TECHARENA

TOP CONTEST
TOP TALENT

Huawei's contribution to the international contest community.

HUAWEI

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WHO

IS

HUAWEI

Songshan Lake Campus

Founded in 1987, Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. We have **207,000 employees** and operate in over **170 countries** and regions, serving more than three billion people around the world. We are committed to bringing digital to every person, home and organization for a fully connected, intelligent world.

977.3 billion

Total R&D investment over the last decade now exceeds CNY977.3 billion

25.1%

In 2022, our total R&D spending was CNY161.5 billion, representing 25.1% of total revenue

55.4%

At the end of 2022, 114,000+ employees, or 55.4% of our workforce, worked in R&D

120,000+

By the end of 2022, Huawei held a total of 120,000+ active patents

HUAWEI

Scientific exploration and technological innovation drive civilization and society forward. Huawei understands the importance of research and innovation and how openness is critical for both. We are ready and willing to work with academia and industry to explore the frontiers of science and technology, push innovation forward, create value for industry and society as a whole, and build a better intelligent world.

In 2022, Huawei was ranked as the world's 23rd best employer by Forbes. In 2023, Huawei has been certified as a "Top Employer" by global certification organization Top Employers Institute in over 40 countries, including Egypt, Ghana and Morocco in Africa, France, Sweden, UK and Belgium in Europe, and Mexico and Brazil in Latin America region.

Watch Video

top EMPLOYER

EUROPE 2023

CERTIFIED EXCELLENCE IN EMPLOYEE CONDITIONS

HUAWEI & CONTESTS

Huawei is committed to providing talent with development platforms across the globe to help them improve their skills. We endeavor to create a space between **industry and academia** where students can learn new ways to apply their academic knowledge to solve real-world challenges. We believe contests can serve as an excellent platform to stimulate great ideas that drive **scientific and technological progress**.

e of Technology

icpc.foundation

the 45th annual

icpc World Finals

UAP

Dhaka

think.create.solve

2023 ICPC Training Camp

`#include <stdio.h>`

powered by

For More Details

`return 0;`

`}`

ICPC CHALLENGE POWERED BY HUAWEI

TARGET AUDIENCE

ICPC participants, university students worldwide, and other people with an interest in software and algorithm creation.

INTRODUCTION

The International Collegiate Programming Contest (ICPC) is the world's largest and most influential programming contest. The ICPC Challenge powered by Huawei is organized by the ICPC in collaboration with Huawei. This contest presents participants with real-world industrial challenges, giving them access to cutting-edge research topics and industrial knowledge.

PROGRESS

Since 2020, Huawei has become the ICPC Diamond World Finals Sponsor, and has also sponsored multiple regional competitions. To date, Huawei has powered several contests and events of ICPC. Some recent examples include the ICPC Task Scheduling and Data Assignment Challenge, the ICPC Buffer Sharing in the Multi-tenant Database Environment Challenge, and ICPC Parameterized Branch Instruction Stream Generation Challenge. These challenges have received great feedbacks from STEM students across the globe. Some Challenges would attract 194,000 participants maximum. Huawei will continue working with the ICPC to provide more learning and training opportunities for talent from across the globe.

10,000

Some challenges can attract more than 10,000 participants.

TECH ARENA

TARGET AUDIENCE

Undergraduates, postgraduates, and PhD students

INTRODUCTION

Initiated in 2017, Tech Arena, formerly known as Huawei European University Challenge program, is a competition intended to offer industrial knowledge and opportunities to university students and any young people with an interest in science and research, algorithms, software, and STEM subjects. Program participants can gain access to the industry's most challenging topics, attend expert lectures, and exchange ideas with likeminded individuals. Through Huawei's local research centers, this program is available to students at universities in countries such as

Belgium, France, Germany, Sweden, UK, Switzerland, and Italy. The themes of the program include cutting-edge topics related to ICT, such as AI, material technology, and autonomous driving.

PROGRESS

By the end of 2022, more than 5400 students from over 52 universities across more than 11 countries had participated in the program. About 502 of these received awards. Huawei had also provided more than 3.38 million dollars in sponsorships by this date. During the academic year 2023–2024, at least ten competitions will be held under the Tech Arena program.

