU Tandon.

To view teams competing at the CSAW finals in all six regions, visit CSAW Capture the Flag.

Red Team Competition

Since its inception, NYU Tandon's CSAW high-school competitions have introduced thousands of novices to the cybersecurity field, attracting students who enjoy solving puzzles and encouraging newcomers with an entry-level CTF-style game. This year, more than 650 teams competed, with 28 teams winning coveted slots at the CSAW final rounds at NYU Tandon, Ibero, and Grenoble INP-Esisar.

To view teams competing at the CSAW finals, including the 11 teams who will compete at NYU Tandon, visit CSAW Red Team Competition.

Embedded Security Challenge

The oldest and largest hardware hacking competition in the world, now in its 11th year, is also the most difficult event at CSAW and contributes to worldwide scholarship. The tournament employs a "red team, blue team" format that mimics real-world attacks. This year's challenge, developed in partnership with the United States Office of Naval Research, requires the competitors to demonstrate covert data exfiltration attacks against Internet of Things devices – smart light bulbs in particular – that can leak secret information through side-channels, bridging air-gapped networks – those seemingly unconnected to the Internet.

The competition is a cornerstone program of NYU's hardware security group. Part of NYU Center for Cyber Security and including researchers at NYU Abu Dhabi, the group has become a leading force in microchip security.

Finals will be held at NYU Tandon, IIT Kanpur, and Grenoble-INP Esisar.

To view the teams competing at the CSAW finals, including eight that will compete at NYU Tandon, visit CSAW Embedded Security Challenge.

Policy Competition

This competition — at NYU Tandon and IIT Kanpur — attracts students who are interested in the nexus of law, policy, and emerging security issues. This year, organizers from NYU's national Policy Case Competition restructured the event to include a wide range of topics, including artificial intelligence, cryptocurrencies, and data security. Five finalist teams representing both CSAW regulars, such as the U.S. Naval Academy, as well as some new institutions, will present their best policy arguments to a panel of judges.

To view the five teams competing at the CSAW Policy Competition finals at NYU Tandon, visit the CSAW Policy Competition finalists page.

Applied Research

Recognized as the leading competition for young cybersecurity researchers, the Applied Research Competition accepts only peer-reviewed security papers that have already been published by scholarly

journals and conferences. This year, top academics and practitioners reviewed 141 papers to arrive at the list of finalists. During the CSAW final round, one of the student authors of each paper will present in poster format to judges, who will evaluate the originality, relevance, and accuracy of the research. Finals will be held at NYU Tandon, Grenoble-INP Esisar, IIT Kanpur and Ben-Gurion University.

To view the accepted papers, including 10 at NYU Tandon, visit the CSAW Applied Research finalists page.

Hack3D

CSAW's newest competition, Hack3D, serves to raise awareness in both scientific and manufacturing communities about the need for anti-counterfeiting methods in 3D printing. In the qualifying round, competitors were tested in reverse engineering a 3D CAD model. During the final round, teams will compete in printing 3D parts that have been embedded with anti-counterfeiting features. To view the three teams competing at U.S.-Canada finals, visit the CSAW Hack3D finalists page.

Cyber Journalism Award

The only CSAW contest for non-students recognizes excellence in reporting on cybersecurity and privacy. Judges chose Jen Wieczner as winner of the 2018 CSAW Cyber Journalism Award for The Surprising Redemption of Bitcoin's Biggest Villian, which delves into Mt. Gox Chief Executive Mark Karpelès' attempts to recover lost funds and exonerate himself of a multi-million-dollar theft in which he was considered a prime suspect. Wieczner is a senior writer at *Fortune* and co-founding editor of The Ledger, Fortune's financial technology and blockchain publication.

The competition is a joint project of the NYU Tandon School of Engineering and the NYU Arthur L. Carter Journalism Institute.

Security Quiz Bowl

Finalists from other CSAW contests as well as students from throughout New York will test their knowledge of security technology, history, and culture in this fun and fast-paced competition, leading up to a final round that will follow on the heels of the 36-hour CTF. Teams competing in this academic bowl–style event will square-off on topics ranging from network security, cryptography and malware to history, current events, and pop culture.

