![NCL Logo]

The National Cyber League - Where Cybersecurity is a Passion

NCL 2019 Spring Individual Game Scouting Report

Dear Bohan Zhang,

Congratulations on a great NCL 2019 Spring Individual Game!

National Cyber League (NCL)

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills. Using challenges designed around industry-recognized performance-based exam objectives and aligned with individual and team games, the NCL is a first-of-its-kind ongoing experiment in learning and gaming using next-generation high-fidelity simulation environments. Learn more about the NCL at www.nationalcyberleague.org. If you have any questions regarding the information in this report please inquire at info@nationalcyberleague.org.

NCL 2019 Spring Season

The NCL 2019 Spring Season was designed to develop and validate player knowledge and skills in preparation for further learning, career readiness, industry certifications, and other cybersecurity competitions. Hosted challenges in the NCL Gymnasiums were made available to all players and coaches and aligned to the games. The games were designed around performance-based exam objectives of the CompTIA Security+™ and EC-Council Certified Ethical Hacker (CEH) certifications.

The NCL 2019 Spring Season began with the Preseason round to group players into one of three competition brackets based on skill level: Gold (top 15% of all players nationally - 520 players), Silver (the next 35% of all players nationally - 1,263 players) or Bronze (the next 50% of all players nationally - 1,815 players). Players who did not participate in the Preseason were not bracketed or ranked. This made the Individual Game more engaging by grouping players with similar knowledge and skill levels.

At the beginning of the NCL 2019 Spring Season, 4,844 students/players and 357 faculty/coaches from more than 350 two- and four-year schools across all 50 U.S. states registered to play.

The NCL 2019 Spring Season was powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for all players to compete and track their progress in real-time.

To validate the contents of this report, please access:
cyberskyline.com/report/3DNUQJ56Q73L

The Individual Game (formerly Regular Season) Capture the Flag (CTF) event took place from November 2 through November 4. The Team Game (formerly Postseason) CTF event took place from November 16 through November 18. The games were conducted in real-time for students across the country.

NCL Scouting Report

What follows is a customized NCL Scouting Report of your performance in the NCL 2019 Spring Individual Game. We hope you find it to be valuable in both confirming the skills you demonstrated competencies in, as well as identifying areas for improvement. In addition, the NCL Scouting Report can be used as part of any job application, as it provides an external validation of skills as demonstrated in competitive game play based on industry-recognized certification performance-based exam objectives.

The following definitions apply to your performance across a range of games, optimized for individuals:

- **Bracket Rank:** overall place within the Bracket
- **National Rank:** overall place with respect to all players, across all Brackets
- **Score:** total combined flag points; the higher the score, the higher the ranking
- **Flag Captures:** the combined number of successful flag captures/submissions
- **Flag Attempts:** the combined number of flags submitted to the Cyber Skyline Platform
- **Accuracy:** percentage of flag submissions that were correct. Formula: Total Flag Captures divided by Total Flag Attempts

NCL Spring 2019 Preseason
106 flags (1,875 points)

The top player for NCL Spring 2019 Preseason captured 106 flags out of 106 total flags, scoring 1,875 points out of 1,875 total points, and had an accuracy of 98.15%.
On average, players captured 51 flags, 607 points, and had an accuracy of 65.86%.

National Rank	Score	Flag Captures	Flag Attempts	Accuracy
690	1,040	80	117	68.38%

Based on the Preseason performance, **Bohan Zhang** was placed into the **Silver Bracket** for the Individual Game.

NCL Spring 2019 Individual Game
137 flags (3,000 points)

The top player for NCL Spring 2019 Individual Game captured 137 flags out of 137 total flags, scoring 3,000 points out of 3,000 total points, and had an accuracy of 98.56%.

