

























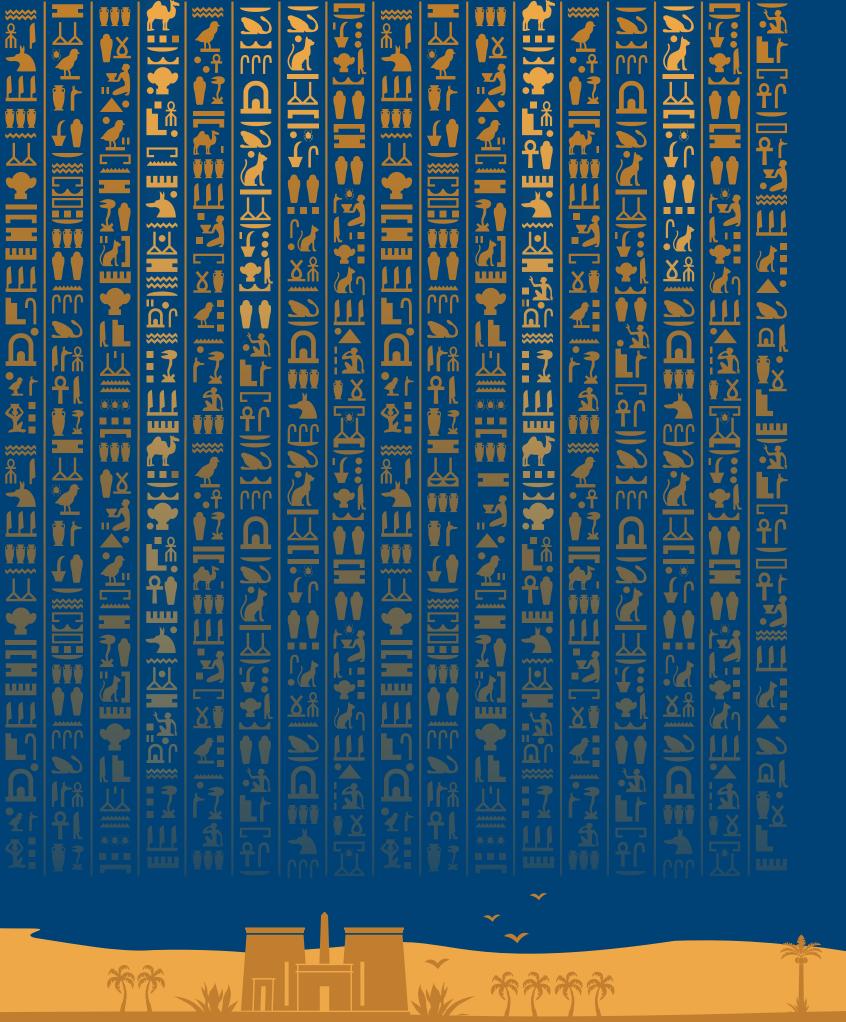
Annual World Championships of the

International Collegiate Programming Contest in Luxor, Egypt

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Welcome Letters رسائــل ترحیـب World Finals Information معلومات النهائيـــات World Finals Activities نشاطـات النهائيـــات Host University الجامعة المستضيفة **Host City** البلحة المستضيفة الفنادق المستضيفة **ICPC** Hotels Sponsors الرعــاة Judges الحكام Leadership Awards جوائـــز القيـــادة Coaching Awards جوائـــز التدريـــب Host Leaders القــادة Host Volunteers المتطوعيا 129 ICPC Staff طــاقم العمـــل

CONTENT

* Learning about the local culture is one of the ICPC World Finals opportunities! Keep an eye out for how to pronounce some words in Arabic throughout this brochure.

* التعـــرف على الثقــافة المحليـــة إحدى فرص نهائيات ICPC العالميـــة! راقب كيفية نطـــق بعض الكلمـــات باللغة العربية في هذا الكتيـــب.

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WELCOME

from The President of Egypt, Abdel Fattah El-Sisi



I am deeply honored to welcome you all to the beautiful land of Egypt for the prestigious International Collegiate Programming Contest, a gathering that unites some of the brightest minds in the world of computer science and technology.

As we stand here today, on the crossroads of history, it is not just Egypt that welcomes you, but the entire global tech community. This contest transcends borders and languages; it epitomizes the universal language of problem-solving, innovation, and collaboration.

This event is a testament to the power of youth and the potential that lies within every young mind. It brings together students from diverse backgrounds, cultures, and nations, showcasing their exceptional talent in algorithmic problem-solving. In this contest, we will see the future leaders of the tech industry and the problem solvers of tomorrow.

Egypt, with its rich history and tradition of intellectual pursuits, is proud to host this event. It is a reflection of our commitment to education, innovation, and the development of our youth. The contestants gathered here are not just competitors but ambassadors of change, carrying the dreams and aspirations of countless young people who look up to them.

I would like to extend my gratitude to the organizers, volunteers, sponsors, and everyone who has made this event possible. Your dedication and hard work have not only brought us here but have also paved the way for countless opportunities for these young talents.

I encourage you all to embrace the spirit of camaraderie and collaboration that this contest embodies. While it is a competition, it is also an opportunity to learn from one another, to forge friendships, and to build bridges that transcend borders.

To the contestants, I say this: regardless of the outcome, remember that the knowledge and experience gained here will serve as a stepping stone to a future filled with success and innovation. Your dedication to problem-solving is a testament to the bright future that awaits not only you but also our global community.

In closing, I wish you all a memorable and fruitful contest. May your time here be filled with moments of inspiration, discovery, and shared accomplishments. Let us celebrate the power of knowledge, the beauty of diversity, and the promise of a brighter, more connected world.

Once again, welcome to Egypt, and let the International Collegiate Programming Contest begin!

يشـرفني بشـدة أن أرحـب بكـم جميعًـا فـي أرض مصـر الجميلـة للمشـاركة فـي مسـابقة البرمجـة الدوليـة للبرمجيـات، ليسـت مصر وحدها هـى التى ترحب بكم، بل مجتمع التكنولوجيا العالمى بأكمله.

هـذه المسابقة تتجـاوز الحـدود واللغـات. فهـي تجسـد اللغـة العالميـة لحـل المشـكلات والابتـكار والتعـاون. هـذا الحـدث هــو شــهادة علـى قــوة الشـباب والإمكانـات التـي تكمـن فـي كل عقــل شــاب. فهــو يجمــه طلابًـا مــن خلفيـات وثقافـات ودول متنوعــة، ويعــرض مواهبهــم الاســتثنائية فـي حــل المشـكلات الخوارزميــة. هنــا فـي الأقصــر سـيجتمه قـادة المســتقبل فـي صناعــة التكنولوجيــا ومــن يحلــون المشــكلات فـي الغــد. وتفخــر جمهوريــة مصــر العربيــة مصــر، بتاريخهــا الغنــي وتقاليدهــا الفكرية، باستضافة هذا الحدث. إنه انعكاس لالتزامنا بالتعليم والابتكار وتنمية الشباب.

المتسابقون المجتمعـون فـي هــذه المسابقة ليســوا مجـرد متنافســين, بـل هــم سـفراء للتغييــر، يحملــون أحلام وتطلعــات عــدد لا يحصــى مــن الشــباب الذيــن يتطلعــون إليهــم. وأود أن أعــرب عــن امتنانــي للمنظميــن والمتطوعيــن والرعــاة وكل مــن حعل هذا الحدث ممكنا.

إن تفانيكم وعملكم الجاد لـم يوصلنا إلى هنا فحسب، بـل مهـد الطريـق أيضًا لفـرص لا حصـر لهـا لهـذه المواهـب الشابة. أنـا أشـجعكم جميعًـا علـى تبنـي روح الصداقـة الحميمـة والتعـاون التـي تجسـدها هـذه المسـابقة. وفـي حيـن أنهـا منافسـة، فهـى أيضًا فرصة للتعلم من بعضنا البعض، وتكوين الصداقات، وبناء الجسور التى تتجاوز الحدود.

أقــول للمتســابقين: بغــض النظــر عــن النتيجــة، تذكــروا أن المعرفــة والخبــرة المكتســبة هنــا ســـتكون بمثابــة نقطــة انــطلاق لمســتقبل ملــيء بالنجــاح والابتــكار. إن تفانيكـم فــي حــل المشــكلات هــو شــهادة علــى المســتقبل المشــرق الـذي لا ينتظركــم وحدكم، بل ينتظر محتمعنا العالمي أيضًا.

وختامـاً، أتمنــى لكــم جميعــا مســابقة لا تنســى ومثمــرة. أتمنــى أن يكــون وقتــك هنــا مليئًــا بلحظــات الإلهــام والاكتشــاف والإنجـازات المشـتركة. دعونـا نحتفـل بقــوة المعرفـة، وجمـال التنــوع، والوعـد بعالـم أكثـر إشـراقا وأكثـر ترابطـا. مـرة أخـرى، مرحبًا بك فى مصر، ودع مسابقة البرمجة الجماعية الدولية تبدأ!











WELCOME

from the The Prime Minister of Egypt, Dr. Mostafa Madbouly



Ladies and gentlemen, distinguished guests, and the brilliant minds gathered here today, It is with immense pride and great joy that I welcome you all to the beautiful and historic land of Egypt, as we host the prestigious International Collegiate Programming Contest (ICPC). This event is a celebration of intellect, innovation, and the spirit of collaboration that transcends borders.

I would like to extend my warmest congratulations to all the talented participants who have traveled from far and wide to be here. Your presence is a testament to your dedication and hard work in the field of computer science and programming. You are the future of technology, and we are honored to have you in our country.

As we come together in the spirit of competition, let us also remember that we are here to learn from each other, to exchange ideas, and to build bridges that connect our diverse cultures and backgrounds. In a world that often emphasizes divisions, events like this remind us of the power of unity and collaboration.

Egypt has a rich history of innovation and knowledge, dating back thousands of years to the time of the ancient Egyptians who made groundbreaking advancements in mathematics and engineering. Today, we continue this tradition by investing in education, research, and technology. Hosting the ICPC is a testament to our commitment to nurturing the brightest minds and promoting excellence in the field of computer science.

I encourage all of you to take this opportunity not only to compete but also to make lasting connections, to learn from your peers, and to explore the rich heritage and culture of Egypt. Our country offers a wealth of experiences, from the awe-inspiring pyramids to the bustling streets of Cairo, and I hope you find time to discover the beauty and history that Egypt has to offer.

In conclusion, I would like to express my gratitude to the organizers, sponsors, and volunteers who have worked tirelessly to make this event possible.

السيدات والسادة. الضيوف الكرام، والعقول اللامعة المجتمعون هنا اليوم،

إنـه لمـن دواعـي فخـري وسـروري أن أرحـب بكـم جميعًـا فـي أرض مصـر الجميلـة والتاريخيـة، حيـث نسـتضيف المسـابقة الدوليـة المرموقة للبرمجة الجامعية. هذا الحدث هو احتفال بالفكر والابتكار وروح التعاون التى تتجاوز الحدود.

أولاً وقبـل كل شـيء، أود أن أتقـدم بأحـر التهانـي لجميـــــ المشــاركين الموهوبيــن الذيـن سـافروا مــن كل مـكان ليكونــوا هـنـا. إن حضوركم هو شهادة على تفانيكم وعملكم الحاد في مجال علوم الكمبيوتر والبرمحة.

أنتم مستقبل التكنولوجيا، ويشرفنا وجودكم في جمهورية مصر العربية. أنتم هنا لنتعلم من بعضنا البعض، ولنتبادل الأفكار، ولنبنـي الجسـور التـي تربـط بيـن ثقافاتنـا وخلفياتنـا المتنوعـة. وفـي عالـم يشـدد فـي كثيـر مـن الأحيـان علـى الانقسامات، تذكرنا مثل هذه الأحداث بقوة الوحدة والتعاون.

تتمتـــs مصــر بتاريـــخ غنــي مــن الابتــكار والمعرفــة، يعــود تاريخــه إلــى آلاف الســنين إلــى زمــن قدمـاء المصرييــن الذيــن حققــوا تقدمًا رائدًا في الرياضيات والهندسة. واليوم، نواصل هذا التقليد من خلال الاستثمار في التعليم والبحث والتكنولوجيا.

إن استضافة CPC هي شـهادة على التزامنـا برعايـة ألمـــم العقـــول وتعزيــز التميــز فـي مجــال علــوم الكمبيوتــر. وأنــا أشـجعكم جميعًــا علـــى اغتنــام هــــذه الفرصـــة ليــس فقـــط للمنافســـة ولكـــن أيضًــا لإقامـــة علاقــات دائمــة والتعلــم مـــن أقرانكــم واستكشــاف تــراث مصــر وثقافتهــا الغنيــة. تقـدم بلادنــا ثــروة مــن التجــارب، بـدــةًـا مــن الأهـرامـات المذهلــة وحتــى شـــوارع القاهــرة المزدحمة، وآمل أن تجد الوقت الكافى لاكتشاف الجـمال والتاريخ الذي تقدمه مصر.

وفي الختام، أود أن أعـرب عـن امتنانـي للمنظميـن والرعـاة والمتطوعيـن الذيـن عملـوا بلا كلـل لجعـل هـذا الحـدث ممكنـا. إن تفانيكـم فـي تطويـر المعرفـة وتعزيـز التعـاون أصـر يسـتحق الثنـاء. وأتمنـى التوفيـق لجميــع المشـاركين فـي المسـابقة. أتمنـى أن تكون الأبام القليلة القادمة مليئة بالتحديات والانتصارات والذكريات التى لا تنسـى.

دعونـا نتذكـر أنـه فـي عالـم البرمجـة، كل سـطر مـن التعليمـات البرمجيـة يمثـل فرصـة لتغييـر العالـم. شـكرًا لكـم، وأتمنـى أن تحقق اللجنة الدولية للبراءات 2023 في مصر نجاحًا باهرًا! شكرا).









from The Minister of Communications & Information Technology, Dr. Amr Talaat

Esteemed participants, and honored guests,

It is an honor and a privilege to welcome you all to the beautiful city of Luxor, where I have the distinct pleasure of hosting the prestigious International Collegiate Programming Contest (ICPC). On this special occasion, I am greatly honored to be the representative of our esteemed President of Egypt Abdelfatah Elsisy.

This event not only underscores Egypt's commitment to nurturing talent and innovation but also reflects our nation's dedication to the advancement of computer science and technology. As we gather here on the shores of the Red Sea, we stand at the intersection of knowledge, creativity, and collaboration.

The ICPC brings together brilliant young minds from around the world, providing them with a platform to showcase their problem-solving skills and ingenuity. It is a celebration of innovation, teamwork, and the pursuit of excellence. In the spirit of this competition, we look forward to witnessing the remarkable solutions and groundbreaking ideas that will emerge over the course of this event.

Your presence here today underscores the importance of fostering a vibrant environment for education, technology, and international cooperation. As we embark on this exciting journey, may the bonds of friendship and understanding between nations grow stronger, and may the spirit of competition drive us all to reach new heights in the world of computer science.

Once again, welcome to Luxor, and let the ICPC contest begin! Thank you.

المشاركون الكرام، والضيوف الكرام،

إنـه لشـرف وامتيــاز أن أرحــب بكـم جميعًــا فــي مدينــة الاقصــر الجميلــة، حيــث يســعدني جــدًا اســتضافة المســابقة الدوليــة المرموقــة للبرمجــة الجامعيــة (ICPC). وفـي هــذه المناسـبة الخاصــة، يشـرفني كثيـرًا أن أكــون ممثــلًا لرئيـس مصــر المحتــرم عبــد الفتاح السيسى.

ولا يؤكد هـذا الحـدث التـزام مصـر برعايـة المواهـب والابتـكار فحسـب، بـل يعكـس أيضًـا تفانـي أمتنـا فـي النهــوض بعلــوم وتكنولوجيــا الكمبيوتــر. وبينمــا نجتمــم هنــا علــى شــواطئ البحــر الأحمــر، فإننــا نقــف عنــد تقاطــم المعرفــة والإبــداع والتعاون.يجمــم ICPC بيــن العقــول الشـابة الرائعــة مـن جميــم أنحــاء العالـم، ويوفــر لهــم منصــة لعــرض مهاراتهــم وإبداعهــم فـي حــل المشـكلات. إنــه احتفــال بالابتـكار والعمــل الجماعــي والســعي لتحقيــق التميــز. وانطلاقًـا مــن روح هــذه المسـابقة، نتطلح إلــ رؤية الحلول الرائعة والأفكار الرائدة التي ستظهر على مدار هذا الحدث.

