Creating links in R9

Number 24
April 2025

enLaces

IEEE REGION 9 STUDENT MAGAZINE

New Issue

When light overcomes electronics

How photonic computing works

Unlock your mind

The Challenges Club dares you!

The best of IEEE YP and student activities.

Organizing an IEEEXtreme: tips from real experience.

Leading an organizational unit transforms you.

IEEE Region 9

R9SAC team

IEEE

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Jenifer Castillo
Director of IEEE Region 9 (2024-2025)

Dear Student community,

I am beyond excited to write this message. The communication line Enlaces is opening is unvaluable, and I want to embrace it and focus it in this first edition is 3 things: Vision, Community, and Action.

Let's start with the **vision**, and here I need to highlight initiatives like relaunching Enlaces. The IEEE Region 9 SAC team had a vision: to give you a space where you can share your ideas, activities, and initiatives to shape together the future or the Region and IEEE. But this is also a space where you can learn from IEEE and its vision, much more now that we launched the IEEE Strategic plan for 2025-2030. Feel free to learn about it in the Strategic Plan website. Our mission, vision, and core values remain the same, only the goals changed so we can be relevant for the future: for you.

When I approached the process of developing the strategic plan in the BoD, one key factors I always had in mind was what IEEE can represent for you: Your Professional Home. This leads to the power of **community** and building a network: never underestimate it. From finding the next humanitarian project for your area inspired by an article, to find the person you would like to connect with for your future projects, use the information you find here and in IEEE to fulfill your objectives.

And finally, the call to **action**. Perhaps this is where I get very excited about working with students, you have this in your nature: you are curious, you question, you are bold, even if you do not share it out loud. So my call is for you to get and keep involved, IEEE certainly thrives thanks to you all. Make the most out of your journey in IEEE, enjoy your experience while you help us defining the future of innovation.

Our Region is full of bright minds, and you are at the heart of the technological revolution that is changing Latin America and the world: connect, engage, and make the difference you can make in your community. **You Can.**

Editorial Letters

Yésica Giraldo

Student Activities Committee Chair of IEEE Region 9 (2024-2025)

Dear IEEE Region 9 Student Community,

It is an honor to reach out to you through this revitalized space, dedicated to strengthening our connection as a student community. Throughout 2024 and into 2025, we have been working tirelessly within the Student Activities Committee to engage more closely with students, listen to their needs, and develop initiatives that foster collaboration and professional growth across the Region.

One of our primary goals has been to enhance communication channels among IEEE Region 9 students. To achieve this, we have implemented new strategies, such as a dedicated WhatsApp community for sharing information about activities, awards, and opportunities among the different Organizational Units (OUs) in the Region.

Additionally, we have worked closely with SSACs and SSRs from our 36 sections and councils, promoting in-person training sessions, including the first SSAC & SSR training and the SPARK Program held during the Student Branches Regional Meeting (SBRM).

A key challenge we embraced was the reactivation of Enlaces, a platform created by and for students, designed to share knowledge, promote projects, and highlight initiatives that inspire our community. This magazine represents a valuable opportunity to showcase the talent and dedication of IEEE students across the Region.

Today, we invite you to actively participate in this new phase of Enlaces. Share your experiences, projects, and insights through articles, contribute to future editions, or join the editorial team. Together, we can establish this magazine as a reference for idea exchange, professional growth, and the strengthening of IEEE Region 9.

The SAC Team 2025 remains committed to student development through new initiatives, including counselor training, Spark Program v2.0, SBRM 2025, and many more that we will soon share with you.

Welcome to this new era of Enlaces! Be part of the change. Learn, collaborate, and lead the future of our Region!

Editorial Letters

Victoria Yánez
Editor-in-Chief IEEE Enlaces magazine

New look, same purpose: connecting with students

Reviving Enlaces has not just been an editorial design exercise; above all, it has been a process of rethinking you, the students. We asked ourselves how we could create something more than a standard magazine, something that truly felt like your own. That's why, in this edition, we've chosen a new format, a refreshed visual identity, and sections designed to entertain, inspire, inform, and challenge.

From the very beginning, we carefully considered every section. Our goal was to create a publication that not only communicates but also inspires, combining engaging technical content with space for skill development, critical thinking, logic challenges, real-life experiences, and creativity. We want every page to say: "*This is also IEEE*."

This work would not have been possible without the incredible team of volunteers who took on the challenge from different corners of the Region. Each person, whether in writing, editing, design, or translation, contributed a piece of themselves, and through that collective commitment, we managed to build something special. To all of them, I am deeply grateful.

I would also like to thank the IEEE Region 9 SAC Team for trusting me to lead this new stage. This magazine is the result of a shared vision and the strong belief that spaces created by and for students are essential to grow, learn, and connect.

This is only the first of many editions. Our goal is to continue improving, learning together, and offering a channel where you can see yourselves reflected. Enlaces is back, it is more vibrant and closer than ever.

Welcome back to your magazine!

