



NUS
National University
of Singapore

School of Computing



National
Cybersecurity R&D
Laboratory



NATIONAL JUNIOR CYBERSECURITY OLYMPIAD (NJCO)

INFO PACK 2025 (PRIVATE CANDIDATE)

The Value of SIMCC and STSF

National Contests in Countries Paper And Online

National Contests - Lowest Cost.

Country Awards :-

Top 8% - Gold,

Next 12% - Silver

Next 20% - Bronze

Next 10% - Honorable Mention

SCIENCE



TECHNOLOGY



ENGINEERING



ARTS



MATHEMATICS



Global Contest Online only

Global Finals Online - Lower Cost.

Global Awards :

Top 10% - Gold,

Next 15% - Silver

Next 25% - Bronze

Next 20% - Honorable Mention



CSD - Fundamentals of Computing



CS1 - Programming Methodology with C



CS2 - Data Structures and Algorithms



ML1 - Introduction to Machine Learning



Global Finals (in person)

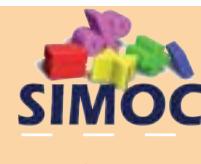
Global Finals - Travel Required, Reasonable Cost

Top 10% - Gold,

Next 15% - Silver

Next 25% - Bronze

Next 20% - Honorable Mention



Scholarship Enhancement Initiatives

50 countries and territories

22

competitions and challenge



Over 700,000 contestants

01

Many internationally recognized competitions



02

SLSP, IJHS, YALA, GMOS Internships
Passion with a purpose UGS



03

Best Fit University with Scholarship



STEAM INTERNATIONAL TOURNAMENT

Over S\$3 million in Scholarship Support to help students and teachers strengthen their portfolios and a Powerful Network to help our contestants to win more scholarships



STEAM INTERNATIONAL TOURNAMENT

There is a strong demand globally for STEAM talent led by corporations to get talent for their businesses. Hence, SIT is a great initiative to identify these talents for corporations and also various organisations giving scholarships to prepare talent for STEAM.

STEAM INTERNATIONAL TOURNAMENT (SIT)

SIMCC and Scholastic Trust Singapore (STS) is delighted to launch the STEAM International Tournament (SIT). SIT is a collection of reputable academic competitions in Science, Mathematics, Informatics, and Arts which help distinguish students' achievements in STEAM. Students who win awards in any of the qualifying contests below score points for the SIT Awards:

1. **Science** = Vanda National Junior Science Olympiad (VNJSO)
2. **Informatics** = National Junior Informatics Olympiad (NJIO) and National Junior Cybersecurity Olympiad(NJCO)
3. **Arts** = Singapore International Art Tournament (SIAT)
4. **Mathematics** = American Mathematics Olympiad (AMO) and Singapore and Asian Schools Math Olympiad (SASMO)

Rules

1. Each student will be awarded SIMCC Scholarship points from each contest.
2. SIT points must be collected within one academic year from August 1 to July 31.
3. The SIT points collected will determine the SIT Award won for that year.

IJHS Scholarship points

Grant additional IJHS Scholarship points based on the combined awards received from AMO/SASMO, NJIO, NJOS, NJAO, and NJCO.

SIT Star Award → Earn extra 3 IJHS Scholarship points (SPs)

SIT Platinum Award → Earn extra 2 IJHS Scholarship points (SPs)

SIT Tri Award → Earn extra 1 IJHS Scholarship points (SPs)

SIT Award → Earn extra 0.5 IJHS Scholarship points (SPs)

SIT Star Awardees will be trained as SIMCC STEAM camp leaders in 2024 and awarded S\$200 voucher upon completion.

Top 5 SASMO Winners from each grade by country* get Contest Scholarship (CS) to compete in MMT.

No Travel needed, and earn more IJHS Scholarship points to advance to top schools and universities with scholarships

Earn additional scholarship points

Table of scholarship points from all SIMCC competitions

SIT awards will be announced together with the induction of IJHS Scholars annually on September 15, 2025

National Contest award	Perfect Score	Gold	Silver	Bronze	Combined Qualifying National Contest IJHS Scholarship Points	≥ 10 points	8 to 9 points	6 to 7 points	5 points
IJHS Scholarship Point	3	2	1	0.5	Award	SIT Star	SIT Platinum	SIT Tri	SIT Award
					Extra IJHS Scholarship Point For Award	3	2	1	0.5

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About

National Junior Cybersecurity Olympiad (NJCO)

Overview

Cybersecurity is no longer a geek hobby but a global safety concern. With the rapid digitalization of the world in recent years, people, companies, and governments have become targets of a new threat: cyber attacks.