إن وجودكم هنـا اليـوم يؤكـد أهميـة تعزيـز بيئـة نابضـة بالحيـاة للتعليـم والتكنولوجيـا والتعـاون الدولـي. وبينمـا نبـدأ هـذه الرحلـة المثيـرة، نرجـو أن تتعـزز أواصـر الصداقـة والتفاهـم بيـن الأمم، وأن تدفعنـا روح المنافسـة جميعًـا إلـى الوصـول إلـى آفـاق جديدة في عالم علوم الكمبيوتر.

> مرة أخرى، مرحبًا بكم في الأقصر ولتبدأ مسابقة CPC! شكرًا لك.











WELCOME

from AASTMT President, Dr. Ismail Abdel Ghafar



Ladies and gentlemen, esteemed guests, and participants,
It is with great pleasure and immense pride that I stand before you today as we prepare to host the International Collegiate Programming Contest (ICPC) here in Egypt.

On behalf of the Arab Academy for Science, Technology, and Maritime Transport, I extend a warm and heartfelt welcome to all of you. The ICPC is not just a competition; it is a celebration of knowledge, innovation, and collaboration. It brings together some of the brightest young minds from around the world, and it exemplifies the power of teamwork and problem-solving.

As we gather here, we are not just welcoming participants; we are welcoming the future leaders of the tech industry, the inventors of groundbreaking solutions, and the architects of progress. Egypt's rich history, with its contributions to mathematics and science, serves as a fitting backdrop for this event. The land of the pyramids and the cradle of civilization has always embraced intellectual pursuits, and we are honored to continue this tradition by hosting the ICPC.

To the participants, I want to say that you are not just competitors; you are ambassadors of your respective institutions and nations. Your presence here signifies your dedication to honing your skills, your commitment to excellence, and your passion for the world of computer programming. I encourage you to make the most of this experience, not just in terms of the competition but also by forging lasting friendships, sharing knowledge, and embracing the diverse perspectives that you will encounter.

To the organizers, volunteers, and sponsors who have worked tirelessly to make this event a reality, I extend my deepest gratitude. Your dedication is the driving force behind the success of the ICPC, and your efforts are genuinely appreciated.

As we embark on this exciting journey, let us remember the words of the great Egyptian mathematician and scholar, Hypatia, who said, "Fables should be taught as fables, myths as myths, and miracles as poetic fantasies. To teach superstitions as truths is a most terrible thing." Let us approach this contest with a commitment to truth, logic, and the pursuit of knowledge.

In conclusion, I wish all the participants the best of luck, and I hope that you find inspiration in the rich history and culture of Egypt. May your time here be not only intellectually rewarding but also personally enriching.

Welcome to Egypt, the land of ancient wisdom and modern innovation. Let the ICPC 2023 begin!

Thank you.

السيدات والسادة الضيوف الكرام والمشاركين،

إنـه لمـن دواعـي سـروري البالـغ وفخـري البالـغ أن أقـف أمامكـم اليـوم ونحـن نسـتعد لاسـتضافة المسـابقة الدوليـة للبرمجـة الجماعيـة (ICPC) هنـا فـي مصـر. بالنيابـة عـن الأكاديميـة العربيـة للعلـوم والتكنولوجيـا والنقـل البحـري, أرحـب بكـم جميعًـا ترحيبًا حارًا وصادقًا.

إن المسابقة الدوليـة للبرمجيـات ليسـت مجـرد منافسـة؛ إنـه احتفـال بالمعرفـة والابتـكار والتعـاون. فهــو يجمـع بعضًـا مـن ألمع العقــول الشـابة مـن جميــع أنحـاء العالـم، ويجسـد قــوة العمــل الجماعــي وحــل المشـكلات. وبينمـا نجتمــع هـنـا، فإننــا لا نرحــب بالمشاركين فحسب؛ نحن نرحب بقادة المستقبل فـى صناعة التكنولوجيا، ومخترعـى الحلول الرائدة، ومهندسـى التقدم.

إن تاريخ مصر الغني، بإسهاماته في الرياضيات والعلوم، يشكل خلفية مناسبة لهـذا الحـدث. لقـد احتضنـت أرض الأهرامات ومهـد الحضارة دائمًا المسـاعي الفكريـة، ويشـرفنا أن نواصـل هـذا التقليـد مـن خلال المسـابقة الدوليـة للبرمجيـات لـطلاب الحامعات.

أود أن أقـول للمشـاركين إنكـم لسـتم مجـرد منافسـين: أنتـم سـفراء جامعاتكـم ودولكـم. إن وجـودك هنـا يـدل علـى تفانيـك فـي صقـل مهاراتـك والتزامـك بالتميـز وشـغفك بعالـم برمجـة الكمبيوتـر. أنـا أشـجعك علـى تحقيـق أقصـى اسـتفادة مـن هـذه التجربـة، ليـس فقـط مـن حيـث المنافسـة ولكـن أيضًـا مـن خلال تكويـن صداقـات دائمـة ومشـاركة المعرفـة واحتضـان وجهـات النظر المتنوعة التـى ستواحهها.

وإلى المنظميـن والمتطوعيـن والرعـاة الذيـن عملـوا بلا كلـل لجعـل هـذا الحـدث حقيقـة، أتقـدم بجزيـل الشـكر. إن تفانيكـم هو القوة الدافعة وراء نجاح اللجنة الدولية للبراءات، وجهودكم محل تقدير حقيقى.

ونحـن إذ نبـدأ هـذه الرحلـة المثيـرة، دعونـا نتذكـر كلمـات عالمـة الرياضيـات والباحثـة المصريـة العظيمـة، هيباتيـا، التـي قالـت: "يجـب أن تـدرس الخرافـات كخرافـات، والأسـاطير كخرافـات، والمعجـزات كخيـالات شـعرية. إن تعليـم الخرافـات كحقائـق هــو أمـر ضــروري". شــيء أفظــه." دعونـا نتعامــل مــع هــذه المسـابقة بالالتــزام بالحقيقــة والمنطــق والســعي وراء المعرفــة. وفــي الختـام، أتمنـى حظًـا سـعيدًا لجميــع المشـاركين، وأتمنــى أن تجـدوا الإلهـام فــي تاريـخ مصــر وثقافتهـا الغنيــة. أتمنــى أن لا يكــون وقتك هنا مجزيًا فكريًا فحسب، بل مثريًا شخصيًا أيضًا.

مرحبا بكم في مصر، أرض الحكمة القديمة والابتكار الحديث.

ىكرًا لكم.











from The Secretary-General of the Arab League, Ahmed Aboul Gheit



Ladies and gentlemen, and honored participants,

It is with great pleasure and immense pride that I welcome you as the Secretary-General of the Arab League to extend a warm and heartfelt welcome to all of you on this auspicious occasion of the ICPC being hosted in the beautiful city of Luxor, Egypt.

The ICPC is not just a competition; it is a celebration of the brightest minds in the world of computer science and programming. It brings together individuals who are not only passionate about their craft but also dedicated to the pursuit of knowledge and innovation.

As we gather here in the land of ancient wonders and timeless treasures, we are reminded of the rich history and diverse cultures that make up our Arab League. Just as our ancestors left behind legacies of learning and progress, you, the contestants, have the opportunity to contribute to the ever-evolving field of technology and shape the future.

In today's interconnected world, the skills you possess and the solutions you create have the power to transcend borders and transform societies. The Arab League is proud to host this event, where we can showcase our collective dedication to advancing the fields of science, technology, and innovation.

I extend my heartfelt gratitude to the organizing committee, our generous sponsors, and the countless volunteers who have worked tirelessly to make this event possible. Your commitment to excellence is truly commendable, and it is the driving force behind the success of this endeavor.

To the contestants and participants, I encourage you not only to compete with determination but also to collaborate and learn from one another. The challenges you face here will not only test your technical abilities but also your teamwork and problem-solving skills.

In conclusion, I would like to express my sincere hope that the ICPC contest in Luxor will be an unforgettable experience for all of you. May you find inspiration in the rich culture and history of this land and may you forge lifelong friendships and connections that will serve you well in your future endeavors.

Once again, welcome to Egypt, welcome to Sharm El Sheikh, and welcome to the ICPC contest. Let the competition begin and may the spirit of innovation and collaboration guide you to new heights.

Thank you.

السيدات والسادة، أيها المشاركون الكرام،

إنه لمـن دواعـي سـروري البالـغ وفخـري البالـغ أن أرحـب بكـم بصفتـي الأميـن العـام لجامعـة الـدول العربيـة لأتقـدم بالترحيـب الحـار والصـادق لكـم جميعـا فـي هـذه المناسـبة الميمونـة المتمثلـة فـي اسـتضافة اللجنـة الدوليـة للبـراءات فـي مدينـة الأقصر الحميلة. مصر

إن اللجنــة الدوليــة للبـراءات ليســت مجـرد منافســة؛ إنـه احتفـال بألمـــة الـعقــول فــي عالــم علــوم الكمبيوتــر والبرمجــة. إنــه يجمـــة. أفرادًا ليسوا متحمسين لمهنـتهم فحسب، بل يكرسون أنفسهم أيضًا للسعــى وراء المعرفة والابتكار.

وبينمـا نجتمــع هنــا فــي أرض العجائــب القديمــة والكنــوز الخالــدة، نتذكــر التاريــخ الغنــي والثقافــات المتنوعــة التــي تشــكل جامعتنـا العربيــة. مثلمـا تــرك أسلافنـا وراءهــم إرثًـا مــن التعلـم والتقــدم، فإنكـم، أيهــا المتسابقون، لديكـم الفرصــة للمســاهـمة فى مجال التكنولوجيا دائم التطور وتشكيل المستقبل.

في عالـم اليـوم المترابـط، تتمتـع المهـارات التـي تمتلكهـا والحلـول التـي تبتكرهـا بالقـدرة علـى تجـاوز الحـدود وتحويــل المجتمعـات. وتفخـر جامعــة الـدول العربيــة باســتضافة هــذا الحــدث، حيــث يمكننـا إظهــار تفانينــا الجماعــي فــي النهـــوض ــمحالات العلوم والتكنولوحيا والابتكار.

أتقـدم بخالـص امتنانـي للجنـة المنظمـة والرعـاة الكـرام وعـدد لا يحصـى مـن المتطوعيـن الذيـن عملـوا بلا كلـل لجعـل هـذا الحدث ممكنا. إن التزامكم بالتميز أمر يستحق الثناء حقًا، وهو القوة الدافعة وراء نجاح هذا المسعى.

إلى المتسابقين والمشاركين، أشجعكم ليس فقـط على التنافـس بإصـرار ولكـن أيضًا على التعـاون والتعلـم مـن بعضكـم البعـض. لـن تختبـر التحديـات التـي تواجههـا هنـا قدراتـك الفنيـة فحسـب، بـل سـتختبر أيضًـا مهاراتـك فـي العمـل الجماعـي محل المشكلات

وفي الختام، أود أن أعرب عـن خالص أملي في أن تكون مسابقة البرمجيات الدولية لـطلاب الجامعات في الأقصر تجربـة لا تنســى لكـم جميعًـا. أتمنـى أن تجـد الإلهـام في الثقافـة والتاريـخ الغنييــن لهــذه الأرض، وقـد تتمكـن مــن تكويــن صداقـات وروابــط تـدوم مـدى الحيـاة والتـي مـن شـأنها أن تخدمـك جيـدًا فـي مسـاعيك المســتقبلية.مرة أخـرى، أهلاً بكـم فـي مصــر، ومرحبـاً بكـم فـي شـرم الشــيخ، ومرحبـاً بكـم فـي مسـابقة اللجنـة الدوليـة للبـراءات. فلتبـدأ المنافسـة، وترشــدك روح الابتـكار والتعاون إلى آفاق جديدة.

ىكرًا لكم.





WELCOME





WELCOME

from The World Finals Director, Dr. Ossama Ismail



Dear esteemed participants, coaches, and distinguished guests,

I am deeply honored to stand before you today as the Contest Director of the prestigious International Collegiate Programming Contest (ICPC), hosted right here in the captivating land of Egypt. It is with immense joy and anticipation that I welcome each and every one of you to this remarkable event.

The ICPC is not just a competition; it is a celebration of intellect, innovation, and collaboration. It brings together some of the brightest minds from around the globe, united by their passion for solving complex problems, their thirst for knowledge, and their unwavering dedication to the art of programming.

As we gather here on this historic soil, where the ancient pyramids bear witness to the enduring spirit of human achievement, we are reminded that Egypt has a rich heritage of innovation and discovery. Just as the great pharaohs left their mark on history, I am confident that the solutions and ideas born within these competition walls will leave their own indelible mark on the world of computer science and technology.

To our talented participants, you have worked tirelessly to reach this stage, and your presence here is a testament to your exceptional abilities. Embrace the challenges that lie ahead with enthusiasm, for it is through these challenges that you will grow and excel. Remember, it's not just about winning but about the journey of learning and self-improvement.

To the dedicated coaches and mentors, thank you for your unwavering support and guidance. Your role in shaping the future of these brilliant young minds cannot be overstated.

To our esteemed guests and sponsors, your presence and support are instrumental in making this event a reality. Your commitment to education and technological advancement is truly commendable.

As we embark on this thrilling journey of logic, creativity, and camaraderie, I encourage you all to not only compete but also collaborate, learn, and forge lasting friendships. The bonds you create here will extend far beyond this competition, serving as a testament to the global community of problem solvers you are now a part of. Once again, welcome to Egypt, the land of wonder and innovation. I wish each and every one of you the best of luck, the greatest of

discoveries, and the most rewarding of experiences during your time here at the ICPC. Let us make this competition a celebration of knowledge, teamwork, and the boundless possibilities that await us in the world of computing.

Thank you, and let the ICPC 2023 Egypt begin!

أعزائي المشاركين والمدربيـن والضيـوف الكـرام, يشـرفني بشـدة أن أقـف أمامكـم اليـوم كمديـر للمسـابقة المرموقــة للمسابقة الدوليـة للبرمجـة الجماعيـة (ICPC)، والتي يتـم اسـتضافتها هنـا فـي أرض مصـر السـاحرة. وبـكل سـرور وترقـب أرحـب بكل واحد منكم فى هذا الحدث الرائح.

إن المسابقة الدوليـة للبرمجيـات ليسـت مجـرد منافســة؛ إنـه احتفـال بالفكـر والابتـكار والتعــاون. فهــو يجمـع بعضًـا مـن ألمــع العقــول مــن جميـــع أنحــاء العالــم، متحديــن بشــغفهم لحــل المشــكلات المعقــدة، وتعطشــهم للمعرفــة، وتفانيهـــم الــذي لا ــنتــعاء فــن فن البرمحــة.

وبينما نجتمـع هنـا علـى هـذه التربـة التاريخيـة، حيـث تشـهد الأهرامات القديمـة علـى روح الإنجـاز البشـري الدائمـة، نتذكـر أن مصـر لديهـا تـراث غنـي بالابتـكار والاكتشـاف، وكمـا تـرك الفراعنـة العظمـاء بصماتهـم علـى التاريـخ، فإننـي علـى ثقـة مـن أن الحلــول والأفـكار التــي ولــدت داخــل أســوار المنافســة هــذه ســتترك بصماتهـا التــي لا تمحــى علــى عالــم علــوم الكمبيوتــر والتكنفلوحيا.

إلى المشاركين الموهوبيـن، لقـد عملتـم بلا كلـل للوصـول إلى هـذه المرحلـة، ووجودكـم هنـا هـو شـهادة على قدراتكـم الاسـتثنائية، اقبـل التحديـات التـي تنتظـرك بحمـاس، لأنـه مـن خلال هـذه التحديـات سـوف تنمـو وتتفـوق. تذكـر أن الأمـر لا يتعلـق بالفوز فحسب، بل يتعلق برحلة التعلم وتحسين الذات.

إلى المدربيــن والموجهيــن المتفانيــن، شـكرًا لكـم علـى دعمكـم وتوجيهكـم الـذي لا يتزعــزع. لا يمكــن المبالغــة فــي تقديــر ـ حورك فــ ، تشكــن مستقبل هذه العقول الشابة الرائعة.

إلى ضيوفنـا ورعاةنـا الكـرام، فـإن وجودـكـم ودعمكـم لهمـا دور فعـال فـي جعـل هـذا الحـدث حقيقــة، إن التزامـك بالتعليــم والتقدم التكنولوجى أمر يستحق الثناء حقًا.