TECHΔRENΔ

5400 / 52

More than 5400 students from over 52 universities across more than 11 countries had participated in the program.

3.38 million

More than 3.38 million dollars in sponsorships by this date.

For More Details

HUAWEI
ICT Competition

The Huawei ICT Competition is held every year to provide university students worldwide with an international platform to compete and exchange ideas with each other, enhancing their ICT knowledge and practical skills, and giving them opportunities to innovate with new technologies and platforms. The competition tests students in various categories, including theoretical knowledge and the application of AI, IoT, big data, cloud, and other technologies to solve real-world problems.
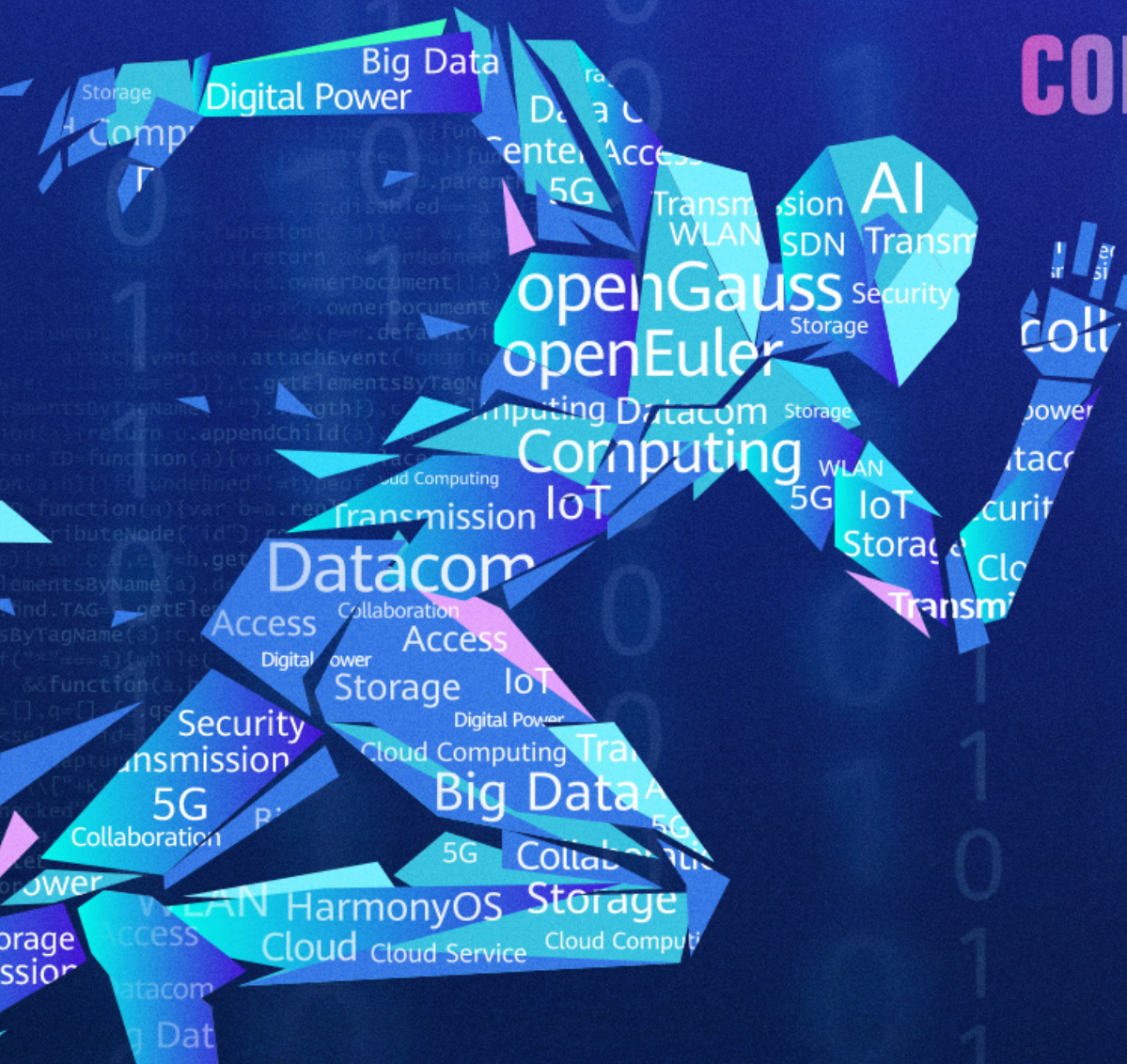
In the latest competition started in 2021, more than 150,000 university students from over 2,000 universities across 85 countries and regions have participated.