In 2023, the FBI reported receiving 880,418 complaints of Internet scams, which caused a loss of US\$ 37.5 billion. Faced with this scenario, companies and governments worldwide urgently seek professionals capable of protecting their systems from anonymous international attackers.

"When it comes to the reasons for non-adoption of cybersecurity measures, organizations cited a lack of knowledge/experience as the top challenge (59% for businesses, 56% for non-profits). This is understandable given the increasing and fast-evolving cyber risks, which has also contributed to the shortfall in cyber professionals."

- Singapore Cybersecurity Health Report 2023

The National Junior Cybersecurity Olympiad is designed to introduce young people to the technologies and knowledge they need to become the next generation of cyber professionals. With a certificate accredited by the National Cybersecurity R&D Lab (NCL) and the National University of Singapore (NUS), the NJCO's outstanding students will have the recognition to pursue their futures at the world's best universities.

- S\$50M to be invested by CSA to uplift Singapore's cybersecurity sector.
- As cyber threats continue to escalate and evolve globally, we need a strong cybersecurity workforce to tackle these threats more effectively." - David Koh, Commissioner of Cybersecurity and Chief Executive of Cyber Security Agency of Singapore
- "Resolving the cyber security skills gap will only be achieved with international collaboration." - Lindy Cameron, CEO of the National Cyber Security Centre of the United Kingdom

Mission

Popularize the field of cybersecurity among high school and university students, organize additional training in cybersecurity to enhance students' knowledge and interest in a possible future profession, and stimulate the desire to study additional technology and cybersecurity topics.

Who is NJCO for?

The NJCO is designed for students in grades 8 through 12 and first and second-year undergraduates. The course and the exam will be the same for all students, although the classification will take place within each grade.



Format of the course

The NJCO course features 4 pre-recorded online video lessons, each 2 hours long, totaling 8 hours of content, tailored specifically for high school and university students. Designed by the National Cybersecurity R&D Lab (NCL) and the Centre for Nurturing Computing Excellence (CeNCE), both hosted at the School of Computing, NUS, the course allows students to engage with the material at their own pace. This flexible learning format ensures that students can pause, rewind, and revisit lessons any time and from anywhere, maximizing their understanding of the various topics outlined in the syllabus.



Format of the contest

The NJCO contest, taken after the workshop that precedes it, will consist of 40 multiple-choice questions divided into 10 questions for each topic presented in the Syllabus. Each correct answer will be awarded 2.5 points, and no points will be deducted for blank or incorrect answers.



Syllabus

• Topic 1: Cryptography

This topic introduces Cryptography, including encryption, hash techniques, pitfalls, and its historical context. These concepts are of fundamental importance in laying the foundations of cybersecurity. Students will learn and experience adversarial thinking through examples, understand what cryptography can achieve, and become familiar with some common types of cryptography and its intriguing techniques.

• Topic 2: Networking Fundamentals

This topic introduces adversarial thinking in networks, network discovery through the Wireshark tool, and the Era of Digitalization. Students will also learn how to trace the network journey from the URL to a webpage, gaining an overview of the source page and exploring the functionalities of the Wireshark network tool.

• Topic 3: Red Teaming & Introduction to CTFs

This topic introduces the fundamental concepts of Capture the Flag (CTF) competitions and their many categories. In addition, students will become familiar with Linux operating systems, including basic commands, file permissions and processing, and how to install software and tools in a Linux environment. Furthermore, students will explore the programming languages commonly used to solve CTF challenges, supplemented with practical CTF demonstrations.

• Topic 4: Digital Forensics

This topic introduces Digital Forensics, covering the main stages of the digital forensics process, such as the identification, preservation, collection, examination, analysis, and presentation of digital evidence. Students will explore various types of digital evidence, such as Network Traffic Logs, Memory Dumps, Data Imaging, and File System Artifacts. Additionally, students will become familiar with the tools commonly used in forensic investigations. Hands-on exercises will provide practical experience in the application of forensic techniques and tools in real-world scenarios.



Awards

The awards will adhere to CenCE's classification criteria, followed by the NOI. Accordingly, let n be the total number of participants in the NJCO competition. Based on the ranking and scores of these participants, the following proportions will determine the distribution of awards:

- **Gold Medals:** about 1/12 of the contestants in each grade (Top 8.3%).
- **Silver Medals:** about 1/6 of the contestants in each grade (Next 16.7%).
- **Bronze Medals:** about 1/4 of the contestants in each grade (Next 25%).

Top 8.3%

Gold Award

Next 16.7%

Silver Award

Next 25%

Bronze Award



Certificate & Medals

ELITE COMPUTING COURSES & COMPETITIONS CERTIFICATES AND MEDALS





International Junior Cybersecurity Olympiad (IJCO)

The International Junior Cybersecurity Olympiad (IJCO) is the global round of the NJCO and is part of the STEAM AHEAD event, which will take place in December 2025.