وبينما نبدأ هذه الرحلـة المثيـرة للمنطـق والإبـداع والصداقـة الحميمـة، فإننـي أشـجعكم جميعًـا ليـس فقـط علـى التنافـس ولكـن أيضًـا علـى التعـاون والتعلـم وتكويـن صداقـات دائمـة. سـوف تمتـد الروابـط التـي تنشـئها هنـا إلـى مـا هـو أبعـد مـن هـذه المنافسة، وستكون بمثابة شهادة للمجتمع العالمى لحل المشكلات الذى أصبحت الآن جزءًا منه.

مـرة أخـرى، أهلا بكـم فـي مصــر، أرض العجائــب والابتـكار. أتمنــى لـكل واحــد منكــم حطًــا ســعيدًا. وأعظــم الاكتشــافات، وأكثــر التحارب افاحة خلال فترة وحودكم هنا فـي اللحنة الدولية للبراءات.

دعونـا نجعـل مـن هـذه المسـابقة احتفـالاً بالمعرفـة والعمـل الجماعـي والإمكانيـات اللامحـدودة التـي تنتظرنـا فـي عالـم الحوسبة.

شكرًا لكم، ولتبدأ اللجنة الدولية للبراءات 2023 في مصر!





WELCOME





WELCOME

from ICPC Executive Director, Bill Poucher



Annually, ICPC Regionals have hosted over 59,000 team members and 5,000 coaches at over 3,400 universities in 111 countries at 643 sites. Advancing from two years of Regional Competition, we will host 267 of the world's strongest collegiate teams of problem solvers at the 46th and 47th ICPC World Championships in Luxor! Exceptional coaching and thousands of committed volunteers made this happen around the globe.

Now we gather in Luxor, the site of Thebes, the capital of ancient pharaohs' power, to celebrate some of the most brilliant minds on our planet. Congratulations to these ICPC World Finalists! You outperformed 99% of the teams who challenged you to do your best. What does it take to earn the right to compete in the world's oldest, largest, and most prestigious programming competition? The answer is simple. It takes your very best.

You are the first generation of digital natives. You have never been disconnected! Being connected is best when we bind our strengths together toward a common cause. Do that and prepare to meet the challenges that will define your generation. Life needs you. We are born to compete. We compete best when we compete together, in good faith, goodwill, and with good deeds - all in the best interests of our neighbors and communities.

The support of Egypt for ICPC World Finals Luxor has been stunning. Let me introduce you to our friends and family. First, I would like to thank Professor Ismail Abdel Ghafar, President of the Arab Academy for Science, Technology, & Maritime Transport, and the wonderful volunteers of AASTMT. Thank you to the Egyptian Ministry of Communications and Information Technology (MCIT), The National Telecommunications Regulatory Authority (NTRA), the Ministry of Tourism and Antiquities (MTA), and The Ministry of Finance (MOF). Your commitment to future generations will impact lives in Egypt and across the globe for years to come.

In particular, I would like to thank Mohamed Fouad and the wonderful volunteers of ACPC. Mohamed's vision has inspired many students and ICPC volunteers, paving the way to ICPC World Finals Luxor.

My cherished friends, the late Dr. James Comer, ICPC Director of Regional Contests Emeritus, Dr. Roy Andersson, ICPC Director of Regional Contests, Dr. Ossama Ismail, ICPC Regional Contest Director of Africa & Arabia, and Dr. Yousry El Gamal, former Minister of Education of Egypt and longtime ICPC Africa & Arabia Steering Committee Chair, have worked together to improve the lives of students for decades. These are your champions, bringing the ICPC World Finals to Luxor.

Thank you, Huawei, ICPC World Finals Diamond Sponsor, and ICPC Challenge Sponsor! Your support of the community is unparalleled. Thank you, JetBrains, ICPC Global Programming Tools Sponsor, for your steadfast commitment to our global community and the next generation! You are the champions behind the champions. Your unwavering support allows us to spotlight the world's most excellent problem solvers and enables their dreams of competing on a global stage to come true. Accolades also go to Endure Capital for all of your local support.

It takes steadfast institutional and industry commitment to serve a global community. The UPE Honor Society in Computer Science has served for over 50 years.

And to our host, the Arab Academy for Science, Technology, and Maritime Transport, thank you again for your example, advocating for each new generation to be forerunners of delivering prosperity for generations to come.

Best wishes from ICPC Friends and Family. Joining our 400,000 ICPC Alumni, you, our ICPC World Finalists, will continue over five decades of building the digital capabilities of our civilization!

Create those engines of prosperity and mission-critical platforms that give birth to abundant opportunities for you, your neighbors, and your communities. Let happiness bloom in the dawn of our Digital Millennium. You have a lifetime to get that done. It is so much more fun to do it together. Together, life will flourish!

Best.

Bill

President, ICPC Foundation

() Ilyan B. Farcher











WELCOME

from UPE Executive Director, Orlando Madrigal



On behalf of UPE, computer science honor society, I would like to welcome student teams and their coaches, ICPC support personnel, and guests to the 2023 ICPC World Finals. We are honored and delighted to meet here in Luxor, the location of the royal tombs of the Valley of the Kings and the Valley of the Queens.

The ICPC is truly a significant event for all of us in UPE. We are privileged to recognize the World's most brilliant students in computing. The World Finals is always an exciting time for UPE as we strive to expound UPE's primary mission to recognize academic excellence in the computing and information disciplines. Thank you for your commitment and support in upholding the ideals of UPE and the ICPC.

The World Finals will show the world that we can provide student participants with new venues and be recognized as the best of the best in the globally competitive world of computing. We encourage everyone to fully experience Sinai's historic location and environment.

Finally, I wish to take the opportunity to say thank you to our sponsors, especially the ICPC Foundation, and the ICPC World Finals Host, the Arab Academy for Science, Technology and Maritime Transport. Thank you also to ICPC Global Sponsors JetBrains and Huawei.

Sincerely yours,

Orlando Madrigal Ph.D.Executive Director of UPE

WELCOME

from ICPC Global Sponsor, Huawei



On behalf of Huawei, I would like to congratulate all contestants who will be attending the 46th and 47th ICPC World Finals in Luxor, Egypt. We have been hugely impressed by your skills, and look forward to seeing even more from you in the Finals. Good luck.

I would also like to share some of my thoughts on this wonderful contest. Winning the ICPC World Finals can be one of the biggest honors of a lifetime. For those of you that come out on top, please enjoy your hard-earned victory. Please also allow me to emphasize probity – meaning a commitment to virtues – at this occasion, as this quality is very appreciated in both academic and industrial world.

Please always be honest with yourself, take pride in yourself, and believe in yourself, just as we believe in you. You possess the ability and potential to create next-generation technologies. Please never limit yourself by becoming content with the status quo. Instead, look to step out of your comfort zone, learn about some of the most pressing technical difficulties facing humanity, and rise up to solve them.

Please also always be decent and virtuous towards your peers and surroundings. We shouldn't limit knowledge within a small circle. Instead, let it flow so that great ideas can collide and give birth to even greater ideas. When you start to make more connections, the world can become refreshed and far more interesting, just like how the Big Bang theory depicts the creation of the universe. Appreciate your fellow contestants, talk to them, share ideas with them, and make friends with them. They are much more than rivals in the competition; they can be the boost that pushes you further in your pursuit of science. Also, don't forget to maintain constant communication with your mentors, coaches, professors, and last but not the least, the industrial experts. I sincerely hope you will be able to absorb a wealth of knowledge.

The ICPC World Finals is a fantastic platform to accelerate your personal growth and dip your toes into the world of driving technological progress, by solving some key problems related to real-world industrial challenges. You've already all performed exceptionally, and we hope that your curiosity and passion will continue to fuel your pursuit of scientific excellence. During this process, if you are ever in need of anything, please remember Huawei is prepared to support you with resources, mentorships, and tools.

Science has no finish line, so be bold enough to stride forward with confidence. Unlock the possibilities of the future with your incredible probity and knowledge. Thank you.

Dr Zhou Hong

President of the Institute of Strategic Research, Huawei





WELCOME

from ICPC Global Sponsor, JetBrains



My name is Andrey Ivanov, and it is my great pleasure to welcome you, on behalf of JetBrains, to Luxor, Egypt, for the 2023 ICPC World Finals. We're honored to be sponsoring such a great event and delighted to have this opportunity to meet all of you here.

The Finals this year in Egypt can rightly be called the greatest in the history of the event. Never before have so many teams gathered under one roof at the same time, and never before have we recognized two groups of ICPC World Finals Champions in one day!

At JetBrains, we are proud to be an ICPC Global Programming Tools Sponsor, and we admire the talent and dedication that each participant brings to the competition. As a company deeply committed to fostering the future of technology, the ICPC World Finals holds a special place in our hearts.

Some of our JetBrains colleagues are ICPC alumni, and together we've created top-notch tools like CLion, IntelliJ IDEA, PyCharm, other IDEs, team tools, and even a modern programming language, Kotlin. JetBrains Academy and our educational initiatives are here to support both learners and educators. From courses to resources, university partnerships, and educational tools, we're helping pave the way for the next generation of tech leaders.

I encourage you to visit our booth, where you can connect with our team, explore our tools, talk to your fellow ICPC World Finals Champions, and even solve a few unusual problems with them!

Congratulations to everyone for participating in this legendary event!

Warm regards,

Andrey Ivanov

SVP of Investments, Research, and Education JetBrains



The Drive To Develop



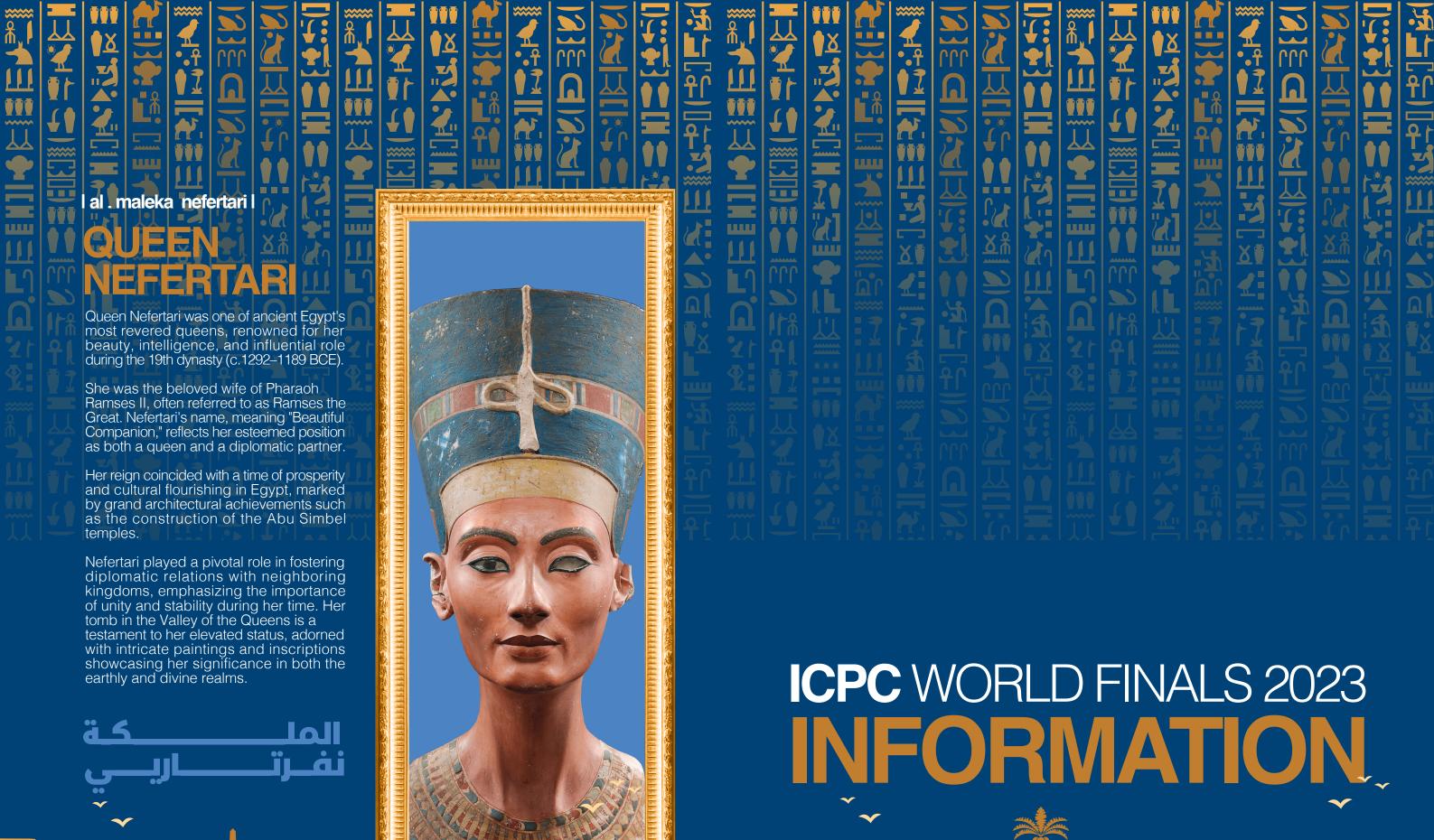
JetBrains for ICPC



Free Educational Licenses



Kotlin for Education





About the Contest What is the ICPC

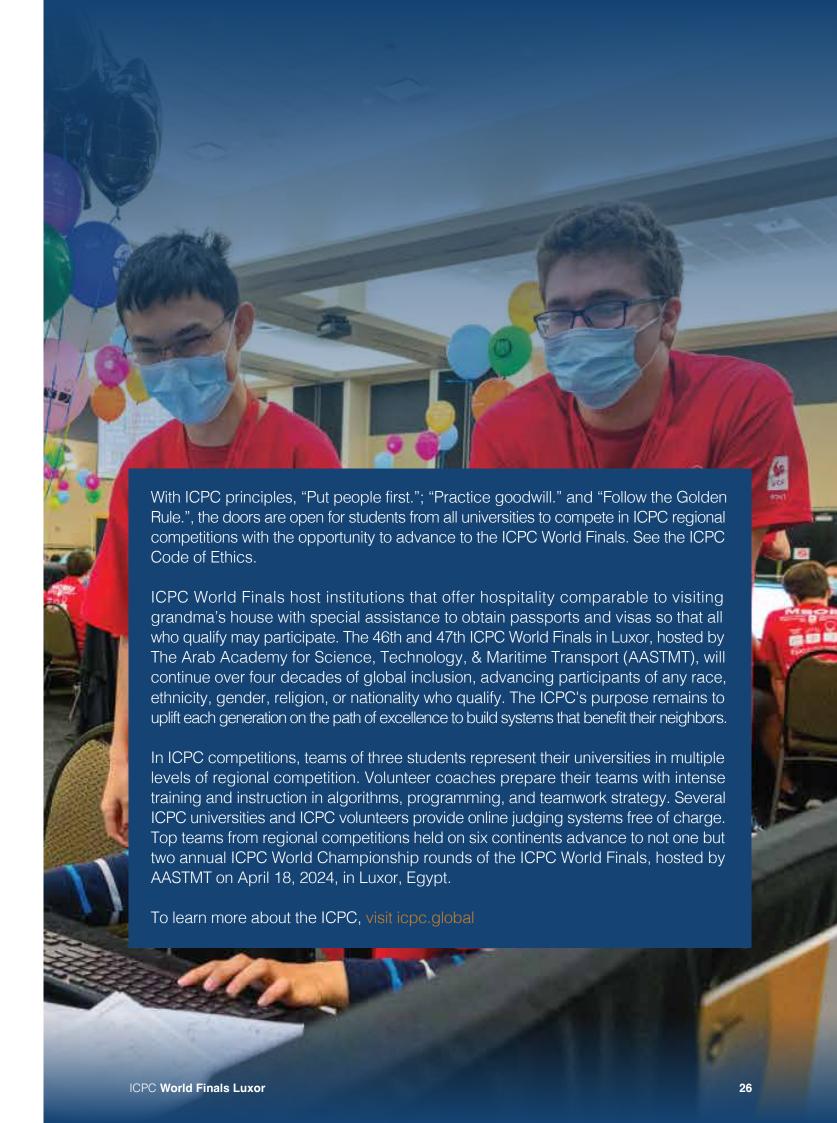


The ICPC International Collegiate Programming Contest is the premiere global programming competition conducted by and for the world's universities. The ICPC operates under the auspices of the ICPC Foundation, which hosts ICPC Global Headquarters. We spotlight the students, coaches, universities, industry, and communities working to advance prospects of prosperity through team-based, algorithmic, competitive programming.