150,000 / 85

150,000 university students from over 2,000 universities across 85 countries and regions

CONNECTION
GLORY
FUTURE

For More Details

INSPIRATION TALK

"

Simply put, talent development and innovation in digital infrastructure will further **accelerate** Asia's **digital economy.**

"

Ren Zhengfei

BOD Director, CEO, Huawei

"

Huawei should publish the company's most pressing questions to the world, meaning the cutting-edge questions that we want to tackle and the explorations we want to make into future science and technology. All global talent and Huawei employees are welcome to **tackle the world-class questions** we face and make progress together.

"

Catherine Chen

Executive Member of the Supervisory Board, Huawei

"

Huawei will continue to **sponsor** contests & boot camps, providing professional **coaching** to the ICPC community. We would also like to share with all of you real-world industrial problems. Together, we could learn & grow through ICPC, and **drive technological progress!**

"

William Xu

Director, Chair of Huawei's Scientist Advisory Committee

"

Huawei currently identifies and cultivates its top talent by supporting international tech competitions, both financially and by supplying these competitions with technical challenges. These competitions also **expand the horizons of participating students** as they have the opportunity to put theory into practice.

"

Zhou Hong

President of Huawei's Institute of Strategic Research

FRONT

We are going to witness the stories of three people who competed in contests either sponsored or held by Huawei. Some of these former contestants are now working with the company on cutting-edge technologies.
Let's hear their stories.

RUNNERS

Q: How did you develop interest in programming in the first place?

A: As a kid in middle school, like many others, I fancied computer games. Somehow, at a certain point, I had this idea to make one, so I managed to find some tutorials online to learn about programming. That's how I began to code small projects. Later, my teacher found out I was already familiar with coding and recommended I try competitive programming in school, and I actually won and advanced to a regional contest, which was held with a training camp. During the camp, when I was solving more challenging problems, I started to see the beauty behind the programming competition and developed a deep interest in solving problems. After tons of practice, I made it to the national Olympiad, and a few years later, to the International Olympiad in Informatics. When I enrolled in college, I participated in ICPC, where my team won first place in SEERC and advanced to the 2022 World Finals.

Q: Were you satisfied with your performance in competitions?

A: One thing about competition is that it's very hard to be satisfied with your results. Actually, the satisfaction doesn't derive from your rankings or a score on the board. I wasn't satisfied with my score at the time, but now I think what I achieved was decent.

The better mentality is to just be happy about yourself.

Q: How did you manage to win top place in a regional final on your first try?

A: The most important factor in group competition is strategy. Strategy matters significantly more if the competition is longer. Our team had 15 human hours, but only 5 computer hours. With this constraint, we needed to solve problems in a way that could win us the most points. I remembered there was another quite impressive team in terms of their strong skillset, but my team eventually outperformed them because of our strategy. Our strategy was not perfect, but we were relentless in refining it. It's hard to make accurate statements about competition experience. Having to solve 3 problems in the last hour was not very good. It was kind of an indicator that we had failed to manage our time well at the start, but we fixed our strategy by the end. I don't know how to phrase it well.

Also, without doubt, participants' individual skill level is also very important. I was very lucky to team up with two very strong contestants. One of them competed in the International Olympiad in Informatics. The other won the National Olympiad but got unlucky at the team selection camp. It's worth mentioning that both of my teammates were really smart and persistent. I recall vividly that one of them came up with a weird solution to a difficult problem at the ICPC regional, and it wasn't clear why it worked, but it did. He was so persistent and confident when facing the challenge, and we were all impressed by his dedication. No other team solved this problem.

Q: I heard that you are interning at Huawei now. How do you find it?