Learn about the IEEE R9 Student Activities Committee (2024-2025)

BY YÉSICA GIRALDO & MOIRA PRATES

SAC TEAM

Who are we and what do we do?

Our structure and organization

Objectives and goals for this year

Key initiatives

We are very happy to once again have this communication channel available for students and future IEEE leaders in Region 9 – Latin America and the Caribbean. As part of our reactivation process, the SAC TEAM would like to introduce who we are, how we are organized, and what our objectives have been since 2024, as well as what lies ahead in 2025. Our purpose is to show you how you can benefit and join us as an IEEE member.

What is the IEEE R9 SAC Team?

The IEEE R9 SAC Team is the Student Activities Committee in Region 9. As part of the MGA IEEE SAC and IEEE Region 9, we are dedicated to providing support, guidance, and resources to the student community. Our goal is to serve as a bridge between volunteers, student members, and the Institute, facilitating access to tools, advisory services, and events that boost your personal and professional growth. In short, we are your ally in making the most of the opportunities that IEEE offers.

STRUCTURE AND ORGANIZATION

Our team is organized into several subcommittees, which allows us to comprehensively support student development. We have coordinators and volunteers in specific areas, described below:

Subcommittee for Student Awards and Recognitions

This group is responsible for identifying and celebrating student achievements by promoting and organizing contests, calls for participation, and award activities that inspire the community to reach excellence.

Subcommittee of Communications

It manages and disseminates relevant IEEE information. This subcommittee communicates news, events, and updates through various channels to keep all members informed. Currently, the SAC Team is active on several social networks and platforms so you can easily contact us.

Subcommittee of Connections

It facilitates the creation of networking opportunities among students, professionals, and the different organizational units of IEEE. This group is in charge of contacting societies and managing our flagship event aimed at seeking opportunities and sponsorships in the Region.

Subcommittee of Training for SSACs, SSRs, and Student Members

It organizes workshops, training sessions, and educational programs focused on strengthening leadership, management, and technical skills, providing the necessary tools for success.

Subcommittee for MORE Updates

It is dedicated to updating the operations manual for student branches, an essential tool that consolidates all the management required within student organizational units such as branches, technical chapters, and affinity groups.

Subcommittee of Student Chapters

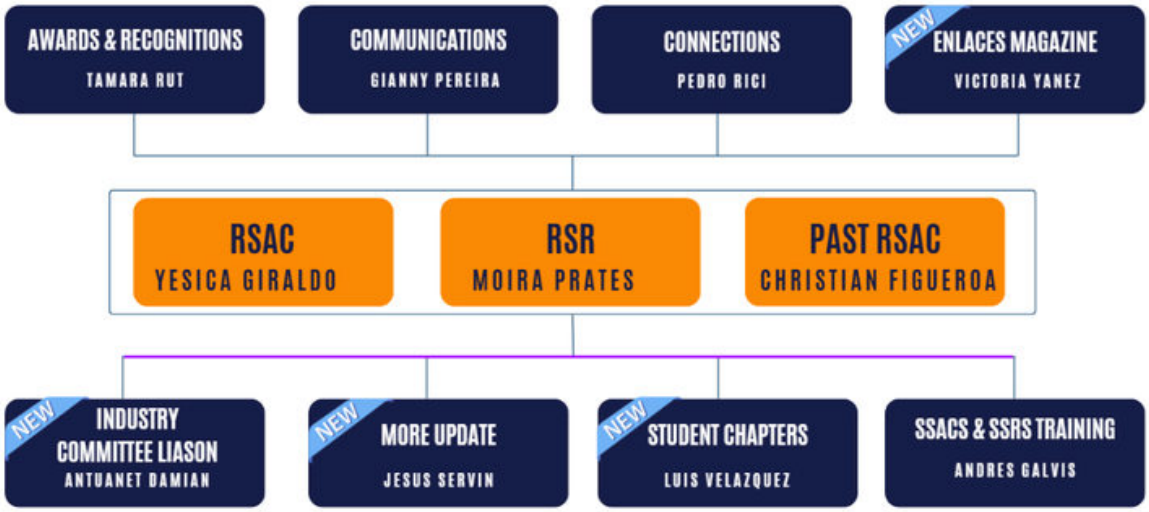
It supports the establishment and strengthening of local IEEE chapters by coordinating activities and strategies that promote active participation in each Region.

Subcommittee of Industry Engagement

It builds links between the academic sphere and the business sector by organizing meetings, visits, and collaborations that bring students closer to the professional world. This subcommittee is supported by the Professional Committee of Industry and Engagement to offer activities that benefit the student community.

Editorial Subcommittee of the Student Magazine Enlaces

It is responsible for producing and disseminating the magazine's content by selecting, editing, and publishing articles and news that reflect the community's initiatives and achievements.



Objectives and goals for this year

- **Fostering Active Participation:** Encouraging students to get involved in IEEE activities and projects, thereby creating a dynamic and collaborative community.
- **Promoting Leadership and Innovation:** Supporting initiatives that stimulate leadership and entrepreneurial capacity, paving the way for new opportunities and collaborations.
- **Strengthening Networking:** Organizing events that facilitate valuable connections between students, professionals, and industry experts.