For over four decades, the ICPC has grown to be a game-changing global competitive educational program that has raised aspirations and performance of generations of the world's problem solvers in the computing sciences and engineering. With over 400,000 alumni, The ICPC community spans the globe, with recent annual participation levels reaching 10,000 volunteers and over 5,000 coaches serving 60,000 team members representing 3,450 universities located in 111 countries. Even during several years of the COVID pandemic, with limited access to the competition, annual participation continued above 49,000 team members from 2,640 universities in 93 countries.

The ICPC community purpose remains at the heart of the ICPC: to advance prospects for the next generation by bringing students together, working collaboratively to solve algorithmically challenging problems, and preparing them to build dependable systems that benefit their neighbors with the support of universities, industry, and community leaders, globally.





ICPC World Finals Luxor 25

ICPC WORLD FINALS 2023 INFORMATION



The ICPC traces its roots to a competition held at Texas A&M 1970 hosted by the Alpha Chapter of the UPE Computer Science Honor Society. The idea quickly gained popularity within the United States and Canada as an innovative initiative to raise the aspirations, performance, and opportunity of the top students in the emerging field of computer science.

The contest evolved into a multi-tier competition, with the first Finals held at the ACM Computer Science Conference in 1977. Operating under the auspices of the ICPC Foundation and headquartered at Baylor University from 1989 to 2021, the contest has expanded into a global network of universities hosting regional competitions that advance teams to the ICPC World Finals.

The contest fosters creativity, teamwork, and innovation in building new software programs and enables students to test their ability to perform under pressure. It is the oldest, largest, and most prestigious programming contest in the world and the root of competitive programming competitions the world over.

The annual event comprises several levels of competition:

Local Contests: Universities choose teams or hold local contests to select one or more teams to represent them at the next level of competition. Selection takes place from a field of over 300,000 students in computing disciplines worldwide.

Regional Contests: Recent ICPC Regional Contests have served 75,000 volunteers, coaches, and team members from 3,450 universities in 111 countries.

World Finals: April 14-19, 2024, in Luxor, Egypt – Hosted by The Arab Academy for Science, Technology, & Maritime Transport (AASTMT), the ICPC World Finalist teams for two seasons will compete for World Championship awards, prizes, and bragging rights. These teams represent the best of great universities on six continents - the cream of the crop.



ICPC WORLD FINALS 2023 INFORMATION

Battle Of The Brains

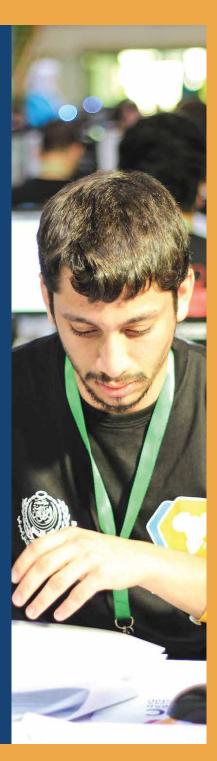
The contest pits teams of three university students against eight or more complex, real-world problems with a grueling five-hour deadline. Huddled around a single computer, competitors race against the clock in a battle of logic, strategy, and mental endurance.

Teammates collaborate to rank the difficulty of the problems, deduce the requirements, design test beds, and build software systems that solve the problems under the intense scrutiny of expert judges. For a well-versed computer science student, some of the problems require precision only. Others require knowledge and understanding of advanced algorithms. Still, others are simply too hard to solve – except, of course, for the world's brightest problem-solvers.

Judging is relentlessly strict. The students are given a problem statement – not a requirements document. They are given an example of test data, but they do not have access to the judges' test data and acceptance criteria. Each incorrect solution submitted is assessed a time penalty. You don't want to waste your customer's time when you are dealing with the supreme court of computing. The team that solves the most problems in the fewest attempts in the least cumulative time is declared the winner.

To learn more about the ICPC, please visit icpc.global.

For full coverage of the World Finals, including social media, photos, video, live coverage, and live scoreboard, go to ICPCNews, news.icpc.global.



ICPC WORLD FINALS 2023 INFORMATION



Contest Growth

The ICPC Foundation and UPE are thrilled that the contest continues to attract the best and brightest students worldwide. The ICPC student participation has increased by 2000% in 25 years.

For more information on previous contests and last year's final standings and problem sets, please see icpc.global.

The ICPC World Finals 2023 in Luxor, Egypt, will host the 46th and 47th ICPC World Championships, the final rounds for the 2021-22 and 2022-23 ICPC Regionals.

Teams from regional contests servicing universities worldwide will advance to the annual World Championship Round of the ICPC World Finals hosted by AASTMT to be held in Luxor, Egypt,14-19 April 2024. This will be the biggest World Finals ever since it provides for two years of ICPC competition completed during the pandemic.



ICPC WORLD FINALS 2023 INFORMATION

Recent medal winners in order of finish are:

45th ICPC World Finals Dhaka

2021 Gold

Massachusetts Institute of Technology Peking University The University of Tokyo Seoul National University

2021 Silver

ETH Zürich École Normale Supérieure de Paris Carnegie Mellon University University of Warsaw

2021 Bronze

National Research University Higher School of Economics St. Petersburg State University University of Oxford University of Engineering and Technology - VNU

44th ICPC World Finals Moscow

2020 Gold

Nizhny Novgorod State University Seoul National University St. Petersburg ITMO University Moscow Institute of Physics and Technology

2020 Silver

University of Wroclaw University of Cambridge Belarusian State University University of Bucharest

2020 Bronze

Massachusetts Institute of Technology Kharkiv National University of Radio Electronics University of Illinois at Urbana-Champaign National Research University Higher School of Economics

43rd ICPC World Finals Porto

2019 Gold

Moscow State University
Massachusetts Institute of Technology
The University of Tokyo
University of Warsaw

2019 Silver

National Taiwan University
University of Wroclaw
Seoul National University
KimChaek University of Technology

2019 Bronze

Sharif University of Technology Moscow Institute of Physics & Technology National Research University Higher School of Economics The Chinese University of Hong Kong

42nd ICPC World Finals Beijing

2018 Gold

Moscow State University
Moscow Institute of Physics & Technology
Peking University
The University of Tokyo

2018 Silver

Seoul National University University of New South Wales Tsinghua University Shanghai Jiao Tong University

2018 Bronze

St. Petersburg ITMO University
University of Central Florida
Massachusetts Institute of Technology
Vilnius University
Ural Federal University

About the ICPC Foundation

The ICPC Foundation is a 501(c)(3) organization founded to advance the art, sport, and science of competitive programming for the benefit of society.

The ICPC operates under the ICPC Foundation and is responsible for sponsorship, fundraising, outreach, and operational matters. The ICPC Foundation strives to provide ample opportunity for the underserved, to create a tier of regional championships to recognize far more star performers and showcase emerging talent, and to bring ICPC alumni together, assuring future generations paths of excellence to being great problem solvers. The ICPC Foundation operates programs such as ICPC-U and the ICPC University Commons, which actively create opportunities, especially for the underserved, to pursue excellence within a culture of global inclusion and authenticity.

For more information about the ICPC and the ICPC Foundation, visit icpc.foundation.

Upsilon Pi Epsilon's Commitment

The Upsilon Pi Epsilon International Computer Science Honor Society recognizes the best computer science and engineering students in the world.

Since its earliest participation, the UPE has provided support and scholarships to the World Finals teams. The UPE boasts the longest continuous relationship with the ICPC, dating back to 1970, with the first event held at Texas A&M by members of the Alpha Chapter of the UPE.

For more information about other UPE activities, chapters, and membership, click upe.acm.org.

About Luxor

Luxor, often referred to as the "world's greatest open-air museum," situated on the east bank of the Nile River in southern Egypt. Renowned for its astonishing historical wealth, Luxor was once the ancient city of Thebes, the capital of Egypt during the New Kingdom period. The city boasts an array of well-preserved temples. Luxor is also the gateway to the Valley of the Kings, where many pharaohs were entombed in elaborate tombs adorned with intricate hieroglyphics and paintings.

About Egypt

Egypt, officially known as the Arab Republic of Egypt, has a rich history that dates back to ancient times. Egypt is known for its world-renowned pyramids, temples, and tombs, as well as its ancient civilization that flourished along the banks of the Nile River.

Egypt's capital and largest city is Cairo, home to over 20 million people. Other major cities in Egypt include Alexandria, Giza, & Luxor. Luxor stands as a testament to the grandeur and sophistication of ancient Egypt, drawing visitors from around the world to marvel at its historical wonders. The official language is Arabic, but many Egyptians speak English and French.

Egypt has a diverse economy driven by tourism, agriculture, and manufacturing. It is one of the world's largest cotton producers and is also known for its oil and gas production. Egypt is a member of the United Nations, the Arab League, and the African Union.

Universities in Egypt are heavily engaged in the ICPC. The 2022 ICPC Egypt Collegiate Programming Contest, hosted by AASTMT, featured 2,500 university teams competing to advance to the ICPC Africa and Arab Region Championship, the ACPC Championship, which advances to the ICPC World Finals.

About the Host University

AASTMT, one of the organizations of the Arab League, was built with the sole purpose of empowering future Arab youths with technology skills and knowledge to create a better tomorrow. For the last 15 years, AASTMT has accepted the responsibility of hosting the ICPC Africa and Arab Region Headquarters and ensuring the support and continuity of ICPC events.

Team participation has grown by 100 times during this period, with university participation now spanning the countries throughout the multi-continental region. Under the auspices of AASTMT, ICPC's Africa and Arab Collegiate Programming Championship ("ACPC") has seen a significant rise in government support, including from Ministries of Telecommunications, Education, and Tourism in many countries throughout the multicontinental region. These partners have made it possible for the ACPC to scale and uplift emerging talent to performance levels essential to meet the needs of their communities, large and small.



About the Contest Rules

Mission

The ICPC provides college students with opportunities to interact with students from other universities and to sharpen and demonstrate their problem-solving, programming, and teamwork skills. The contest provides a platform for industry and academia to encourage and focus public attention on the next generation of computing professionals as they pursue excellence.



Introduction

The contest is a two-tiered competition among teams of students representing institutions of higher education. Teams first compete in Regional Contests held around the world from September to December each year. Based on their performance in Regional Contests, top-ranking teams advance to the International Collegiate Programming Contest World Finals. Additional high-ranking teams may be invited to the World Finals. At most 140 teams for each contest year will be invited to compete onsite. These rules are subject to change.

Organization

The ICPC is organized according to the ICPC Policies and Procedures in harmony with the ICPC Code of Ethics and Overview. The Executive Committee, chaired by the Executive Director, sets the policy and general rules for the conduct of the contest. The Executive Director is solely responsible for interpreting the rules and for ruling on unforeseen situations.

Attendance

Finalists must attend all required events as indicated in the Schedule of Events. Failure to attend any required event could result in disqualification and forfeiture of scholarships and prizes. Coaches must be accessible during On-Site Registration, Dress Rehearsal, the World Finals Championship, and the Awards Ceremony.

About the Contest Rules

Team Requirements

Teams qualify to advance to the World Finals through Regional Contests. **See the ICPC Regional Rules and Region-Specific Rules for details on advancing to the World Finals. Only one team from a given institution may advance to the World Finals.** No team member on the qualifying team may have competed as a contestant in two previous World Finals.

The coach of a qualifying team is the point of contact before and during World Finals activities. A contestant of a team may not serve as the coach. The coach must complete certification at the Team Certification Web Site within five (5) business days of notification. Qualifying teams will be invited by email and postal mail (if requested) soon after completing certification.

All team members attending the team's institution on visas must be permitted to return to their point of origin after the World Finals. Qualifying teams requiring visas must initiate the process of applying for visas within 10 business days of being invited to apply for a visa. Teams failing to comply with any of these requirements will be ruled ineligible to compete in the World Finals. Upon completion of these requirements, a qualifying team will be advanced to the World Finals.

A team advancing to the World Finals will comprise the same three members as when it qualified. (Reserves are not allowed at the Finals.) If a team member is unwilling, unable, or unfit to compete in the World Finals, the coach must notify the ICPC Contest Manager in a timely manner. A team member who is unwilling or unfit to compete in the World Finals will be disqualified from further ICPC competitions. The team member may appeal disqualification to the Appeals Committee.

At On-Site Registration, participants must provide a picture ID (passport, driver's license, etc). Contestants must show proof of enrollment at the university during the term of the regional contest at which they qualified. A letter on university stationery with the signature of a university official accompanied by an English translation is sufficient.

At times, exceptions can take place. See the ICPC Regional Rules for exceptions. All team members are responsible to follow any and all health safety rules.





About the Contest Rules

Support and Prizes

The ICPC Host will provide each finalist team with hotel accommodations for the coach and three contestants according to dates published on ICPC Host Invitations. The coach should identify any special needs during registration. The ICPC Host will seek to accommodate those needs at a team expense not to exceed the cost of one additional sleeping room. The teams and coaches will be treated to a full schedule of activities including a full course of complimentary food functions.

Transportation to the World Finals host city is the responsibility of the finalists. The ICPC encourages teams to raise funds for transportation and extracurricular activities from local sources to strengthen better community ties among academia, industry, and government.

Teams finishing in the top four positions will be awarded Gold Medals. Those teams finishing fifth through eighth place will be awarded Silver Medals. Those teams finishing ninth through the twelfth place will receive Bronze Medals. Additional Bronze Medals may be awarded to teams solving the same number of problems as the twelfth place team and in a total elapsed time no more than 60 minutes more than the twelfth place team. Such teams will be awarded the twelfth place.

The highest-ranked team is the World Champion and will receive the World Champion Trophy and plaques. The remaining teams through twelfth place, as well as the Africa & Middle East Champions, the Asia East Champions, the Asia Pacific Champions, the Asia West Champions, the Europe Champions, the Latin America Champions, the Northern Eurasia Champions, and the North America Champions will also receive plagues.

Prizes will be awarded in strict compliance with and as permitted by applicable laws governing transactions by prize donors.



About the Contest Rules

Conduct of the Finals

Ten or more problems have been posed in recent World Finals.

Problems will be posed in English. During the contest, all communications from contest officials to contestants will be in English. Each team may identify an interpreter to translate questions posed by contestants to contest officials. *Contestants may bring electronic natural* language translators to on-site registration for inspection and consideration for being made available to the team at their workstation during the competition. Such devices may not support any other functionality that provides an advantage to the team such as electronic connectivity.

Solutions to problems submitted for judging are called runs. Each run is judged as accepted or rejected, and the team is notified of the results. Rejected runs will be marked with one of the following:

- compilation error (CE) - run-time error (RTE) - time-limit exceeded (TLE) - wrong answer (WA)

Notification of accepted runs may be suspended at the appropriate time to keep the final results secret. A general announcement to that effect will be made during the contest. Notification of rejected runs will continue until the end of the contest.

A contestant may submit a claim of ambiguity or error in a problem statement by submitting a clarification request. If the Judges agree that an ambiguity or error exists, a clarification will be issued.

The competition is scheduled to last five hours. The Finals Director has the authority to lengthen the contest in the event of unforeseen circumstances. Should the Contest duration be altered, every attempt will be made to notify contestants in a timely and uniform manner.







About the Contest Rules

Scoring of the Finals

The World Finals Judges are solely responsible for determining the correctness of submitted runs. In consultation with the World Finals Judges, the Director of Judging is responsible for determining the winners of the World Finals. They are empowered to adjust for or adjudicate unforeseen events and conditions. Their decisions are final.

Teams are ranked according to the most problems solved. Teams placing in the first twelve places who solve the same number of problems are ranked first by the least total time and, if need be, by the earliest time of submission of the last accepted run.

The total time is the sum of the time consumed for each problem solved. The time consumed for a solved problem is the time elapsed from the beginning of the contest to the submission of the first accepted run plus 20 penalty minutes for every previously rejected run for that problem (except that there is no penalty for runs rejected due to Compilation Error). There is no time consumed for a problem that is not solved.

Computing Environment

The World Finals programming language tools include Java, C, C++, Kotlin, and Python3. See the Programming Environment Web Site for detailed configuration information. Before the World Finals, the judges will have solved all problems in languages from at least two of the three distinct language groups (Java/Kotlin, C/C++, and Python3).