A: When I'm working here, I get to do a lot of longer implementation to test different interesting algorithms, it is the only way to find the best algorithm. For example, I need to navigate through a larger-size code set while ensuring the delivery is accurate, so I have to spend more time dealing with more complex situations. My endurance has definitely gone up. Also, I can feel my progress in writing cleaner and more concise code to solve more complicated problems or to implement harder ideas.

In addition, because I'm now working with algorithm performance optimization, I'm getting a deeper practical understanding of this subject, which is very useful in competitive programming.

Finally, when I work on larger projects, I'm getting a better sense of developing overall insights for the projects. I think about various aspects of a project, anticipate difficulties, and simulate implementation in my mind to come up with a better structured idea for execution. I'm glad that I get trained in bigger projects to develop these skills.

Kostiantyn SAVCHUK

Intern with Huawei

2021 ICPC SouthEastern Europe
Regional Contest (SEERC) first place

Antonio RUIZ

PhD researcher in a joint collaboration project between Huawei and Bielefeld University

Bronze and Silver medal in Mexican Olympiad in Informatics

3rd place in ICPC Regional Mexico and Central America 2012, 2nd place in 2013, and 1st place in 2014, two-time World Finalist (2014, 2015)

Q: Why do you like competitive programming?

A: Not necessarily the competitive kind. It was really satisfying to solve problems. I've always enjoyed math from a young age. I genuinely enjoy the process of peeling off the complexities wrapped over the problems.

Q: Is competitive programing popular in Latin America?

A: Saying from my personal experience, as I mostly competed around Mexico when I started, I think there were not that many people doing this. Back then, I used Pascal language for programming in the competition because my mentor liked it and recommended it for beginners. Years later, I also learnt C and C++.

Over the years, I have seen more and more people interested in programming contests. I actually feel pretty glad as there are more of us doing competitive programing. I was once a part-time coach at my university's ICPC club. One of my competitive programming friends wrote a book about competitive programming in English and Spanish to which I also contributed with one chapter.

Also, it is worth mentioning that now, there are more learning resources available for pre-high school students. And I see more programming competitions endeavoring to include more women in Mexico.

Q: Do you think activities such as the training camps offered by the ICPC foundation and its sponsors are helpful?

A: Definitely, during my contestant time, there were few organized training camps in my region. With growing numbers of these training camps, I think now the general skill level of contestants where I'm from has increased a lot. One of my friends and his team mates made it into the top 45th in the lastest ICPC World Finals, apart from placing 2nd in the whole Latin America region. You can see that people from my region are definitely progressing, and this is mostly thanks to all the local training camps. The communities are stronger than before.

Q: What are you researching with Huawei now?

A: I'm working on a collaborative PhD project between Huawei and Bielefeld University. Basically, my team's objective in Huawei is about building a next generation map. My research in this team is to build a lane-level route network from satellite images, and integrate it into a new generation map to make it more reliable. It's a crucial technology that can be used in navigation and autonomous driving.

42th ICPC World Finals 14th place in 2018

Joined Huawei in 2020, Storage Service Product Expert at Huawei Cloud

ZHENG Haohui

Q: 14th place at World Finals sounds quite impressive. How did you feel about this result?

A: My teammates and I felt a sense of regret upon learning the result. It's quite normal to feel this way after competing. The reality is no matter how good your result is, there's still space to improve. For example, you would think that you made some bad strategic decisions, or you suddenly have an epiphany about a better set of code to solve the questions. I think this mindset is also part of what's behind our achievements. Don't take it wrong; we took pride in that ranking. We just don't consider it our ultimate destination.

Q: Aside from improving your skills, what other things have you gained from competitive programming over the years?

A: To answer this, I believe we shouldn't only look at the technique side. Competing in ICPC has also given me chance to habituate my other skills. My college's ICPC society has this tradition that the best team needs to organize trainings, the logistics and lead other teams. One interesting thing our team made was to develop some software platforms to help the exchanges and learning between teammates. I think passing on the knowledge and methodology is really important. A majority of people don't get to start early, so they have to start from zero when they set foot in university, and these tools can make things easier for them, giving them a lift to cross over the threshold to a place where they could appreciate the charm of competitive programming.

Q: Why did you choose Huawei?