Key ongoing initiatives

- **SPARK Program:** The second edition of the "IEEE Region 9 SAC Program for Advanced Resource Knowledge" will be developed as part of the XXVIII Student Branches Regional Meeting (SBRM) – Uruguay, aimed at the student activities committees of each section of IEEE Region 9 (Latin America).
- **Student Branches Regional Meeting 2025:** This year, the meeting will take place in Uruguay, providing a training space for future student leaders.
- **STL:** Training sessions focused on strengthening technical skills, leadership, and entrepreneurship.
- **Training for Counselors and Advisors:** As part of SBRM 2025, we are planning a specific training program for counselors and advisors.
- **Enlaces Magazine Reactivation**

The IEEE Region 9 SAC Team is committed to opening new doors and generating opportunities for all students. Our team is the ideal tool to boost your growth. We invite you to actively participate, take advantage of the resources we offer, and, above all, become part of a community that believes in the power of collaboration and continuous development.

In future editions of Enlaces, we will delve deeper into content related to the SAC Team, making this article just the beginning of a series of communications designed to help you, as a student, find a true ally in this community.

Follow Us!

https://r9.ieee.org/sac

r9-sac@ieee.org

IEEE R9 SAC Team

fb/r9ieeesacteam

@ieeeregion9sac

https://chat.whatsapp.com/HCU0kFrgksqCZ7jnGhTxyq

Leading an Organizational Unit: based on a true story

BY ANDRÉS TORRES, CUENCA - ECUADOR

As students, being part of IEEE is an invaluable experience. However, leading an organizational unit, whether a chapter, affinity group, or student branch, elevates this experience significantly. It not only involves greater responsibility and offers valuable learning opportunities, but also brings many satisfactions and networking possibilities. As Chair (President), personal growth extends beyond technical skills. It involves learning to manage talents, resources, and, most importantly, emotions, which in turn makes it a deeply meaningful and transformative experience. Holding the position of Chair in an organizational unit not only opens doors to travel, meet people, expand your network, and manage events and resources, but it also comes with deeper challenges. Among them, efficient time management becomes essential to balance the responsibilities of the role with personal life.

> **LEADING AN ORGANIZATIONAL UNIT TAKES THE IEEE EXPERIENCE TO THE NEXT LEVEL.**

Moreover, proper time and schedule management allows the team to feel comfortable and efficient. As the leader of this team, ensuring that members feel comfortable and aligned in their goals is essential to fostering a synergistic teamwork environment.

Let's also talk about the skills needed to lead an Organizational Unit (OU). There are certain skills that a Chair must develop and strengthen before, during, and after their leadership term. Among them, assertive communication is essential, as it enables the effective transmission of ideas—whether to an authority, a sponsor, or a group of people. Ensuring that the message is well received and makes an impact is key to the success of any initiative. The best way to acquire and develop these skills is through practice. While addressing an authority or speaking in front of a group can be challenging, each experience provides valuable learning. However, a more effective way to prepare is by participating in pitch workshops, hackathons, and other activities that enhance these competencies in a guided learning environment.

We cannot overlook the fact that not everything will be perfect—challenging situations will always arise. One of the most demanding challenges in leading an Organizational Unit (OU), especially in a student setting, is resource management. The Chair must identify and implement strategies to secure the necessary resources for events, whether through sponsorships, funding applications within IEEE, or support from the associated university. Each of these approaches requires strong communication and persuasion skills to achieve the desired objectives. However, efficiently managing resources is not just about finding funding opportunities; it also requires developing complementary skills.

While technical skills are essential for any role within IEEE, enabling effective event planning and the identification of needs within the environment, soft skills are equally important. While technical knowledge provides the ability to recognize opportunities within the OU, soft skills allow leaders to manage talents and resources to turn those opportunities into concrete actions. In this sense, both skill sets complement each other and are essential for effective leadership.

The purpose of these reflections is not to discourage those who take on the challenge of being a Chair of an Organizational Unit but to encourage them to see this stage as an opportunity for learning and growth. Although not everything will always go as planned, each experience represents a valuable lesson, both as IEEE volunteers and as individuals.

Throughout the leadership term, significant growth will become evident on both a personal and professional level. For those about to embark on this journey as the leader of an Organizational Unit, it is important to remember that you have the capability and potential to face challenges, along with the constant guidance of those who are and have been past Chairs in an OU. Every obstacle overcome will be an opportunity to evolve and strengthen your leadership. Best of luck on this transformative experience!

> **“EACH OBSTACLE OVERCOME STRENGTHENS LEADERSHIP AND PERSONAL GROWTH.**

The Importance of Marketing for OU Projects

A perspective to get started

BY ZAHID ARMIJOS - CUENCA, ECUADOR

In this article, I will share my experience of carrying out a project that had a significant impact on people. In this case, it was a Data Science workshop. Additionally, I will discuss the marketing tools I learned to use, how they were implemented during the project, and my experience throughout its development.