IJCO is a course-based competition available to NJCO medalists who wish to compete with outstanding students worldwide for globally recognized awards.



<https://simcc.org/country->



Timeline

Registration Close Date

22 September 2025

Registration Fee

S\$80
Subject to 9% GST And
4% Stripe Fee

Competition Day

28 September 2025

Contest will be hosted globally on 28 September 2025.

- Video workshop training will be provided once registered
- Registrations close 22 September 2025, 2359 hours Singapore time.

HOW TO REGISTER

Register through our Member Development Portal (MDP) at <https://form.simcc.org/registration-form-contest/>. Kindly take note that you will need to register for an account in order to register for our competitions and view results and reports. Payment will also be done via our MDP.



Please feel free to contact us if you have any query.

Refund Policy

The contest fees paid by students to the competition are non-refundable. To host the competition, our organization invests a significant amount of time and resources, not to mention the various charges incurred to process the payments and registration.

As a social enterprise, SIMCC operates with a very lean team and limited resources to keep our operating costs low in order to make our competition affordable to all students. Hence, we will not be able to offer any refunds for competition fees to students who withdraw or cancel beyond our control.

If any student has been wrongly charged by SIMCC, or we cancel an event due to reasons under our control, we will happily refund the fees paid by the students.



NCL Team



A/Prof Chang Ee-Chien
PI, NCL



A/Prof Liang Zhenkai
PI, NCL



Mr. Seah Choon Meng
Program Director, NCL



Mr. Liu Yuancheng
Head of Technology, NCL



Mr. Niklaus Kang
Deputy Head of Technology, NCL



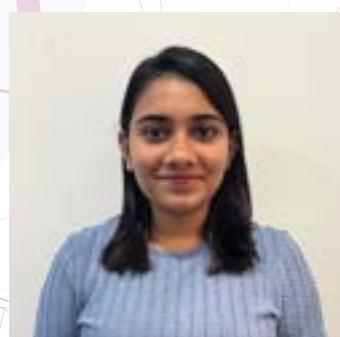
Mr. Felix Wong
Infrastructure Engineer, NCL



Mr. Seen Wei Jie
Infrastructure Engineer, NCL



Ms. Tha Zin Hlaing
Software Engineer, NCL



Ms. Ponnu Rose Raju
Software Engineer, NCL



Mr. Arun Dasse
Senior Program Executive, NCL



About NCL



National Cybersecurity R&D Laboratory

National Cybersecurity R&D Lab (NCL) in Singapore was established in 2015 and funded under the National Cybersecurity R&D (NCR) Programme. NCL offers computing resources and controlled experimentation environments to facilitate collaborative research among academia, government bodies, and industry. NCL supports a wide range of training and cyber exercises including Capture the Flag contests. The NCL Cybersecurity Compute Infrastructure (CCI) comprises a cluster of 300+ nodes with diverse provisioning mechanisms, security data, and security services. The NCL CCI provides a realistic and safe environment to test and validate before the systems are deployed in production. NCL Testbed is a computing facility for cyber-security researchers engaged in the research, development, experimentation, and testing of innovative cybersecurity technology.

NCL's cloud services include:

- Compute & Baremetal
- GPUs
- Training, CTFs, and Cyber exercises
- Custom Cybersecurity environments such as replaying APTs & various cyber-attacks.

About STS & SIMCC

About STS

Scholastic Trust Singapore Ltd (STS) is a non-profit foundation that supports international academic and cultural competitions. With donations from revenue generated from these contests, STS awards scholarships and mentorship programs for students and teachers to transform lives. Using knowledge-building pedagogies and Singapore's expertise in education, STS supports and mentors teachers and students through ACAs. We provide leading-edge professional development for teachers in the areas of English, Mathematics, Science, IT, Pedagogy, and School Leadership to improve education in many developing countries.

STS manages the International Junior Honor Society (IJHS), the Young Achievers Leadership Academy (YALA) - a live-in 5-day, 4-night leadership camp -, the Southern Illinois University (SIU) Dr. Jared Dorn Scholarship, and the SIU International Student Tuition Grants.

About SIMCC

SIMCC is a social enterprise dedicated to promoting education by organizing some of the largest academic competitions in Singapore and across Asia. We are committed to enhancing learning through thinking games and competitions, allowing students to interact, cooperate, and build lasting bonds of friendship that transcend borders.