Each team will be provided with one computer. All teams will have equivalent computing equipment. Contestants may not bring any printed materials or machine-readable versions of software or data to the Contest Area. Contestants may not bring their own computers, computer terminals, calculators, or other electronic devices to the Contest Area.

Each team member may bring an unannotated natural language printed dictionary.

Online reference materials will be made available as described in the Reference Materials section of the Programming Environment Web Site. Each team will be permitted three copies of the Team Reference Document described in the On-Site Registration Instructions.

About the Contest Rules

Contestant Conduct

DO NOT TOUCH ANYTHING at the team workstations until so directed by the World Finals Director.

Contestants are not to converse with anyone except members of their team and personnel designated by the World Finals Director. Systems support staff may advise contestants on system-related problems, such as explaining system error messages.

A team may be disqualified by the World Finals Director for any activity that jeopardizes the World Finals, such as dislodging extension cords, unauthorized modification of contest materials, distracting behavior, or behavior contrary to the ICPC Code of Ethics and Overview.

Participant Conduct

Any participant may be disqualified from further participation due to any activity that compromises an ICPC event or due to behavior that is not in harmony with the ICPC Code of Ethics and Overview.



Show the world your ICPCID!

ICPCID is an official record of your verified participation as an ICPC contestant, coach, or volunteer. By default, nobody can see your ICPCID. Activating your ICPCID will allow everyone to see your ICPC history at icpc.global. Once activated, you can share your ICPCID URL to show your accomplishments.



Activate your ICPCID today!

https://bit.ly/get_your_ICPCID



ICPC WORLD FINALS 2023 ACTIVITIES

Team Registration

Provided by the ICPC Foundation and UPE, representatives certify that team paperwork and Team Reference Documents comply with ICPC rules. Teams receive their official customized T-shirts, have an official Team Photo taken and participate in interviews. All teams and coaches must present themselves for registration at the time selected by appointment.

Participant Welcome

Dinner is hosted by AASTMT to welcome all registered attendees. Enjoy the networking opportunity with participants of the 46th and 47th Annual World Championships of the International Collegiate Programming Contest.

Tech Showcase and ChillZone

This special on-site environment is courtesy of AASTMT and the ICPC Foundation. It's a great way to learn about new technologies and innovative practices directly from industry visionaries as well as an area to relax, play games, engage with other teams and interact with neat demos featuring varied, innovative technologies, solve challenges that top companies are working on, meet your future colleagues, communicate with ICPC Alumni, relax and discover future opportunities. *Don't forget to bring your business cards!*

Tech Trek

Brought to you by ICPC Global Programming Tools sponsor, JetBrains, Tech Trek is a required activity that brings you a showcase of modern software development technologies, leading engineering and educational tools, and so much more.

ICPC WORLD FINALS 2023 ACTIVITIES

ICPC Challenge

The ICPC Challenge powered by Huawei is a required activity that presents a problem from some domains in computing. The domain and problem style may be very different from the standard ICPC problems. This contest provides ICPC participants the opportunity to learn about and experience leading-edge issues in computing, typically of contemporary interest to industry. The ICPC Challenge also provides a platform for ICPC to experiment with new problem types. Get ready for the opportunity to win some amazing prizes provided by ICPC Global Diamond Sponsor Huawei!

Opening Ceremony

This required event recognizes some of the hundreds of volunteers who have worked to make this year's World Finals a reality and represents the first public introduction of this year's World Finals contestants – the best of the best collegiate programmers.

The World Finals Dress Rehearsal

This required event is a full-scale rehearsal and practice of the World Finals. During the Dress Rehearsal, you will have the opportunity to submit questions on the process that will be answered directly afterward at the "Answers to Questions" session, following an open practice slot to apply those learnings.

Coaches Award Ceremony

This event celebrates the commitment of ICPC coaches that bring teams to the World Finals for a significant number of years: Lifetime Coach Award (twenty or more years), Senior Coach Award (fifteen or more years), Master Coach Award (ten or more years), Coach Award (five or more years).



ICPC World Finals Luxor 41 ICPC World Finals Luxor 42

ICPC WORLD FINALS 2023 ACTIVITIES

ICPC Alumni Speaker Series

The ICPC Foundation invites you to a talk from Jakub Pachocki, Director of Research at OpenAI, hosted byJelani Nelson, Professor at UC Berkeley. They will be sharing their educational, industrial and research experience. We hope this opportunity will provide some tips and answer all your questions concerning your professional career path. Don't miss this chance to ask them questions!

The World Finals

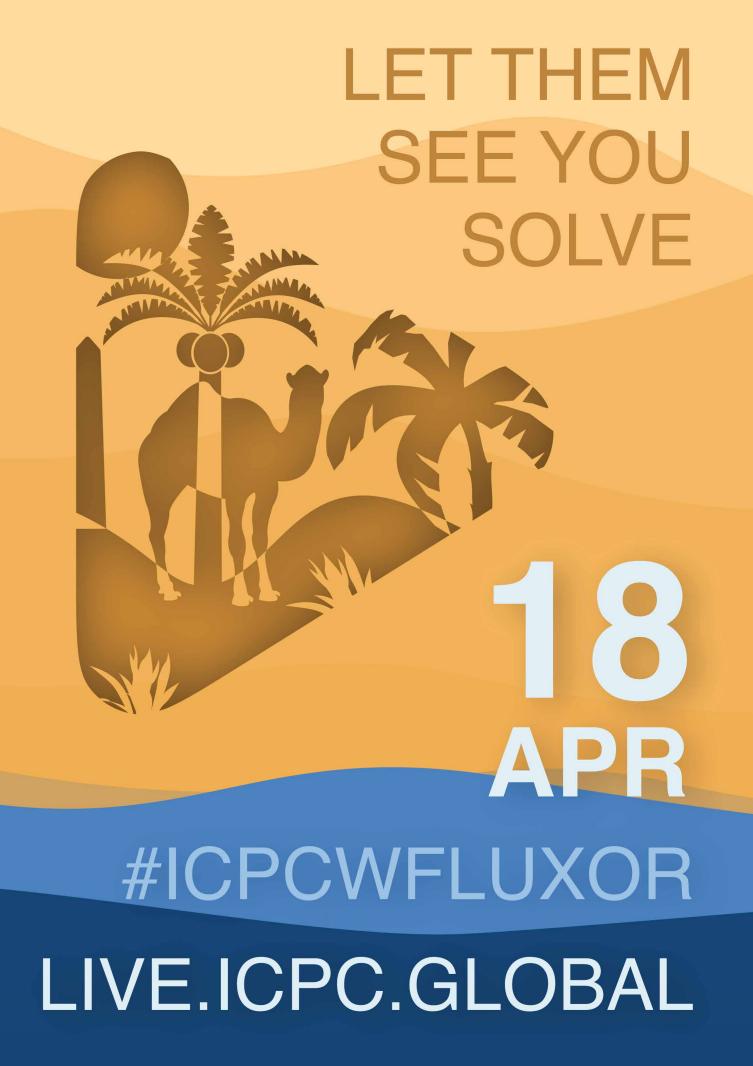
The time has come. Teams from six continents battle in a five-hour competition to see who takes home this year's prizes, accolades, and bragging rights as the top collegiate programmers in the world.

Awards Ceremony

This required event will be held to resolve the last hour of pending submissions, discover the ICPC World Champions and medal winners for both contest years, and recognize the ICPC Challenge winners. *Double the World Finals – double the fun!*

The World Finals Celebration

Qualifying for the World Finals is no small feat. This night celebrates all teams. Relax, enjoy, and share memories from the week's events in a truly spectacular setting offering a once-in-a-lifetime experience.



ICPC World Finals Luxor 43

ICPC WORLD FINALS 2023 HOST UNIVERSITY



ICPC WORLD FINALS 2023 HOST UNIVERSITY



About the Host University



The Arab Academy for Science, Technology, and Maritime Transport (AASTMT)



The Arab Academy for Science, Technology, and Maritime Transport (AASTMT) is a prestigious regional university operated by the Arab League that specializes in science, technology, and maritime disciplines. It was established with the goal of providing high-quality education and research opportunities to students in the Arab world. AASTMT has made significant contributions to the fields of science, technology, and maritime transport since its inception.

The idea of AASTMT was first proposed during the meetings of the Arab League Transport Committee on March 11, 1970. The committee recognized the need for a specialized institution that would cater to the educational requirements of the Arab countries in the fields of science, technology, and maritime transport. This notion was embraced by Arab League member states, and plans were set in motion to establish the academy.

AASTMT was officially established later in 1972, with its headquarters located in Alexandria, Egypt, and has eight campuses across the Egyptian governorates and in the UAE. The academy's initial focus was on maritime transport, aiming to enhance the skills and expertise of Arab seafarers. Over the years, the academy expanded its scope to include other scientific and technological disciplines, becoming a leading institution in the Arab world.

AASTMT has gained several certificates and accreditations throughout its existence, affirming its commitment to quality education and research. The academy has received accreditation from esteemed international bodies, ensuring that its programs meet globally recognized standards. These certificates validate the academy's continuous efforts to provide excellence in education and contribute to the advancement of knowledge in various fields.



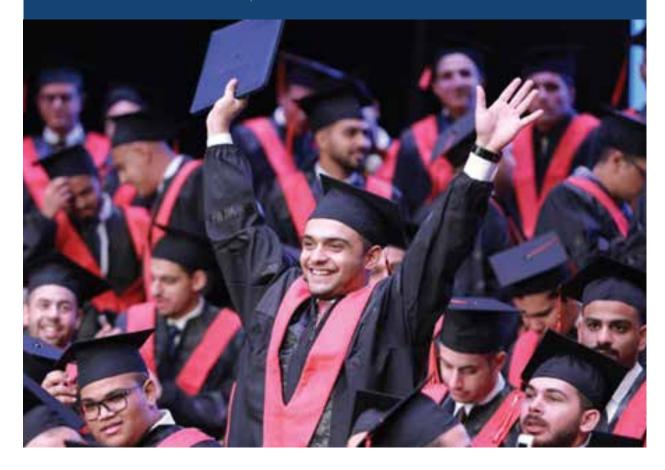
Through its various faculties and research centers, AASTMT offers a wide range of academic programs, including undergraduate and postgraduate degrees, as well as diploma and certificate

Through its various faculties and research centers, AASTMT offers a wide range of academic programs, including undergraduate and postgraduate degrees, as well as diploma and certificate programs. The academy provides specialized training in areas such as maritime transport, engineering, information technology, business administration, and more.

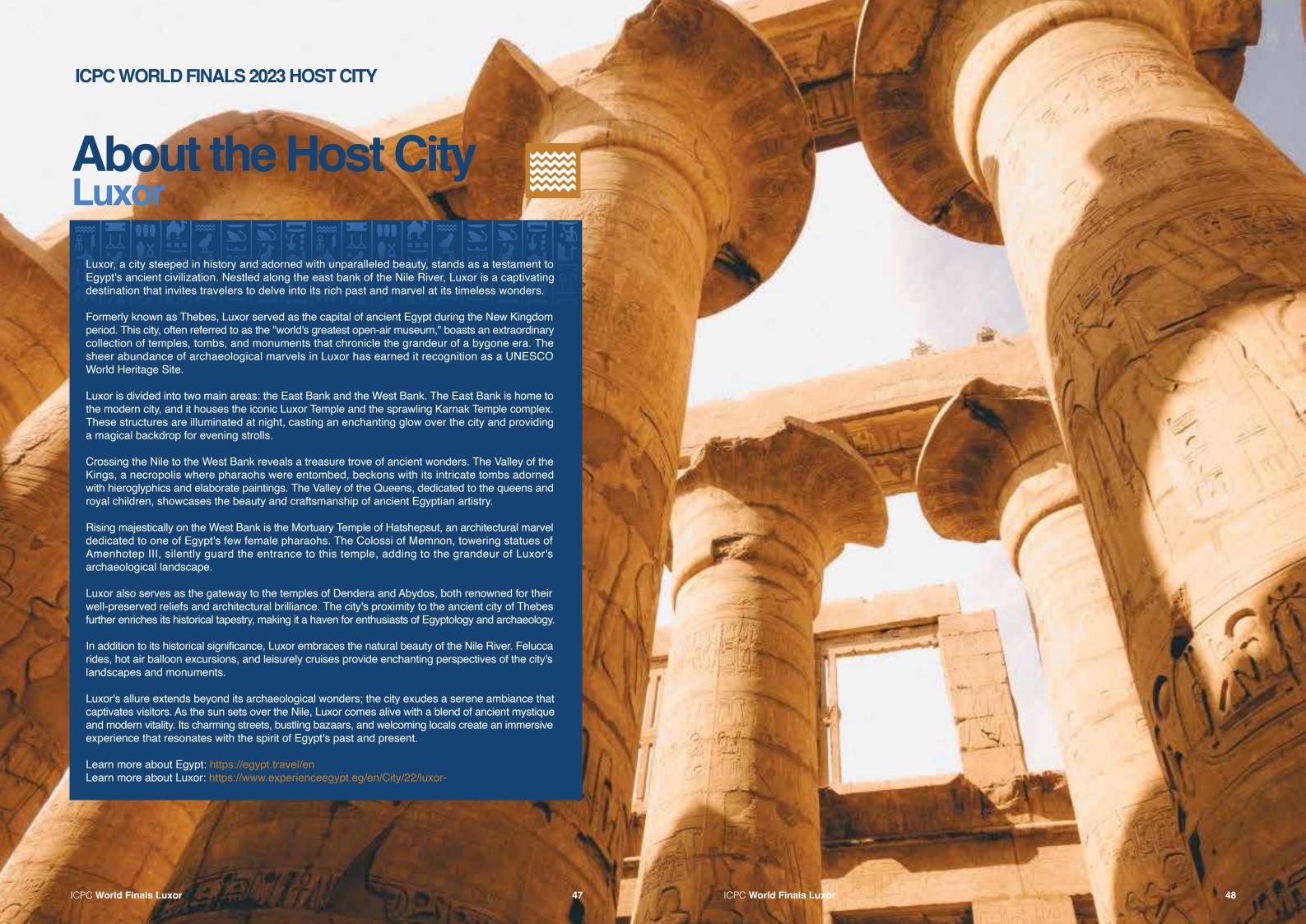
AASTMT is renowned for its state-of-the-art facilities, modern laboratories, and advanced research centers. It fosters a conducive learning environment that promotes innovation, critical thinking, and practical skills development. The academy also maintains strong collaborations with international institutions, facilitating student and faculty exchanges, joint research projects, and academic partnerships.

With its commitment to excellence, AASTMT continues to produce highly skilled graduates who contribute to the development of their respective countries and make significant contributions to their fields. The academy's reputation has grown steadily over the years, earning it recognition as one of the Leading Institutions in the Arab World for Science, Technology, and Maritime Education.