As the president of a technical chapter of a student branch, I had several projects in mind, but one stood out among the rest: a Data Science workshop. I knew this topic would be highly attractive and valuable for chapter members, given their profile, as they were our target audience. Therefore, I believed the project should be carried out. I already had a general idea of what the workshop would be like, but there was a small problem: choosing the right speaker.

After consulting with several people, I found a highly suitable profile for the workshop. It was someone with extensive experience in data management and its applications, which fit perfectly with the project. However, to improve the quality of the workshop, I looked for support from different people who were part of IEEE Young Professionals Ecuador. I decided to form an alliance with them, as the members of each group were also part of the target audience. From the beginning, they made it clear that this project would require commitment, time, and effort. Given its great potential, stepping back was not an option.

The first step was to contact the potential speaker and present the initial workshop plan. Fortunately, he showed interest and was willing to collaborate. With his help, we improved the workshop planning, taking advantage of his experience and adjusting the schedule to make it convenient both for him and for the participants interested in the Data Science workshop.

That was just the beginning. My focus then shifted to project marketing, and I recognized the importance of promoting it to reach more people. With the help of several collaborators and their knowledge of key tools and strategies to promote projects, I began working on the marketing side of the workshop.

Using the Canva platform, I designed a flyer that had to meet several requirements: it needed to be clear and concise, include relevant information about the workshop, be visually attractive, and most importantly, have a call to action to encourage participation.

We chose the message “Register Now,” along with an extra incentive: a certificate of participation with institutional support. This detail not only added value to the workshop, but also made it more appealing to potential participants.

We also prepared an introduction highlighting the speaker’s experience in the field of Data Science. The idea was to emphasize the most important aspects of his background, using clear language and focusing on topics that would capture the attention of our target audience.

> “DEFINING THE TARGET AUDIENCE AND THE PURPOSE IS ESSENTIAL FOR EFFECTIVE PLANNING.

Then, we recorded a podcast with the speaker, where we talked about some interesting topics like data management and its applications. The podcast was about 50 minutes long, and since I had learned how to use DaVinci Resolve (a free editing tool), I made a few short clips from the podcast, picking out parts I thought were the most engaging. The idea was to catch people's attention and get them interested in signing up for the workshop.

To finish up, someone who was helping me showed me how to use Sway from Microsoft Office, it's a tool that lets you make presentations that look like web pages. I used it to create a presentation with the full schedule and the topics we'd cover each day of the workshop.

We shared the flyer and video clips on our technical chapter's social media, the Young Professionals pages, and in a few WhatsApp groups too.

RESULTS

The marketing strategies we used reached many people who were part of our target audience from the beginning. Thanks to these tools and the collaboration with IEEE Young Professionals Ecuador, we were able to connect with an audience that, while not large in number, showed strong commitment to the workshop. More than quantity, we achieved quality when it came to participants.

CONCLUSIONS

To successfully use marketing and effectively plan a project, it is essential to define key aspects such as the target audience and the project's purpose. In this case, although the implemented strategies, such as an eye, catching flyer, short video clips, the Microsoft Sway tool, and social media and internal group posts, were effective, I identified areas for improvement. Strategies such as investing in online advertising or offering discounts to those who share the event on their social networks could have increased its reach.

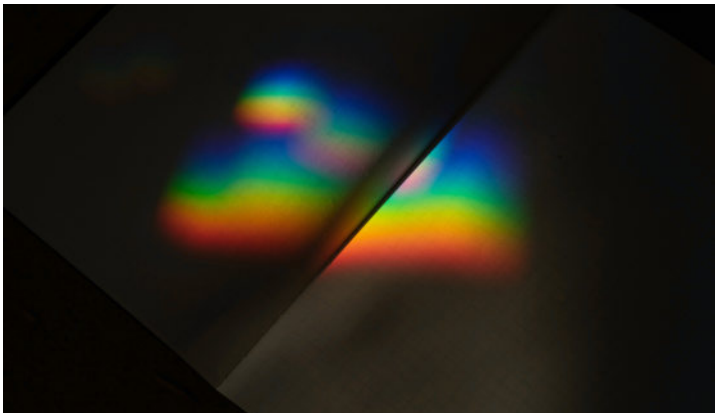
Marketing plays a key role in any project, so advance planning, analyzing which tools to use, and seeking support from others when necessary is essential to optimize results.

Photonic Computing: "When light outshines electronics"

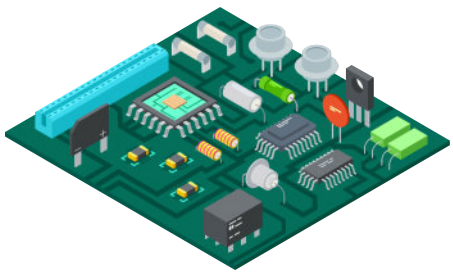
BY RICARDO SIERRA

In recent decades, we have become accustomed to seeing computers shrink in size. The technology industry has followed Moore's Law, which states that the number of transistors on a chip doubles approximately every two years, significantly increasing computing power.