On average, players captured 50 flags, 850 points, and had an accuracy of 70.84%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
607	204	1,235	78	101	77.23%

Individual Game Competencies

The following tables show the player's rank Nationally and by Bracket, based on the following modules:

1. **Cryptography**
   Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.
2. **Enumeration and Exploitation**
   Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.
3. **Log Analysis**
   Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.
4. **Network Traffic Analysis**
   Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.
5. **Open Source Intelligence**
   Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.
6. **Password Cracking**
   Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.
7. **Scanning & Recon**
   Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.
8. **Web Application Exploitation**
   Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.
9. **Wireless Access Exploitation**
   Identify the security posture of wireless networks from network captures.

Cryptography

13 flags (350 points)

The top player in this module captured 13 flags and scored 350 points with an accuracy of 100.00%.
On average, players in this module captured 8 flags and scored 174 points with an accuracy of 85.51%.

Silver Bracket players on average captured 9 flag and scored 182 points with an accuracy of 86.77%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
943	438	185	9	9	100.00%

Enumeration and Exploitation

7 flags (310 points)

The top player in this module captured 7 flags and scored 310 points with an accuracy of 100.00%.
On average, players in this module captured 3 flags and scored 90 points with an accuracy of 64.71%.

Silver Bracket players on average captured 2 flag and scored 64 points with an accuracy of 59.13%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
572	185	75	3	5	60.00%

Log Analysis

17 flags (425 points)

The top player in this module captured 17 flags and scored 425 points with an accuracy of 100.00%.
On average, players in this module captured 6 flags and scored 119 points with an accuracy of 43.85%.

Silver Bracket players on average captured 4 flag and scored 82 points with an accuracy of 42.59%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
648	244	80	5	15	33.33%

Network Traffic Analysis

22 flags (450 points)

The top player in this module captured 22 flags and scored 450 points with an accuracy of 95.65%.
On average, players in this module captured 8 flags and scored 165 points with an accuracy of 48.86%.

Silver Bracket players on average captured 7 flag and scored 144 points with an accuracy of 48.39%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
1,060	511	95	5	11	45.45%

Open Source Intelligence

15 flags (200 points)

The top player in this module captured 15 flags and scored 200 points with an accuracy of 100.00%.
On average, players in this module captured 14 flags and scored 168 points with an accuracy of 83.66%.

Silver Bracket players on average captured 14 flag and scored 177 points with an accuracy of 84.11%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
1,731	787	150	14	14	100.00%

Password Cracking

19 flags (315 points)

The top player in this module captured 19 flags and scored 315 points with an accuracy of 100.00%.
On average, players in this module captured 8 flags and scored 99 points with an accuracy of 89.46%.

Silver Bracket players on average captured 8 flag and scored 93 points with an accuracy of 89.87%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
535	199	150	12	13	92.31%

Scanning & Recon

18 flags (250 points)

The top player in this module captured 18 flags and scored 250 points with an accuracy of 100.00%.
On average, players in this module captured 11 flags and scored 129 points with an accuracy of 75.19%.

Silver Bracket players on average captured 10 flag and scored 117 points with an accuracy of 72.19%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
476	153	170	14	16	87.50%

Web Application Exploitation

12 flags (325 points)

The top player in this module captured 12 flags and scored 325 points with an accuracy of 100.00%.
On average, players in this module captured 3 flags and scored 53 points with an accuracy of 58.33%.

Silver Bracket players on average captured 3 flag and scored 43 points with an accuracy of 56.99%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
685	255	40	3	5	60.00%

Wireless Access Exploitation

13 flags (275 points)

The top player in this module captured 13 flags and scored 275 points with an accuracy of 100.00%.
On average, players in this module captured 8 flags and scored 121 points with an accuracy of 67.14%.

Silver Bracket players on average captured 7 flag and scored 98 points with an accuracy of 64.19%.

National Rank	Silver Bracket Rank	Score	Flag Captures	Flag Attempts	Accuracy
348	96	190	12	12	100.00%

Thank you for your participation in the NCL 2019 Spring Individual Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

Dr. Dan Manson
NCL Commissioner