Industry Fair

CSAW finalists and vetted computer science students from across the region will meet sponsors recruiting for internships and career positions. The worldwide shortage of cybersecurity talent makes the CSAW finalists particularly attractive to the elite companies: According to research by industry group (ISC)2, the shortage of cybersecurity professionals is close to 3 million globally. In the United States, there are nearly half a million unfilled positions.

Cybersecurity students wishing to participate in the CSAW Career Fair at NYU Tandon can learn how to submit resumes at csaw.engineering.nyu.edu/intl-locations/nyu-tandon/events/industry-fair.

Speakers and Professional Conference

For 15 years, CSAW has brought students in contact with security professionals and their peers so they might build networks of cybersecurity mentors and colleagues for their future careers. This year, a panel of distinguished alumni will deliver the keynote presentation at CSAW U.S.-Canada on November 8. Bank of America will present the Security Expert Luncheon keynote on November 9.

New this year, the **Frontiers in Cybersecurity Workshop for professionals** will offer leading-edge knowledge on the use of data science and artificial intelligence for cybersecurity on Thursday, November 8. For information, visit https://csaw.engineering.nyu.edu/intl-locations/nyu-tandon/frontiers-cyber-security-workshop.

About CSAW

The CSAW games, founded in 2003 as a small contest by and for NYU Tandon students, have grown to become the most comprehensive set of challenges by and for students around the globe. NYU students continue to design the contests under the mentorship of information security professionals and faculty. NYU Tandon's student-led Offensive Security, Incident Response and Internet Security (OSIRIS) laboratory, home to weekly student-led Hack Night training and student research, leads the Red Team and CTF challenges.

"Since 2003, approximately 100,000 high school and college students have competed in CSAW, many becoming mentors, researchers, professors, and experts in government and industry," said Jelena Kovačević, dean of NYU's Tandon School of Engineering. "We are proud of CSAW's role in catalyzing cybersecurity engagement and education across the globe, as well as the research advances that the CSAW contests have yielded. Over the years, CSAW has become a creative force in our school-wide commitment to STEM education and our outreach to young women, who this year comprise 43 percent of our incoming first-year undergraduates. I heartily congratulate the talented NYU student team leaders and faculty for their remarkable contributions to cybersecurity education through CSAW."

CSAW U.S.- Canada Sponsors are: Gold Level — Capsule8, IBM, the United States Navy Office of Naval Research; Silver Level — BAE Systems, Bank of America, T. Rowe Price; Bronze Level —Estée Lauder Companies, Facebook, Flatiron Health, Jane Street, Jefferies, JPMorgan Chase & Co., Palo Alto Networks, Raytheon, TD Bank, Uber; Supporting Level — Cisco Tetration Analytics, Cubic Corporation, Qrypt; Contributing: Applied Computer Security Associates, CTFd, Datadog, Include Security, Ret2 Systems, Splunk, and Vector35.

For more information, visit csaw.engineering.nyu.edu, view a video of CSAW 2017 highlights, and follow @CSAW_NYUTandon.

About the New York University Tandon School of Engineering

The NYU Tandon School of Engineering dates to 1854, the founding date for both the New York University School of Civil Engineering and Architecture and the Brooklyn Collegiate and Polytechnic Institute (widely known as Brooklyn Poly). A January 2014 merger created a comprehensive school of education and research in engineering and applied sciences, rooted in a tradition of invention and entrepreneurship and dedicated to furthering technology in service to society. In addition to its main location in Brooklyn, NYU Tandon collaborates with other schools within NYU, one of the country's

foremost private research universities, and is closely connected to engineering programs at NYU Abu Dhabi and NYU Shanghai. It operates Future Labs focused on start-up businesses in downtown Manhattan and Brooklyn and an award-winning online graduate program. For more information, visit http://engineering.nyu.edu.

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