However, transistor miniaturization is reaching its physical limit. In recent years, to continue increasing power, especially in high-performance computing, computers have grown larger. This leads to higher energy consumption, the need for more sophisticated cooling systems, and even increased costs. The key question is: **Is there an alternative to traditional electronic computers?**



The problem of the miniaturization limit of transistors has driven the search for alternatives, and among the most promising is **photonic computing**, which uses light instead of electricity to transmit and process information. These computers leverage the unique properties of light, such as its speed and ability to carry multiple signals simultaneously without interference.



How Does Photonic Computing Work?

The fundamental difference is that, instead of using electrons moving through electronic circuits, photonic computers employ photons, the fundamental particles of light. These photons are guided and manipulated through specialized optical components, enabling calculations and data transmission at much higher speeds. Essentially, information is encoded and processed using light pulses instead of electrical signals.

Advantages

Photonic computing offers a range of potential advantages. The most evident is speed: light travels significantly faster than electrons in traditional circuits, which translates into potentially much greater processing power. Additionally, light enables higher bandwidth, allowing the efficient transmission of massive amounts of data. Another key advantage is energy efficiency; since photonic systems do not generate as much resistance as electron flow, they produce less heat, reducing the need for complex cooling systems and lowering energy consumption.

Challenges

Despite this promising outlook, photonic computing faces significant challenges. One of the main issues is the difficulty of miniaturizing optical components to the same level as electronic transistors. Although progress has been made, manufacturing complex and densely integrated photonic chips remains a technological challenge. Furthermore, precisely manipulating and detecting individual photons, crucial for information processing, is considerably more complex than working with electrons. Creating strong and controllable interactions between photons, necessary for performing complex logical operations, is another area requiring significant research and development.

Applications and Current Advances

While large-scale photonic computing is still in development, concrete applications and pioneering companies in this field already exist. Lightmatter, for example, is a company that has developed specialized photonic chips to accelerate artificial intelligence tasks. Their Envise chip uses light beams to perform matrix multiplications, a fundamental mathematical operation in deep learning, much faster and more efficiently than conventional electronic processors. Additionally, they have created Passage, a photonic interconnect system that allows multiple chips to communicate with each other at high speeds using light, overcoming the bottlenecks of electronic communication.

These advancements demonstrate the potential of photonics to transform specific areas of computing, even before achieving full system-wide implementation.

Cables de fibra óptica conectada a un servidor

> **Light travels significantly faster than electrons in traditional circuits, which translates into a potentially much higher processing capacity.**

Invitation to the reader:

The growing interest and advancements in photonic computing are reflected in the existence of professional organizations dedicated to this field. The IEEE Photonics Society, a technical society within the Institute of Electrical and Electronics Engineers (IEEE), is one of the most important worldwide. This society brings together researchers, engineers, scientists, and students from around the world who work on advancing photonics, covering everything from fundamental research to practical applications.

The IEEE Photonics Society offers a wide range of resources and opportunities for its members. It organizes international conferences, workshops, and symposia where the latest discoveries are presented, and the field's challenges are discussed. It publishes high-impact scientific journals, such as IEEE Photonics Technology Letters and Journal of Lightwave Technology, which are key references for the research community. Additionally, the society promotes photonics education through scholarship programs, courses, and educational materials.

For students interested in exploring photonic computing and related areas, joining the IEEE Photonics Society can be an excellent way to connect with experts, access cutting-edge resources, and participate in the next generation of innovations in this rapidly evolving field.

IEEE Photonics Society

Linked Challenges: Science, ingenuity, and a touch of mystery

CHALLENGES CLUB

Take the challenge and be part of the Enlaces movement!

Part 1: STEM inspiration from the classroom

We kick things off with an educational proposal from the TISP program, perfect for those who want to bring science into action. The challenge “Light Sculpture” is designed to spark curiosity in school students through art, technology, and coding. It's a great excuse to share knowledge and inspire future scientists.

Part 2: Brain teasers for curious minds

Test your logic, decode binary messages, or figure out what a mysterious C code does.

If you solve any of the challenges, share it! Post a story on Instagram and tag the SAC Team of Region 9 using the official frame (you can download it by scanning the QR code). We want to see you shine and celebrate your achievement across the Region. And yes, we’ll repost you!

Part 3: Enlaces Hall of Fame

The final challenge is reserved for the boldest. Figure out what the C program we’ve shared does and send us your reasoning to enlaces@ieee.org with the subject: "Enlaces Game Answer – April Edition".

The first correct answers will be featured in our next issue, in a special section: the **Enlaces Hall of Fame**.

Do you dare to take the challenge?