A: When I was job hunting, I gradually developed a determination to do something cutting-edge and challenging. Huawei is a pretty established company, and yet it's a newcomer in providing cloud services – one of the most red-hot services these days. Its cloud service is growing at a staggering speed, and as big as Huawei is, I believe it will encounter loads of challenging problems. As a matter of fact, after talking to many experts from Huawei during my interviews, things turned out to be exactly as I had anticipated. After I joined, I found out that Huawei has very comprehensive R&D platforms and tools, which allows my productivity to run at full speed. In addition, I was a bit surprised at how easy it is to break the department walls, to communicate ideas with some really senior experts from other departments. They usually give me really great advice. It's also quite transparent internally. We can view other departments' code and design files. This kind of integration of knowledge is crucial in terms of speeding up my working progress.

Q: What's your project?

A: Our project is called SMARTWASTE ROBOT, and it is an AI-based waste identification and collection Robot. We have developed this robot to address the challenges posed by non-biodegradable waste in our university campuses but scalable to cater for other scenarios and this is a significant environmental, health, and economic issue in our communities. Our project aims to contribute to effective waste management solutions, reduce environmental pollution, and create a more sustainable future for generations to come.

Q: Congratulations on winning the grand prize in 2022-23 ICT competition world finals, what are the key factors that made your guys win?

A: Thank you so much! Winning the grand prize in the 2022-23 ICT competition world finals was a tremendous achievement for our team. Several key factors contributed to our success: (A) Our Innovative Solution; (B) Scalability and Adaptability; (C) Training and Collaboration; (D) Teamwork. We are incredibly proud of our achievement and grateful for the recognition of our hard work and dedication.

Q: You have a very interesting academic background. You are actually a professional law student. What role did you play in your team? How did vou develop interest in tech?

A: My teammates and I basically did everything together, although we do have assignments. Making a robot is quite hard, and as a Non-STEM major student I needed to be there for every step to learn and contribute. So, from the fabrication, to using hardwires and setting up the codes to finally seeing it run, we three were all there for each other but not without the help of our instructor Mr. Aliyu Isa Elayo. He contributed intelligently with both talent, skill and experience. Also, both of my teammates are quite skilled in tech, but they also need me to contribute ideas, do the designs, and make the commercial plan and pitch most importantly.

Last year, there's this huge social trend in Nigeria that everyone seems to start embracing tech. But that's not my situation. I have always wanted to be a tech lawyer. It might be not so humble to say that I have always been in the top 1% in my class, but reality hit when I tried to find positions in the job market but due to the lack of IT skills I couldn't secure one. So, I challenged myself to get enough IT skills. After setting this goal, I sought the assistance of people with IT skills to help me get started on the Huawei learninqX platform.

Q: What do you want to do in the future?

A: Honestly, no one knows what the future holds but having traversed the realms of law and technology, I aim to put my tech knowledge to the real use in the legal field. My vision is to lead transformative initiatives that bridge the gap between legal frameworks and emerging technologies, ensuring a new system that upholds ethical standards and protects individual rights. I am driven by a desire to leverage my legal acumen and technological knowledge to influence policies and regulations that facilitate innovation, while safeguarding the interests of society at large.

Jimoh Maryam OLOLADE

Fourth-year University student in the Faculty of Law, Ahmadu Bello University Zaria, Nigeria.

Huawei's ICT Competition 2022-23 World Finals grand prize winner.

Tech Arena 2023

MEET OUR ICPC FRONT RUNNERS

Code versus code: Watch this video on contestants who exceled in the ICPC Challenge powered by Huawei.

HOW DID YOU DO WELL IN ICPC

Come and see the passion, mindsets, and dedication of the contestants, and listen to their tips on how to excel in the contest!

Watch full video

LATEST

NEWS

TECH ARENA
in
Ireland

Competing and mentoring are about growth! Huawei provides resources and platforms via our Tech Arena competition in Ireland to help local talent improve ICT knowledge and skills.

For more details

• Student participants in Tech Arena Ireland pose for video interviews.

TECH ARENA
in
Italy

For more details

• Davide RICCI,
Director of Open Source
Community Huawei.