Learn more about the AASTMT: https://aast.edu/en/



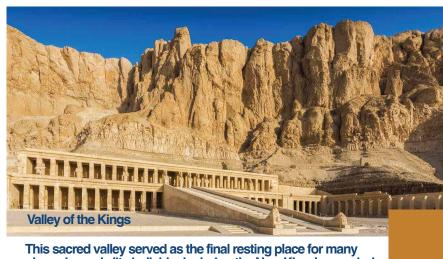
ICPC World Finals Luxor 45 ICPC World Finals Luxor 46



Your LUXOR NOT TO MISS Checklist







This sacred valley served as the final resting place for many pharaohs and elite individuals during the New Kingdom period







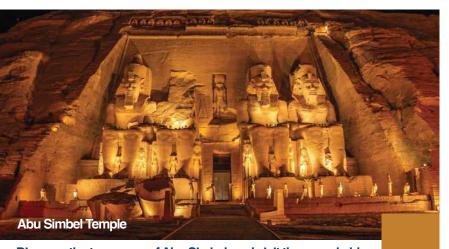
One of the oldest shops in Luxor, your hassle-free shopping destination with real antiquities, silver Egyptian jewelery & more



Enjoy a relaxing Felucca ride at sunset and with the river breeze

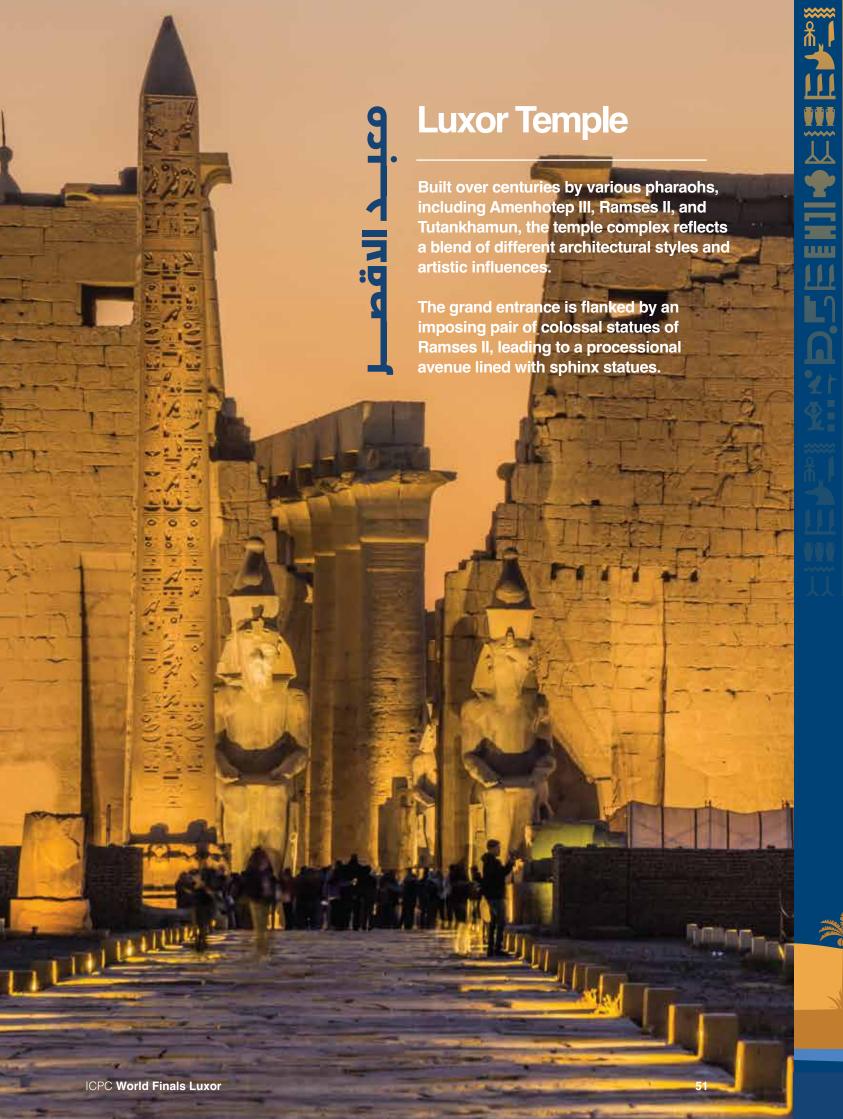


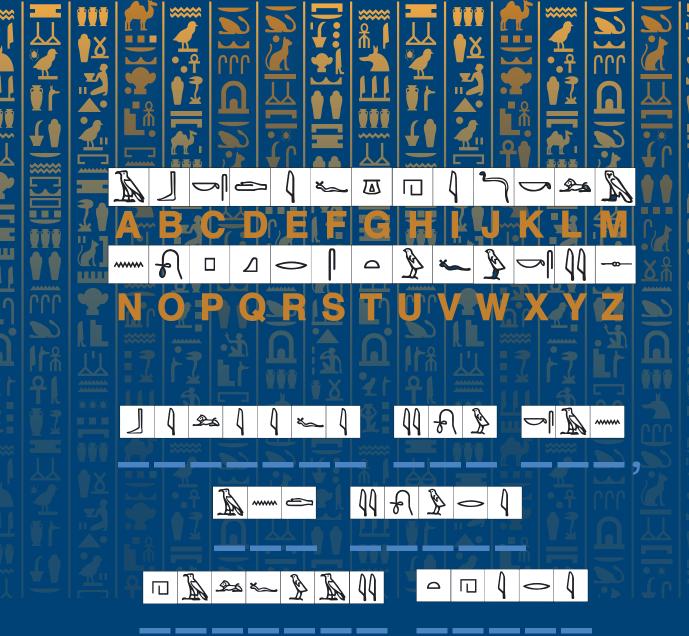






Enjoy the hot air balloon experience with watching the sun rise over the ancient city of Luxor





CANYOU CRACK THE CODE?





ICPC World Finals 2023 Host Venue

Jolie Ville Resort & SPA Kings Island Luxor is located on the serene Kings Island in Luxor, Egypt. Jolie Ville Resort & SPA Kings Island is not just a luxurious retreat but also a venue that perfectly blends modern comfort with ancient charm. Set against a backdrop of lush greenery and overlooking the majestic Nile River, the resort provides a picturesque setting that is poised to host the prestigious venue for the International Collegiate Programming Contest (ICPC) 2023.

As a beacon of sophistication, Jolie Ville Resort & SPA promises an unparalleled experience for participants and attendees. The resort's expansive grounds, adorned with spacious gardens, create an oasis of tranquility and natural beauty. Towering palm trees and diverse plantations, some aged over 50 years and named after cherished repeat guests, further enhance the enchanting atmosphere, giving the entire island a heavenly appearance.

The decision to host the ICPC 2023 at Jolie Ville Resort & SPA Kings Island underscores the commitment to providing an environment that stimulates academic excellence while embracing the rich historical context of Luxor.

Jolie Ville Resort & SPA Kings Island Luxor, with its captivating surroundings and commitment to excellence, is poised to elevate the ICPC 2023 into a memorable and intellectually inspiring event, seamlessly merging academic pursuits with the timeless charm of Luxor.





ICPC World Finals Luxor 5



Think. Create. Solve. Connect.

Connect to the conversation.



news.icpc.global







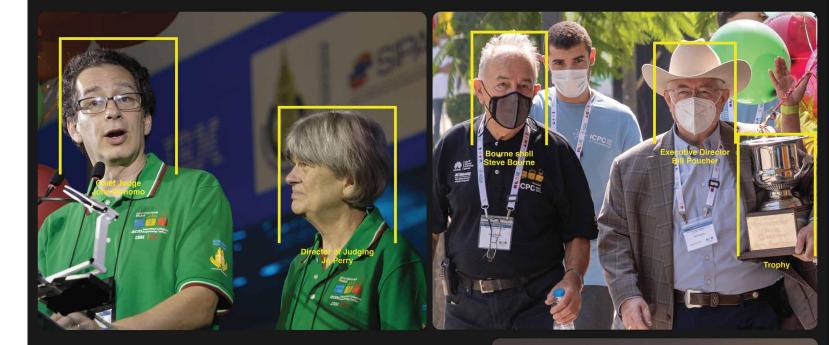


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OFFICIAL PHOTO GALLERY

Find and tag your team!

news.icpc.global/gallery









ICPC WORLD FINALS 2023 HOTELS



ICPC World Finals 2023 Hotels

01 Steigenberger Resort Achti

Steigenberger Resort Achti is superbly located in the heart of Luxor, offering a quiet and secluded retreat amidst eight acres of lush tropical gardens. Situated directly on the east bank of the Nile. Its strategic location makes it an ideal starting point for exploring the Nile and the surrounding countryside. The hotel is less than 3 km from the center of Luxor, 2 km from Luxor Temple and the Mummification Museum, and 3 km from Luxor Museum.

Location: bit.ly/SteigenbergerResortAchti

Swimming Pools:

The resort features two heated outdoor pools with waterfalls and a whirlpool, providing a relaxing environment.

Leisure Facilities:

Guests can enjoy amenities such as jogging track, minicrocket, and a volleyball court.

Direct access to the Nile allows guests to explore the scenic river and its surroundings.

Location Convenience:

Luxor International Airport is conveniently located 12 km from the hotel, ensuring ease of access for arriving and departing guests.





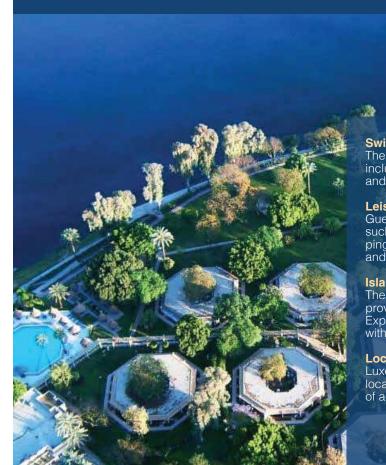




02 Jolie Ville Hotel & Spa Kings Island Luxor

Jolie Ville Hotel & Spa Kings Island Luxor is a luxurious resort located on a private island, offering an oasis of unblemished beauty and tranquility. Situated on Kings Island, the hotel is surrounded by 150 acres of spacious gardens and expansive landscapes overlooking the majestic Nile River. The island is adorned with a diverse array of plantations and trees, some aged over 50 years and named after regular guests, creating a heavenly

Location: bit.ly/JolieVilleLuxor



Swimming Pools: The hotel boasts 3 outdoor swimming pools, including an infinity-edge pool with Nile views and a water cannon.

Leisure Facilities:

Guests can enjoy various leisure facilities, such as 4 tennis courts, a mini aqua park, ping pong, chess, a well-equipped gym,

Island Attractions:

The island is surrounded by the Nile River, providing a unique and picturesque setting. Explore the mini zoo for a delightful encounter with various animals.

Location Convenience:

Luxor International Airport is conveniently located 14 km from the hotel, ensuring ease of access for arriving and departing guests.

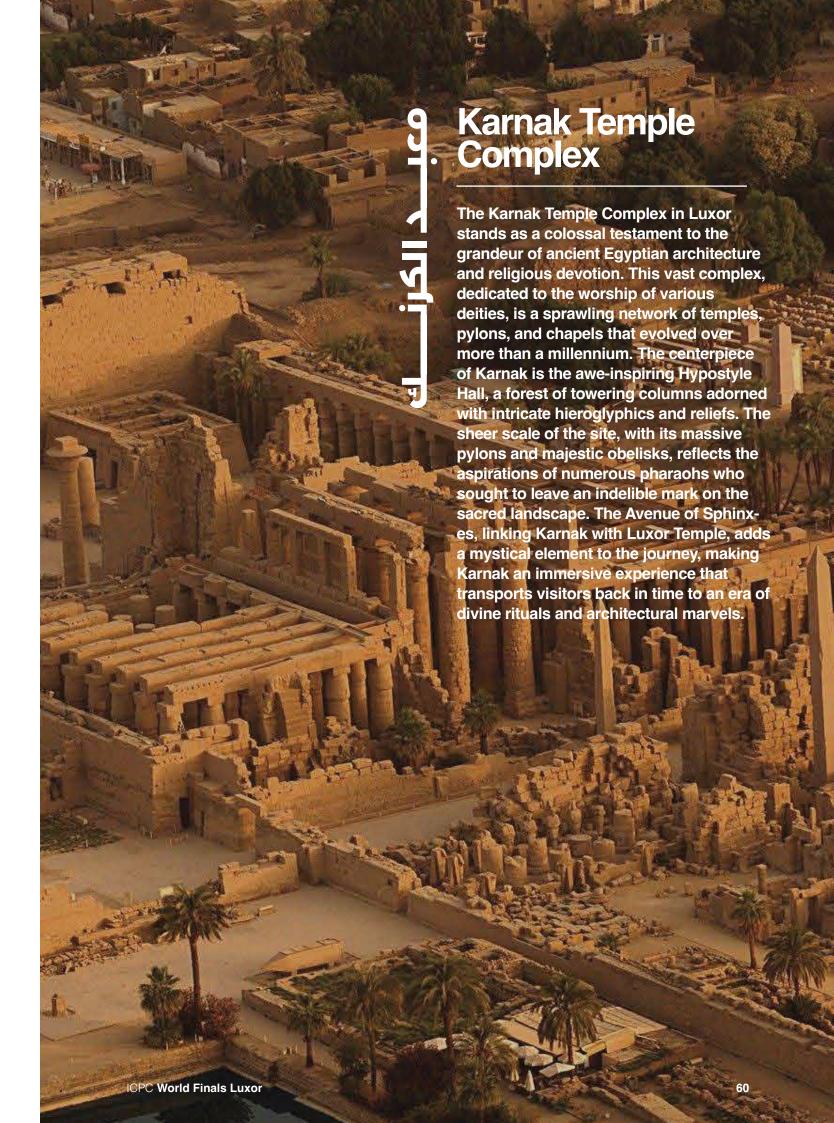




ICPC WORLD FINALS 2023 HOTELS







ICPC World Finals Luxor 59

The 2023 ICPC World Finals | Luxor

icpc challenge







The ICPC Challenge powered by Huawei provides an opportunity for the ICPC community to experience training, practice and performance in new problem areas that showcase emerging technologies addressing contemporary issues. The Challenge fosters extra-curricular development of university students, faculty, and alumni. We look forward to seeing all teams and coaches during the Challenge on April 16, 2024.

IN LUXOR

at the 2023 ICPC World Finals on **April 16, 2024** from **13:30 –16:30**. Location: Jolie Ville Kings Island – World Finals Team Area

Join us for a joint scheduling Challenge involving primary and secondary carriers to optimize the perceived rate of an entire network.

Amazing Huawei gifts will be awarded to top challenge participants!

AND...

AT HOME

Online Marathon from **May 6 – 20, 2024** 15:00 UTC.

Open to all participants globally for 15 days! Solve an algorithmic problem from the industry, gain more knowledge, and experience the marathon spirit.



Compete for a chance to win Huawei prizes... no matter where you live!













global sponsors













local gold sponsor



local sponsors





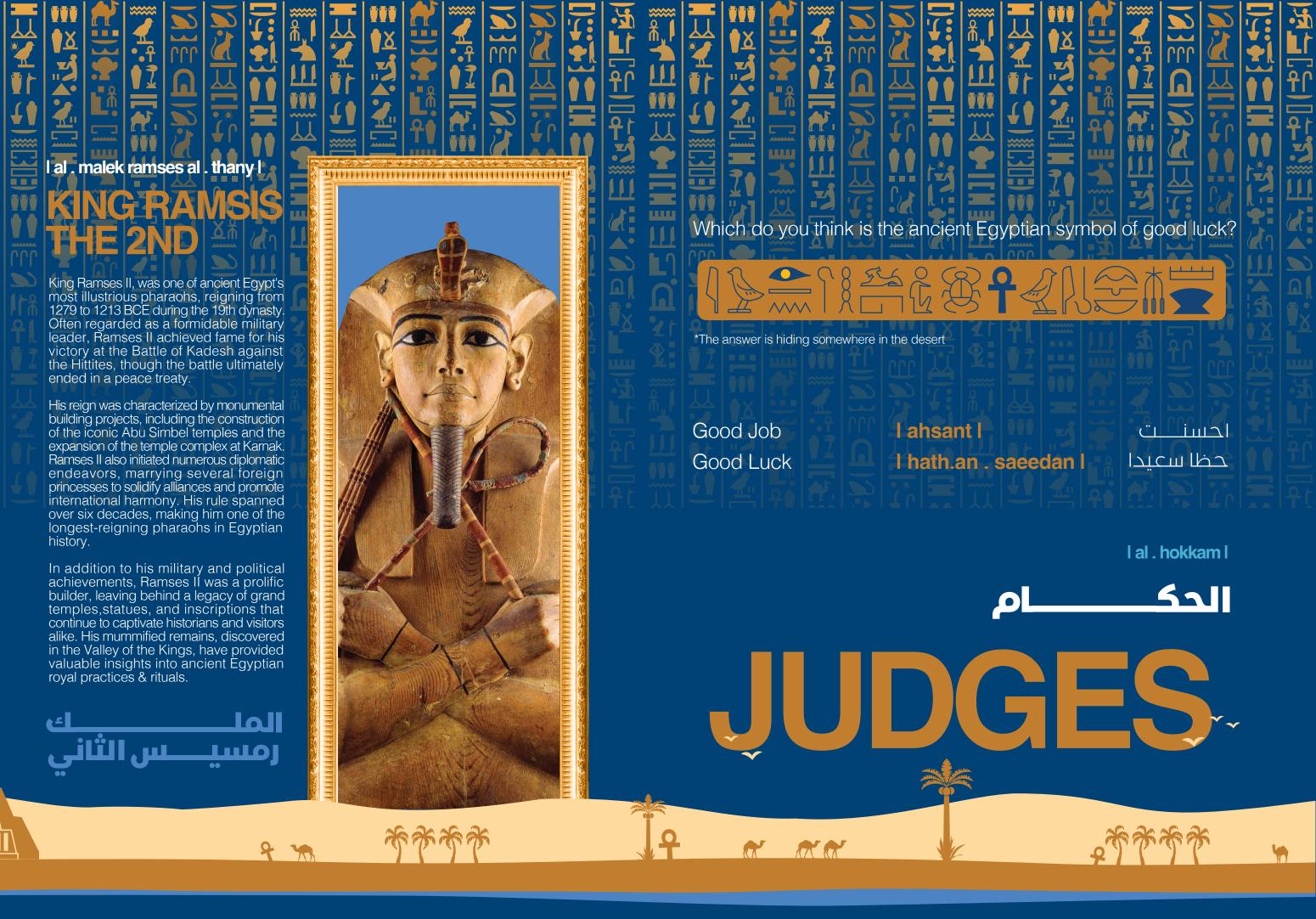












ICPC WORLD FINALS 2023 JUDGES



ICPC WORLD FINALS 2023 JUDGES





Jo Perry

NC State University

Director of Judging since 2010; World Finals judge since 1988.