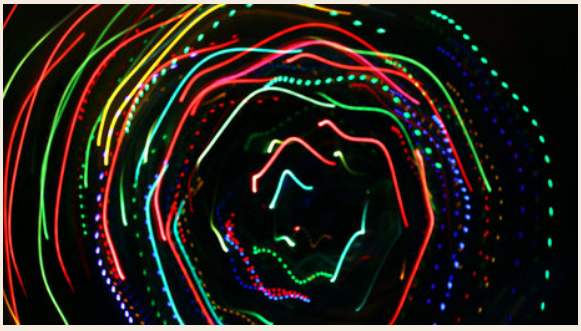
Scan or click here

NEW INITIATIVES

LET'S GET TO WORK! PROMOTING SCIENCE IN SCHOOLS

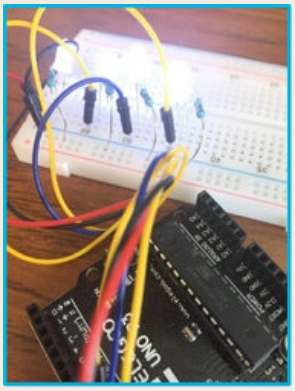
Light Sculpture (Electricity/Magnetism)

This challenge encourages students to explore their creativity by designing a light sculpture that represents their team's personality. They will program and present a light show using basic concepts and circuits with Arduino, breadboards, and microcontrollers in Tinkercad.



Components (High-Tech Option)

- Student worksheets
- Student team materials:
- Computer
- Arduino microcontroller
- Arduino IDE software
- Breadboard (solderless)
- Several LEDs (min. 4)
- Several jumper wires (min. 4)
- Several 330-ohm resistors (min. 4)
- Tinkercad and Tinkercad Circuits (free)
- Prototyping materials:
  - Cardboard, cardstock, hot glue, adhesive tape



```
Blink   Bink_Multi_LEDs §
//Simple Blink Code

void setup()
{
  pinMode (13, OUTPUT);
  pinMode (12, OUTPUT);
  pinMode (11, OUTPUT);
  pinMode (10, OUTPUT);
}

void loop()
{
  //set the LED pin to High, turns LEDs on
 digitalWrite (13, HIGH);
 digitalWrite (12, HIGH);
 digitalWrite (11, HIGH);
 digitalWrite (10, HIGH);

 delay(500); //Wait for 1/2 a second

 //set the LED pins to LOW, turns LEDs off
 digitalWrite (13, LOW);
 digitalWrite (12, LOW);
 digitalWrite (11, LOW);
 digitalWrite (10, LOW);

 delay(500); //wait for 1/2 a second
}
```

Link for the full material:

https://tryengineering.org/resource/lesson-plan/light-sculpture/

Execution of activities

Initial Setup: Students work in pairs to build a basic circuit with four blinking LEDs, connecting them to an Arduino and programming them to alternate between on and off states.

Pattern Exploration: They modify the code to create effects like the "LED Chaser" (lighting up one LED at a time) and the "Scrolling LED" (a single LED moving back and forth, with speed variations).

Light Show Creation: Each team develops a unique pattern and can even synchronize the LEDs with music. After testing in Tinkercad, they build the physical circuit.

Light Sculpture: Students design and prototype the sculpture's structure, using 3D printing or various crafting materials. They adjust the position of the LEDs and implement different lighting modes.

BY MATEUS LEMOS

SOLVE AND SHARE

CHALLENGES CLUB

Did you solve the riddles or have an answer in mind?

Take a screenshot, post it to your stories, and tag us on Instagram! We'll repost your story, and in the next edition, we'll share the correct answers.

1

Binary language is the fundamental system of computing, representing data and commands through sequences of 0s and 1s. These correspond to electrical states in digital circuits, enabling the operation of processors, data storage, and communication between electronic devices.

01001010 01100101 01101110 01101001
01100110 01100101 01110010 01011111
01000011 01100001 01110011 01110100
01101001 01101100 01101100 01101111

? Her leadership inspires an entire region.
A great woman of IEEE Region 9.

2

? ? ? A ? ? S
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? The most dynamic magazine in Region 9

3

LOGIC CHALLENGE IN C: "THE MYSTERIOUS CODE"

Can you figure out what this program does?
At first glance, it may seem simple... but do you really know what's going on?
Put yourself to the test and take on this edition's challenge!

Game Instructions:

1. Read the code carefully.
2. Figure out what it does and what it will print.
3. Answer the following:
   - What does it print?
   - What logic does the program follow?
4. Send your reasoning to enlaces@ieee.org
5. 📩 Subject: "Enlaces Game Answer – April Edition"

📌The first correct answers will be featured in the next edition of Enlaces Magazine.