Huawei Tech Arena Italy was a blast! **165+** participants from **20+** Italian universities undertook challenges in software development for **IoT** and **Cybersecurity**. A huge and well-deserved congratulations to our 14 finalists who advanced to Milan for the offline competition.

• The first place team in Tech Arena Italy.

TECH ARENA
in
Sweden

From online try-outs to an offline hackathon, 3 teams of 6 winners bested over 200 participants with their impressive skills in solving 5G and 6G problems at the 2022 Huawei Sweden Tech Arena in Stockholm!

• Student participant.

• Awarding ceremony.

For More Details

• Hamid Faragardi, Optimization Expert.

• Students coded programs onsite during 24-hour Tech Arena hackathon.

• Fields Medal winner hands out award to first place team in Tech Arena France.

TECH ARENA
in
France

Huawei Tech Arena in France gathered the brightest Math & Algorithm minds in Europe to optimize smart factory instrument layouts in a challenging hackathon. Watch the winners' final presentation in beautiful Paris!

• The top three teams received Tech Arena awards in France.

For more details

• Petri Kainiemiv, Head of Graphics R&D.

• The first place and the second place team from Tech Arena Finland competition.

TECH ARENA
in
Finland

Huawei Finland hosted a 3-day Tech Arena hackathon that challenged students to create interesting 3D avatars and wallpapers. The top winner team designed an avatar app that reminds people what to wear every day, a creation with a dash of fashion and a spoonful of high tech.
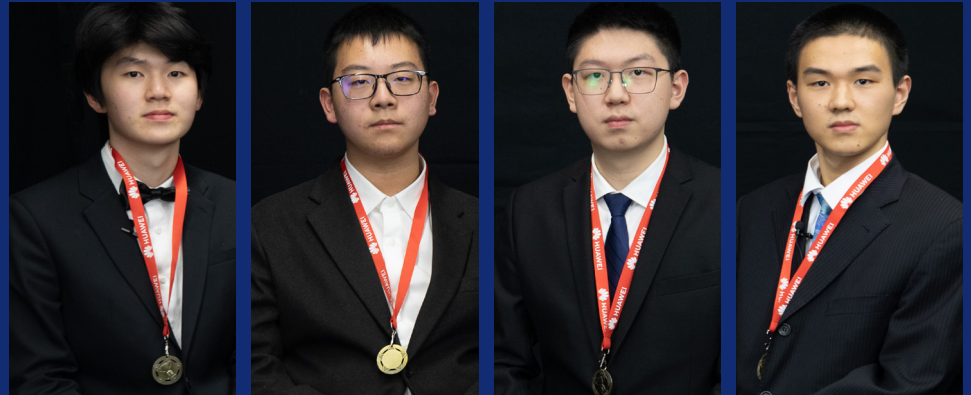
For More Details

TECH ARENA
in
UK

Huawei Tech Arena is all about fostering local talent! In the UK, students took on a month-long online challenge to solve design problems in **lossless geometry/mesh compression** schemes.

• Richadd HUDDY, Chief Gaming Scientist.

• The first place team from Tech Arena UK competition.

For More Details

ICPC World Finals

2023 was Huawei's 4th year as ICPC's Diamond Sponsor. We are persistent when it comes to offering resources and tools to top talent across the globe! We are honored to work with the ICPC foundation and were elated to witness the success of the 45th ICPC World Finals in Dhaka in 2022.

For more details

• Dr. William B. Poucher,
  ICPC Foundation President.

• Student contestants competed in the 45th ICPC World Finals.

For the World Finals, Huawei provided additional offline and online challenges.

User A

User B

User C

Database system

• Zhang Yifan
Software Engineer

April 2023, ICPC and Huawei also partnered to host the "ICPC 2023 Online Spring Challenge powered by Huawei", the two-week long online challenge provided the challenging and cutting-edge problem regarding "Buffer Sharing in Multi-Tenant Database Environment" to more than 19,400 algorithm enthusiasts across the globe. The contest also offered reasonable awards to encourage great ideas.

ICPC Challenge

Powered by

HUAWEI

Come and join Huawei in the pursuit of pushing the frontier of knowledge. This is Chaspark, our open problem-solving platform.