"Our aim as judges is to challenge you for 5 straight hours. We hope you will not only excel but also delight in that challenge. The best of luck and the best of times to all of you!"



John Bonomo

Westminster College

World Finals Chief Judge since 2010; World Finals judge since 2002

"Good luck to all the teams. Here's where all your hard work will pay off! And don't forget – owl be watching you!"



Matthias Ruhl

World Finals judge since 1997

"Good luck in the contest! Don't let the code bugs bite. And the best wishes for your future careers! This is an exciting time to be in computer science - learn as much as you can, build something great and change the world!"



Derek Kisman

Apple

World Finals judge since 2004

"Practice outside your comfort zone, and your comfort zone will grow..."



Michal Svagerka

HFT crypto startup / ETH Zürich

World Finals judge since 2019

"Everything can be solved in O(1) when the input is bounded."



Per Austrin

KTH Royal Institute of Technology, Stockholm

World Finals judge since 2008

"DON'T PANIC"

ICPC World Finals Luxor 69 ICPC World Finals Luxor 70

ICPC WORLD FINALS 2023 JUDGES



ICPC WORLD FINALS 2023 JUDGES





Paul Wild

University of Erlangen-Nürnberg

World Finals judge since 2023

"Programs are proofs, and programming is proving."



Yujie An

Google

World Finals judge since 2022

"Start with a simple approach, and add optimizations. Keep an open mind, and never give up."



Onufry Wojtaszczyk

Google

World Finals judge since 2011

"Being a finalist of the ICPC World Finals is a proof of skill, dedication, and perseverance, it means you have what it takes to change the world. Use this ability to change it in ways that matter - to help those who need help, to stand on the side of the victim, and against the attacker, to support good causes over bad ones. And also use this to have fun, challenge yourself and others, and enjoy the adventure!"

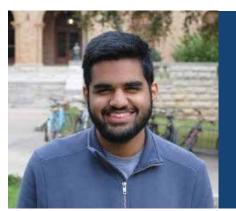


Martin Kacer

Czech Technical University in Prague

World Finals judge since 2003

"Do not forget to have fun and enjoy this week, as it is going to be a great one — even if you do not win. And if you win — what a nice bonus!."



Arnav Sastry

Jump Trading

World Finals judge since 2020

"As the problems get harder, the teamwork becomes more important. Good luck, and have fun!"



Bob Roos

Allegheny College, retired

World Finals judge since 1996

"Meet and talk to as many people as you can! Take lots of photos! Tweet, post, and blog about your experiences! Be proud—after all, you worked hard to get here. But also be humble. Lots of people helped you—your teachers, your coaches, your teammates, and many, many others. Good luck in the contest, but remember that you're already a winner!"

ICPC World Finals Luxor 72

ICPC WORLD FINALS 2023 JUDGES





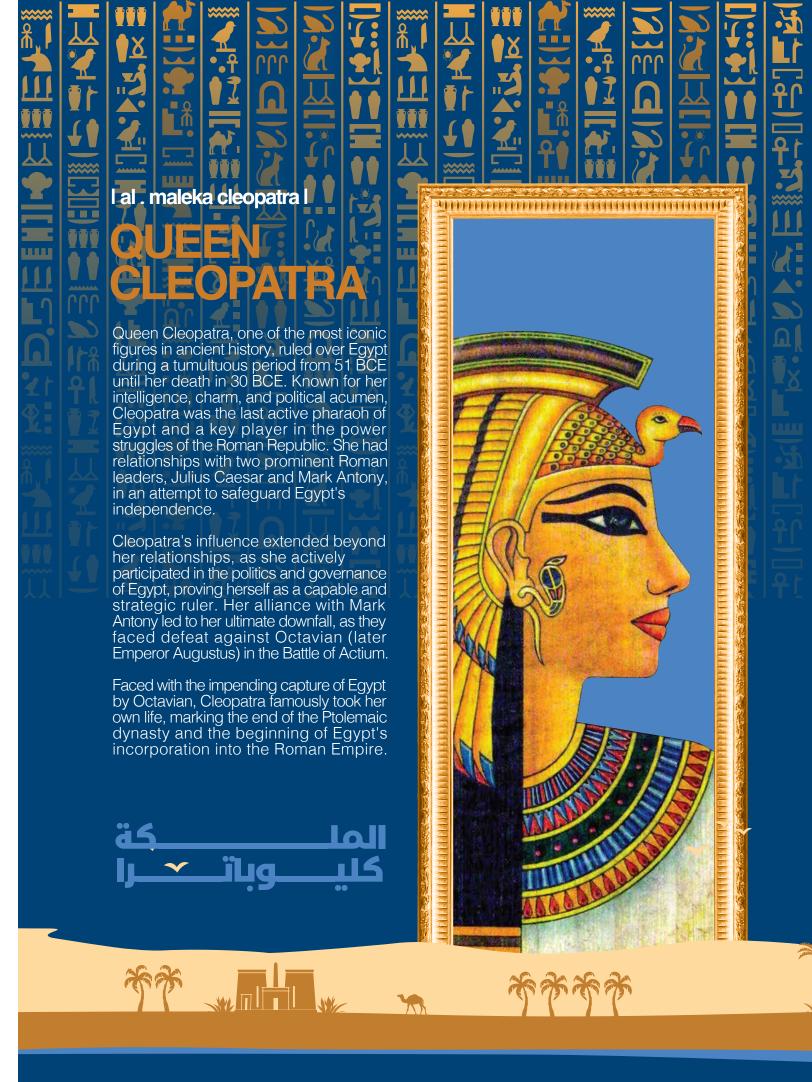
Federico Glaudo

Institute for Advanced Study and Princeton University

World Finals judge since 2023

"Let the ICPC finals be a wonderful memory for you."

If you would like to be considered as a future ICPC World Finals Judge, please reach out to *jo.perry@gmail.com* for problem submission guidelines

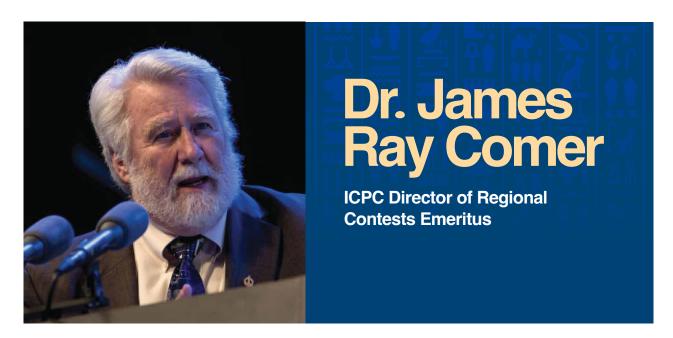


ICPC World Finals Luxor 73 ICPC World Finals Luxor 74





IN LOVING MEMORY OF



There are no appropriate words to adequately express our thanks and the worldwide appreciation of the ICPC Community to Dr. James Comer. He faithfully served the ICPC as co-founder and in every major role for over 45 years. He was a mainstay and pioneer of the UPE Honor Society. A trustworthy advisor and treasured friend, James supported students of programming in hundreds of countries and in many capacities. Dr. Comer inspired thousands of regional and World Finals volunteers over a lifetime of dedicated service to the ICPC Community. His efforts encouraged local and regional contests to grow and spread globally and inspired our ICPC Family worldwide. Dr. Comer will live in our hearts forever

- Bill Poucher



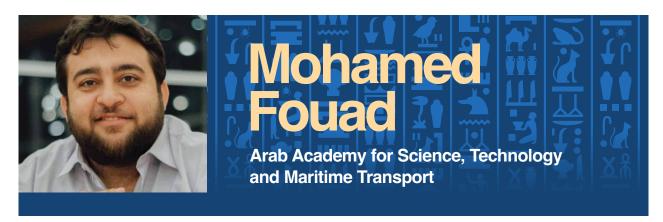
ICPC World Finals Luxor 75 ICPC World Finals Luxor 76





The ICPC Foundation Mark Measures Distinguished Service Award

Presented to



For ICPC leadership in ICPC Africa & Arab Region: enabling opportunities for students of the ICPC since 2007, championing the art and science of competitive programming among universities in ICPC Countries in Africa, serving as ACPC Executive Director, organizing regional competitions, engaging community leadership in support of ICPC programs, and championing ICPC Programs. In service and spirit, Mohamed Fouad embodies the ideals of the ICPC.

The Mark Measures Distinguished Service Award is presented annually to a person or group who has played an instrumental role in the success of the ICPC for fifteen or more years.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

ICPC World Finals Luxor 77 ICPC World Finals Luxor



ICPC LEADERSHIP AWARDS



The ICPC Foundation Joseph S. DeBlasi Outstanding Contribution Award

Presented to



For his tireless dedication to mentoring, championing, and hosting ICPC Africa and Arab Region competitions and leadership which has expanded to the largest, most accessible ICPC Region in the world. These ACPC competitions and workshops provide open doors for over 20,000 gifted students as they pursue excellence through competitive programming. In particular, AASTMT hosts the ECPC in Alexandria, Egypt, for 7,500 students throughout Egypt, the largest on-site competition in the World.

The Joseph S. DeBlasi Outstanding Contribution Award is presented annually to a person or group who has played an instrumental role in the success of the ICPC for five or more years.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation Joseph S. DeBlasi Outstanding Contribution Award

Presented to





For advancing the art and science of computing in the classroom and through ICPC Regional Competitions in Africa & Arab Region and providing gifted students in ACPC and around the globe opportunities to pursue excellence through competitive programming. ACPC volunteers have provided training and ICPC competitions culminating in hosting the ICPC World Finals in Luxor.

The Joseph S. DeBlasi Outstanding Contribution Award is presented annually to a person or group who has played an instrumental role in the success of the ICPC for five or more years.





The ICPC Foundation

James Comer Distinguished Regional Contest Director Award

Presented to



For inspiring students of the ICPC, advancing excellence in the software arts, serving on the international regional leadership team, and the ICPC Global Steering Committee since 2017. Director Ismail has played a critical role by enabling opportunities for computing students in the ICPC Africa & Arab Region. During his period of service, the ACPC has become the largest ICPC Region in the world.

The James Comer Distinguished Regional Contest Director Award is presented annually to an ICPC regional leader who has played instrumental roles in the success of the International Collegiate Programming Contest for twenty or more years.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation

James Comer Distinguished Regional Contest Director Award

Presented to



For leadership and mentoring the ICPC Africa & Arab Region community, serving as Chairman of its Steering Committee and serving on the ICPC Global Executive Committee, connecting students to the ICPC global community, advancing excellence in the software arts. Yousry el-Gamal has played a critical role by enabling opportunities for computing students in the ICPC Africa & Arab Region in his advocacy for the ICPC World Finals in Luxor, globally.

The James Comer Distinguished Regional Contest Director Award is presented annually to an ICPC regional leader who has played instrumental roles in the success of the International Collegiate Programming Contest for twenty or more years.



ICPC LEADERSHIP AWARDS



The ICPC Foundation

C.J. Hwang Distinguished Regional Leadership Awards

Presented to



For inspiring students of the ICPC, advancing excellence in the software arts, and for service on the ICPC International Steering Committee. Director Ismail has played a critical role by enabling opportunities for computing students in the ICPC Africa & Arab Region since 2009.

The C.J. Hwang Distinguished Regional Leadership Award is presented annually to a group of ICPC regional leaders who have played instrumental roles in the success of the International Collegiate Programming Contest.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation Outstanding Global Service Award

Presented to





For serving as Diamond ICPC World Finals Sponsor, powering the ICPC World Finals Challenge, supporting ICPC Regionals throughout multiple ICPC Regions, and enabling the development of free workshops to engage the talent capable of developing engines of prosperity and mission-critical platforms in service to communities globally.

The ICPC Foundation Global Service Award is presented for global contributions to the success of the International Collegiate Programming Contest global community in keeping with the mission of the ICPC Foundation to advance the art and sport of competitive programming.



ICPC LEADERSHIP AWARDS



The ICPC Foundation

Outstanding International Contribution Award

Presented to





For the sustaining uplift and expansion of ICPc Challenges, internationally, in the finest ICPC traditions of hospitality and excellence.

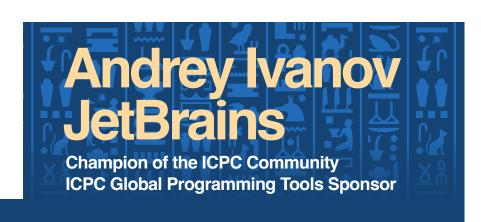
The ICPC Foundation Outstanding International Contribution Award is presented to an individual or group that has played an instrumental role in the success of advancing the art and science of competitive programming through support of the International Collegiate Programming Contest.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation Outstanding Global Service Award

Presented to





For serving as ICPC Global Programming Tools Sponsor, for providing outstanding programming tools for the ICPC global community, for sponsoring ICPC Regional and World Championship Contests, for generous support for the ICPC World Finals Luxor, and championing the ICPC community.

The ICPC Foundation Global Service Award is presented for global contributions to the success of the International Collegiate Programming Contest global community in keeping with the mission of the ICPC Foundation to advance the art and sport of competitive programming.



ICPC LEADERSHIP AWARDS



The ICPC Foundation

Outstanding International Contribution Award

Presented to





For serving the Africa & Arab Region, for providing outstanding educational opportunities for the ICPC global community, for supporting emerging leaders in computing, for their generous support of ACPC Contests, and for their championship of the ICPC community.

The ICPC Foundation Outstanding International Contribution Award is presented to an individual or group that has played an instrumental role in the success of advancing the art and science of competitive programming through support of the International Collegiate Programming Contest.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation

Outstanding International Contribution Award

Presented to





For serving as ICPC Venture Fund Partner, for providing outstanding educational opportunities for the ICPC global community, for supporting emerging leaders in computing, for their generous support for the ICPC Foundation, and their championship of the ICPC community.

The ICPC Foundation Outstanding International Contribution Award is presented to an individual or group that has played an instrumental role in the success of advancing the art and science of competitive programming through support of the International Collegiate Programming Contest.



ICPC LEADERSHIP AWARDS



The ICPC Foundation

Outstanding International Contribution Award

Presented to



For serving as a principal partner and advocate for the ICPC World Finals Luxor by drawing together community, industry, and academia to secure the resources and support that opens doors of opportunity for students in science, mathematics, and technology - in Egypt and globally.

The ICPC Foundation Outstanding International Contribution Award is presented to an individual or group that has played an instrumental role in the success of advancing the art and science of competitive programming through support of the International Collegiate Programming Contest.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation Outstanding International Contribution Award

Presented to





For serving as a principal champion and leadership of an ICPC global leading academic institution and for drawing together community, industry, and academia to secure and assure the global success of the ICPC World Finals Luxor.

The ICPC Foundation Outstanding International Contribution Award is presented to an individual or group that has played an instrumental role in the success of advancing the art and science of competitive programming through support of the International Collegiate Programming Contest.



ICPC LEADERSHIP AWARDS



The ICPC Foundation

Outstanding International Contribution Award

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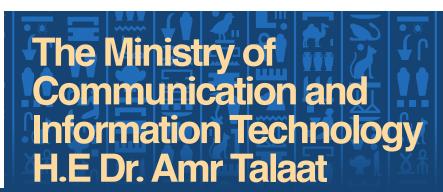
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Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

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Presented to





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The ICPC Foundation Outstanding International Contribution Award is presented to an individual or group that has played an instrumental role in the success of advancing the art and science of competitive programming through support of the International Collegiate Programming Contest.