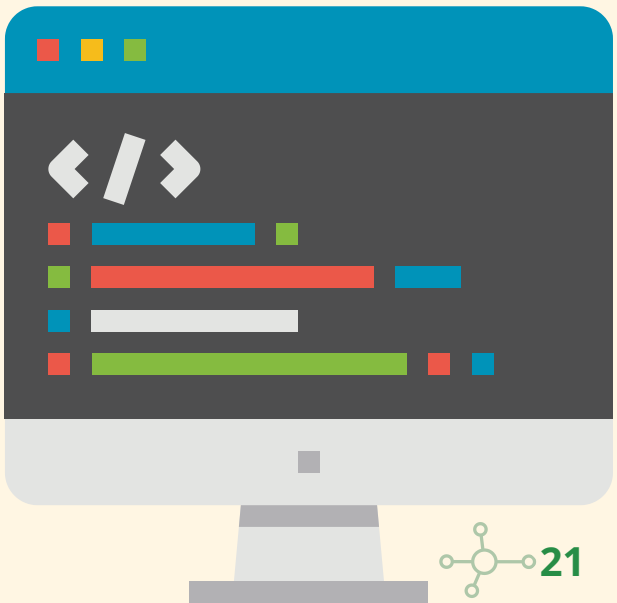
```c
#include <stdio.h>
#include <stdbool.h>

bool evaluar(int x) {
    if (x < 2) return false;
    for (int d = 2; d * d <= x; d++) {
        if (x % d == 0) return false;
    }
    return true;
}

int main() {
    int encontrados = 0;
    int candidato = 2;

    printf("Resultado:\n");
    while (encontrados < 10) {
        if (evaluar(candidato)) {
            printf("%d ", candidato);
            encontrados++;
        }
        candidato++;
    }

    printf("\n");
    return 0;
}
```



How to Organize an IEEEXtreme Programming Competition Without Losing Your Mind?

BY ISMAEL VERDUGO

The IEEEXtreme Programming Competition is a global 24-hour programming contest organized annually by IEEE, where university student teams, all IEEE members, compete simultaneously worldwide to solve algorithmic problems. Each team is supervised by a proctor, typically a professor or IEEE member, who ensures compliance with the rules. In Ecuador, it has become a tradition to organize different local hubs across the country, grouping nearby student branches in a single location. Although each team competes independently in the global contest, these hubs provide better proctor support, logistical assistance throughout the 24-hour event, and food provisions to keep participants energized. Additionally, they often host internal award ceremonies, fostering a competitive and motivating environment that encourages students to participate again in future editions. This structure not only optimizes logistics but also strengthens the IEEE community at a local level.

ORGANIZING AN IEEEXTREME IS NOT JUST A CHALLENGE — IT'S AN EXPERIENCE THAT STRENGTHENS LEADERSHIP AND SPARKS CREATIVITY.

Planning an IEEEXtreme from scratch can be overwhelming, leading to overthinking and fear of making mistakes. You might not even know where to start, considering you need to organize competitors, find a venue, secure funding, arrange prizes, and conduct training workshops. You may even need to determine how many people will represent each university. If you're feeling this way, you're not alone! This article provides a detailed guide on how to successfully organize an IEEEXtreme and ensure a smooth experience.

1. ORGANIZATION

The first step is forming an organizing team, as handling everything alone, while possible, is extremely stressful. The committee should work together to distribute responsibilities. The leader will oversee the event and delegate tasks, at least two people should focus on securing sponsors, another team member should be responsible for designing flyers and promotional materials, and a logistics coordinator should manage volunteers and event-day operations. Finding a suitable venue with ample space, comfort, and Wi-Fi access is crucial. University support is invaluable for providing facilities and meals; if unavailable, sponsors can help cover these needs. Additionally, faculty collaboration is essential, as professors can assist as proctors or conduct training workshops to prepare participants.

> **SOLID LOGISTICS PROVIDE MORE THAN JUST COMFORT — THEY CREATE THE RIGHT ATMOSPHERE TO KEEP COMPETITORS INSPIRED AND FOCUSED.**

2. SPONSORSHIP

Securing sponsors should begin at least 3 to 4 months in advance, as companies take time to respond. Whenever possible, meet with decision-makers directly to expedite negotiations. The best way to present a sponsorship request is by briefly explaining the competition and its benefits to sponsors (e.g., national and international visibility) and providing a cost estimate for necessary items, including snacks, participant logistics, trophies, and giveaways. Presenting a persuasive proposal is key. Even without advanced negotiation skills, clear communication and confidence can make a big difference. Even without advanced negotiation skills, clear communication and confidence can make a big difference.