SIMCC donates 20% of its contest revenues to support students and teachers. With sales offices in Cambodia (Phnom Penh), Indonesia (Jakarta), and Singapore, our SASMO competitions have already reached more than 700,000 participants from over 10,000 schools. By 2025, we will have a network of more than 50 countries and territories.





International Junior Honor Society



“Leaders Give, Givers Get!”



IJHS is an honor society that focuses on developing leaders and enabling its members to achieve success in academic and life pursuits. IJHS provides its members with a variety of platforms and opportunities to unleash their full potential, as well as connect to their community.

IJHS is fully funded by Scholastic Trust Singapore (STS), a non-profit foundation, and supported by a prominent volunteer board of advisors to help guide bright young leaders.



Access to a global network of like-minded Leaders and Givers.

05

Mentorship to assist members in qualifying for prestigious scholarships.

Why should you join IJHS?



04

Myriad resources and support to enable members to contribute back to their community.

03

Important internship opportunities where members can explore a variety of career options while enhancing their leadership skills and admission/scholarships at top universities.



Expert guidance on how to gain entrance into renowned educational institutions/universities with scholarship.

02



04 Honorary Lifetime
Special membership award for those who contribute to the society

IJHS Membership Level

03 Lifetime
3rd Entry Lifetime membership, tracked by LT Year # with LT Year 10 being the highest honor.

02 Senior
2nd Entry
2 years membership

01 Junior
1st year Entry
1 year membership

About IJHS

- **Vision:** a strong community of compassionate leaders.
- **Values:** humility, empathy, adaptability, resolute, truthfulness.

Goals

- Unlock the potential, talents, passions, and interests of aspiring Fellows
- Empower young leaders to give back to their local and global communities
- Pave the way for members to gain entry into top schools and qualify for scholarships
- Provide top institutions' admission and scholarship coaching to high achievers
- Make the world a better place.

How to earn IJHS SPs?

Students earn IJHS Scholarship points (SPs) by winning awards in SIMCC competitions. There are 3 levels of SIMCC competitions with different SPs.

Individual contests	National Contest	Global Finals Online	Global Finals
Perfect Score	3	3.5	4
Gold Award	2	2.5	3
Silver Award	1	1.5	2
Bronze Award	0.5	0.75	1

Team contests	MMT	VIJSO	IJCO	IJIO	SIMOC
Gold Award	2			1	
Silver Award	1			0.5	
Bronze Award	0.5			0.25	



Other Awards counted for IJHS Individual SPs:



STEAM International Tournament (SIT), PAExS, Gold, Silver, Bronze awards in SIMCC contests plus Overall Championships, and YALA.

YALA Scholarships

YALA
YOUNG ACHIEVERS
LEADERSHIP ACADEMY



1. Every member of IJHS (grades 4 and above) will automatically receive at least a 30% scholarship to join the YALA Camp every year.



2. There are 4 levels of scholarships based on IJHS Scholarship Points (SPs).
1. Platinum Scholarship (100%)
2. Gold Scholarship (50%)
3. Silver Scholarship (30%)
Open to all IJHS members to apply.
4. YALA open to non IJHS at US\$1200 or S\$1,620



Gained >= 4 IJHS SPs

Member of IJHS

Gained more IJHS SPs

Better and more scholarships



Young Achievers Leadership Academy (YALA) Camp

YALA is a 5-day live-in leadership and personal development workshop for top students from Grades 4 to Grade 12. YALA is specially designed to empower these scholars to reach their highest life goals, including enabling them to gain admission to top schools and universities. At the same time, YALA helps develop students' leadership skills and provides them with opportunities to contribute to society in meaningful ways.

YALA 2025 is conducted at Cultural / Top Universities Shenzhen, China.



Social Equity/Needy Students – Free entry to SIMCC Competitions

Our top USG experts will support SOAR students to determine the highest yield valued extra-curricular activities and how to maximize their choices to best demonstrate their skills to create their brand and express their unique personality for their university applications

Our goal is to help these students SOAR over an increasingly competitive application crowd — making sure they strengthen their portfolio to gain admission to top universities with scholarships.

Projects under IJHS
CSPs (Community Service Projects) are innovative projects focused on serving the community. They range from technology to social work and can be proposed by anyone with a vision to achieve. The CSP committee is responsible for supporting and managing your CSPs. We provide you with guidance and manpower to make your ideas into a reality. Check out some of our completed CSPs down below!

Support for poor and disadvantaged Students





Singapore International Mastery Contests Center

Acquire Skills, Recognition, and Scholarships for SUCCESS

159 Sin Ming Road #05-04
Amtech buliding (Lobby 1)
Singapore 575625

Opening Hours: Monday to Friday:
9am – 6.30pm

Contact number: +65 6873 0803