The ICPC Foundation Outstanding Community Engagement Award

Presented to

ICPC Africa & Arab Collegiate
Programming Contest for Girls Leadership
Amal Fayed, Maroua Errai, Aziza Bakri,
Maha Sayed, Dina Mohamed

For leadership bringing together the leading academic institutions of ACPC in recognizing excellence among female computing students. The ICPC Africa and Arab Collegiate Programming Contest for Girls Leadership Team has inspired thousands of young students to reach a brighter future.

The ICPC Foundation Outstanding Community Engagement Award is presented to an individual or group that has played an instrumental role in the success of advancing the art and science of competitive programming through support of the International Collegiate Programming Contest.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt



ICPC World Finals Luxor





The ICPC Foundation Coaching Award

Presented to



For excellence in coaching, having advanced teams to the ICPC World Finals for 5 or more years.



For excellence in coaching, having advanced teams to the ICPC World Finals for 5 or more years.



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For excellence in coaching, having advanced teams to the ICPC World Finals for 5 or more years.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation Senior Coaching Award

Presented to



For excellence in coaching, having advanced teams to the ICPC World Finals for 15 or more years.





The ICPC Foundation Master Coaching Award

Presented to



For excellence in coaching, having advanced teams to the ICPC World Finals for 10 or more years.



For excellence in coaching, having advanced teams to the ICPC World Finals for 10 or more years.

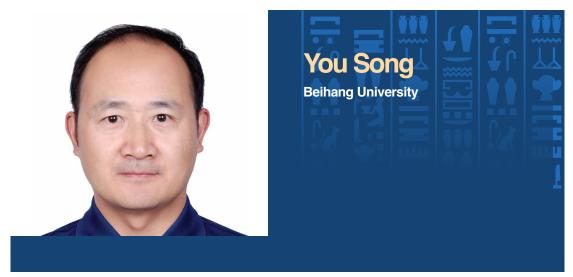
Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

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Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt

The ICPC Foundation Master Coaching Award

Presented to



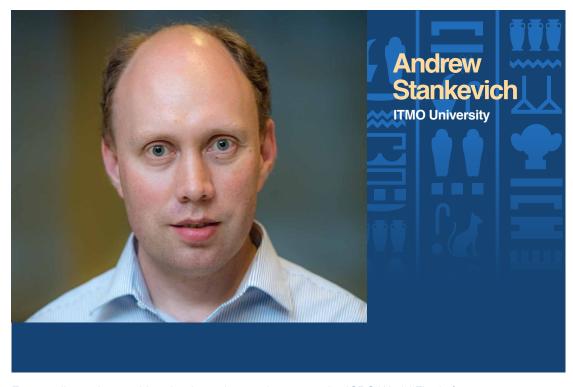
For excellence in coaching, having advanced teams to the ICPC World Finals for 10 or more years.





The ICPC Foundation Lifetime Coaching Award

Presented to



For excellence in coaching, having advanced teams to the ICPC World Finals for 20 or more years.

The ICPC Foundation Lifetime Coaching Award

Presented to



For excellence in coaching, having advanced teams to the ICPC World Finals for 20 or more years.

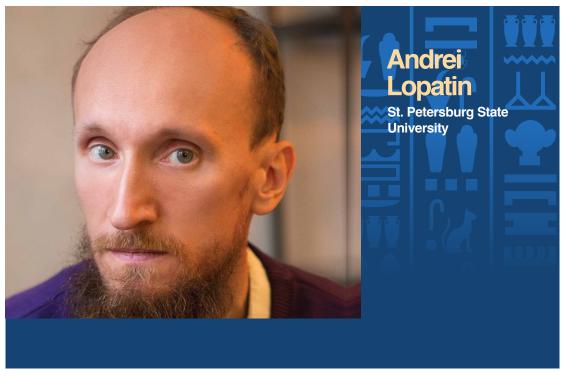
Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt





The ICPC Foundation Lifetime Coaching Award

Presented to



For excellence in coaching, having advanced teams to the ICPC World Finals for 20 or more years.

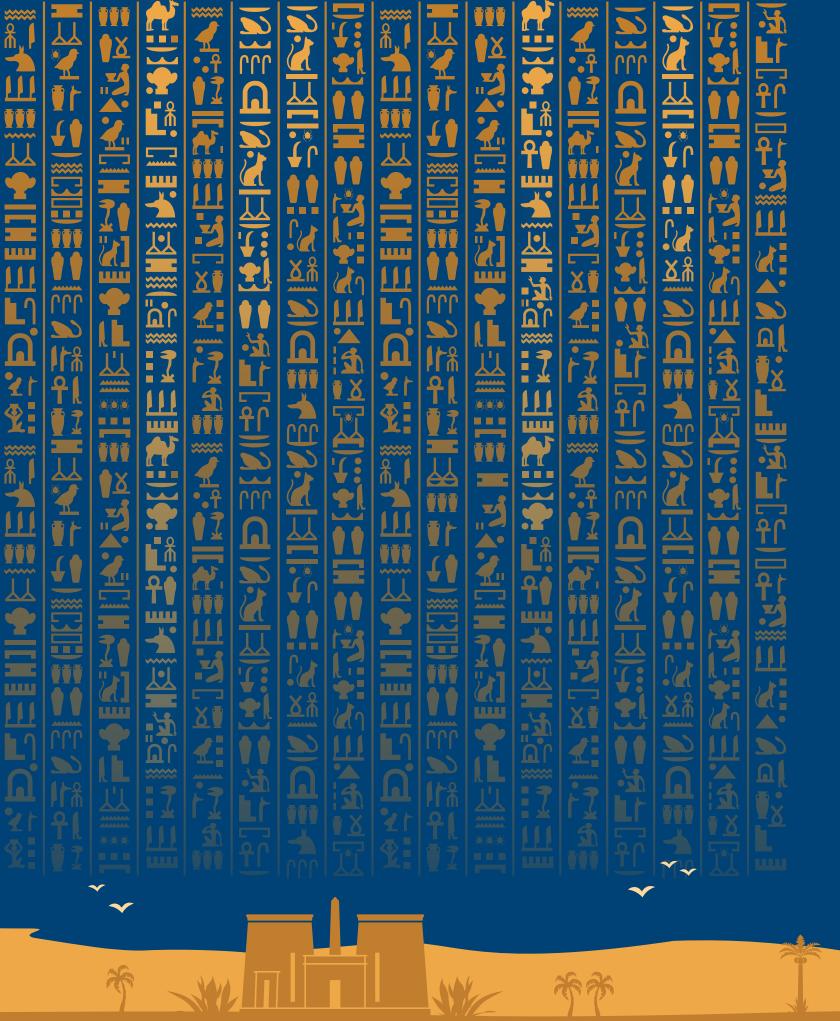
The ICPC Foundation Lifetime Coaching Award

Presented to



For excellence in coaching, having advanced teams to the ICPC World Finals for 20 or more years.

Presented at the ICPC World Finals 2023, April 2024 Luxor, Egypt



Thank You You're Welcome Grateful I shokran I I aafwan I I momtan I

SPECIAL THANKS





Brochure Committee Acknowledgements

ICPC Brochure Committee

Lisa Donahoo Melissa Elliott Lidia Perovskaya Kirsten Elliott Brianna Rowell Amanda Sturgill Bettina Johnson Veronika Soboleva Nija Mohan

Host Brochure Committee

Amira Sweilam Mahmoud Khaled Maha Sayed Fatima Yaser

Host Leaders Acknowledgements



Ossama Ismaeil World Finals Director



Mohamed Fouad Deputy World Finals Director



Amin Gamal Host F&B Coordinator



Adel Samir Host Director of Operartion



Yomna Ehab Host Manager



Mohamed Ayman Host Deputy Technical Director



Osama Hesham Host Deputy Head of Operation



Muhammad Ewaily Host Cermonies Coordinator



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Ahmed
Gamal
Host Transportation
Coordinator



Mohamed Shahin Host Excursion Coordinator



Mohamed Mahmoud Host Meeting Space Coordinator



Kareem
Tarek
Host Deputy Head of
Volunteers



Ahmed Lotfy Host Volunteers Coordinator



Abir
Haggag
ACPC Executive Office
Director

icoc.foundation



Amira
Swillam
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Ahmed Ramy
Host Head of Volunteers



Zizi
Tawil
Host Meeting Space
Deputy



Maha Sayed Host Guest Relations

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Maroua Errai Host Chill Zone Coordinator



Emy Ahmed Host Social Media Coordinator



Host Sponsors Coordinator

Dina
Mohamed

Coordinator

Host Social Media

Reham

Naim



Mohamed Mongy Host Press Coordinator



Ahmed El-Shennawy Host Press Coordinator



Islam Ali Host Media Coordinator



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Abdelrahman Ragab Host Sponsor coordinator









Ahmed Morsy **Host Operations**





Ahmed Ayman Host Executive Office







Dalia Elhefeny Host Operations

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Ibrahim Salah **Host System** Leader



Mohamed Ahmed Host Operations



Noor Hassan **Host Vendor**



Abdo Ahmed Masoud **Host Operations**

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Osama Host Operations







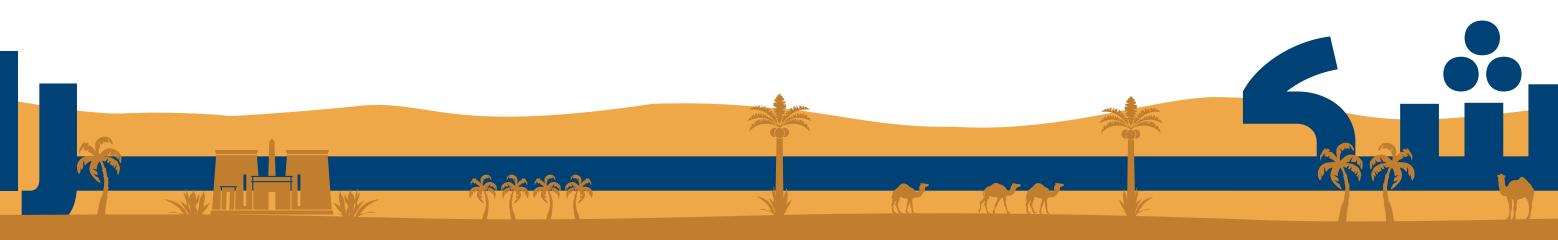


















Khaled Ahmed

Host System Team







Abdelhadi Radwan **Host System Leader**



Marco Magdi **Host System Team**



Moris Sameh **Host System Team**

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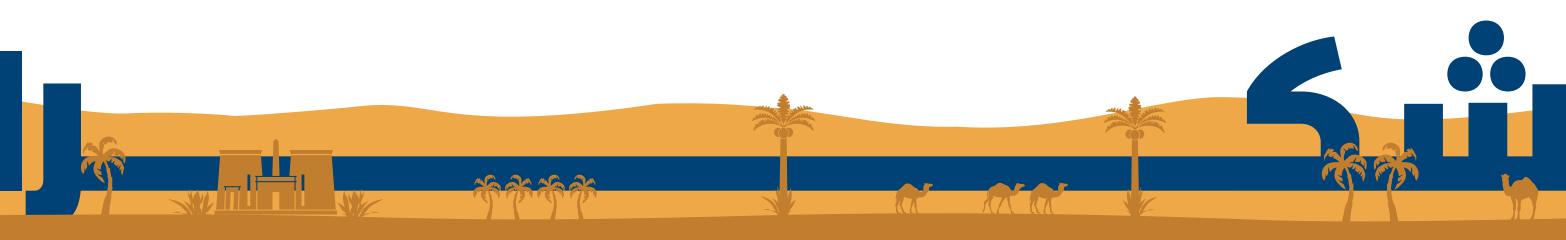
Host Media Team



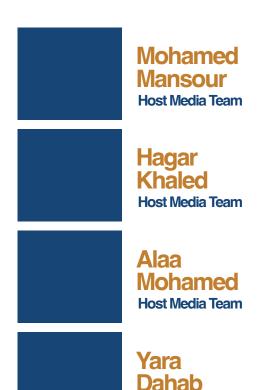












Host Media Team

AASTMT Leaders Acknowledgements



Ayman Ghoneim AASTMT President Assistant for Protocols and External Relations



Abir Farouk Mourad AASTMT Director of Corporate Communications & PR



Moataz **Khamis AASTMT Media** administration manager



Mohamed Sultan **AASTMT Director of** Media Department



Mohamed Abdel Aal AASTMT Director of the Networks and Computers



Iman Salah Eid AASTMT Head of websites Design dept.



El-sayed AASTMT Head of the Systems Management Department at the Network Center





Major Gen. Zakareia Nour AASTMT Representative of the Ministry of Communications



Ossama Ismaeil AASTMT Advisor to the President of the Academy for Informatics Affairs



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AASTMT Leaders Acknowledgements



Mohamed Abo Elazm AASTMT Dean of Student Affairs



Hady Maged Elhelou AASTMT Dean of Student Affairs - Cairo Campus



Ahmed Khalifa Mehanna AASTMT Associate Professor, Vice Dean of Student Affairs

Amr Ibrahim

Hassan



Affairs and Logistics

Mohamed
Farid Metwally

AASTMT Head of Material

AASTMT Director of Purchasing and Warehouses Department



Hassan Ali Hassan Salam AASTMT Head of Warehouse Department

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Mostafa Yousry
Attia

AASTMT Head of
Transportation Department



Abd Almonem Shams Eldin AASTMT Planning and Follow-up Department



Samer Elmasery AASTMT Director of Financial Affairs



Ibrahim

AASTMT Director of the Internal Control and Audit Department

Yasser Refaat

AASTMT Leaders Acknowledgements



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AASTMT Director of Accounts Department, Financial Affairs



Ahmed Khamis El-Shennawy

AASTMT Acting Dean of the Regional Informatics Center



Mohamed Fouad

Head of the Software Department at the Regional Informatics Center



Mohamed Mongy Saad

Engineer at the Regional Informatics Center



Ayman Taher Ghoneim

AASTMT Protocol & Public Relation Director



AASTMT Director of the Academy's President's Office in Cairo



AASTMT Director of Protocol and Public Relations Department, Cairo Branch

Rouayda El Omari

AASTMT Manager of the Coordination and Follow-up Department for the Presidential Affairs

Yasser Farouk El-Rashidy

AASTMT Acting Director of Banquets and Conferences Department



Omnia Mahmoud Darwish

AASTMT Director of Sustainable Development







AASTMT Leaders Acknowledgements



Mohamed Youssef **AASTMT President's** Advisor



Amr Alv **AASTMT Media and Press Team**



Mohammed Eraky AASTMT Media and Press Team



Farah Fouad AASTMT Protocol

Officer



AASTMT Protocol Officer



Bassem Ali **AASTMT Media and Press Team**

Host Volunteers Acknowledgements

Aly Maher Mansour Amr Mustafa Salah Mustafa Mohamed Abdulrahim Mohamed Belal Abdelmoamen Mohamed Farah Mohammed Abdrabo Madona Atef Fayez

Amr Khaled Hassan Eslam Ashraf Mohamed Nada Ashraf Abdelaziz Taha Rahma Khaled Abdelmordy

Ahmed Elsayed Mohamed Mohamed Marddy Shakra Elsayed Osama Elsayed Shosha

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Omar Elgedawy Aceel Fouad

Mohammed Soliman Soliman

Ahmed Fouad

Begad Ahmed Elfackrany

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Moataz Mohamed Awod

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Asmaa Bahnasy

Amr Ashraf Omar

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Salma Khaled El-Sayed

Salma Waleed

Toka Ismail Mohamed Ismail

Arwa Ahmed Mostafa Shazly

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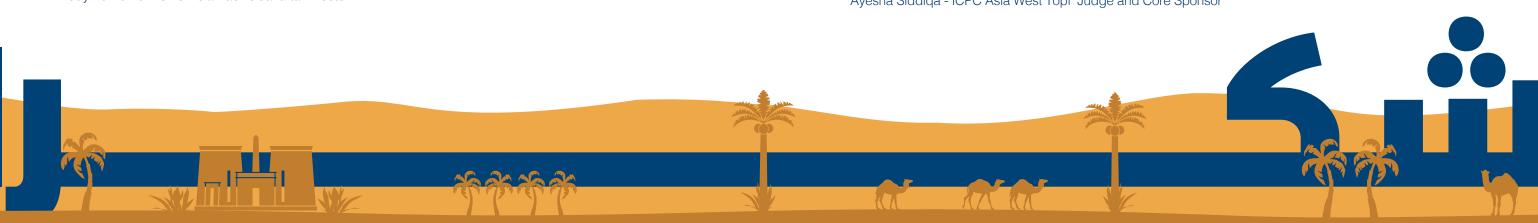
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