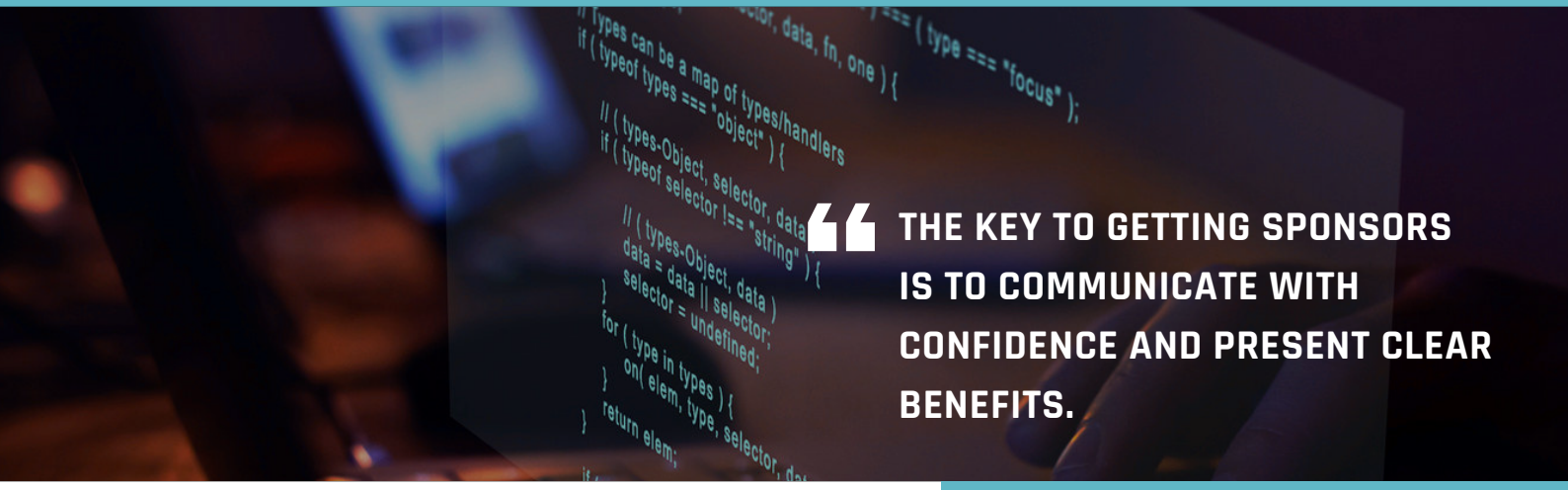
3. PROMOTION AND OUTREACH

It is recommended to start 4 to 5 months in advance by sharing informative posts, event-related memes, and registration posters on social media. A good example is the Instagram account of cs.ieee.ups.cuenca, which effectively showcases the IEEEXtreme competition and uses meme-style videos to engage a broader audience. Another effective strategy is to visit university classrooms, promoting the event while placing eye-catching posters with QR codes linking to registration or more information in high-traffic areas.

For the registration form, it is advisable that all team members fill it out, including their full names, IEEE membership numbers, team name, team size, and a link to their WhatsApp group. Once the total number of participants is determined, an estimate should be made for additional attendees to ensure an adequate supply of meals, beverages, and snacks for the event.

4. GETTING PARTICIPANTS READY

Once a group of students is committed to participating, preparation workshops should be organized. These can include training sessions with professors, past participants, or weekly 2-hour problem-solving meetings to practice with previous years' exercises, which is the best way to prepare. Additionally, participants should visit https://csacademy.com/contest/interview-archive/ , where past problems are available for review. This training process prepares participants for the PreXtreme, a 12-hour simulation competition that helps them get accustomed to the challenge. The biggest challenge is maintaining consistent practice among all participants to ensure steady improvement.



> **THE KEY TO GETTING SPONSORS IS TO COMMUNICATE WITH CONFIDENCE AND PRESENT CLEAR BENEFITS.**

5. LOGISTICS AND RESOURCES

At least one month before the event, confirm venue reservations to avoid last-minute issues, ensure adequate supplies including snacks, water, energy drinks (consumed in moderation), and meals (breakfast, lunch, dinner, and snacks). Seek support from the university or sponsors for food provisions and assign a logistics team to deliver food, check on participants, and keep the space clean. Consider participation gifts such as bottles, keychains, or posters to recognize attendees.

6. EVENT DAY: EXECUTION AND MANAGEMENT

Generally, there is no participation fee unless the team decides to implement one to cover additional expenses. On the day of the event, it is essential to organize the space to ensure the comfort of the participants and their access to necessary resources. Optimal WiFi connectivity must be ensured, along with a backup plan in case of technical failures. Additionally, it is important to properly display sponsor banners and flyers in visible areas. Collaboration with sponsor marketing teams or the IEEE chapter board will help document the event through photos and videos.

The logistics team must have enough waste containers to keep the area clean and organized. Participants are recommended to arrive 30 minutes before the start, and 15 minutes prior, the leader should give a welcome speech, provide instructions, and guide competitors to the platform where the challenges will be presented. During the 24-hour competition, playing background music is suggested to maintain a positive atmosphere. Finally, it is crucial that both participants and the logistics team rest as much as possible, as the final hours require greater energy, especially for competitors.

> **YOU'RE NOT ALONE IN THIS CHALLENGE — OTHER ORGANIZERS HAVE ALSO OVERCOME THE FEAR OF FAILING.**

7. CLOSURE AND FOLLOW-UP ACTIVITIES

During the final hour of the competition, it's important to prepare a designated space to display the trophies and participation gifts. At the end of the event, winners will be recognized, awards will be presented, a few words of gratitude will be shared, and gifts will be handed out to all participants, bringing the event to a close. Afterward, it's recommended to share photos on social media to showcase the event's success, which can help attract more sponsors for future editions.

Organizing the IEEE Xtreme is a rewarding experience that fosters leadership, commitment, and responsibility. It brings great satisfaction in knowing you did your best with the resources available.

For further questions, feel free to contact me at eismael2002@ieee.org — I'll be happy to support you with your IEEEXtreme!

Information Technology: How Secure Is Your Data?

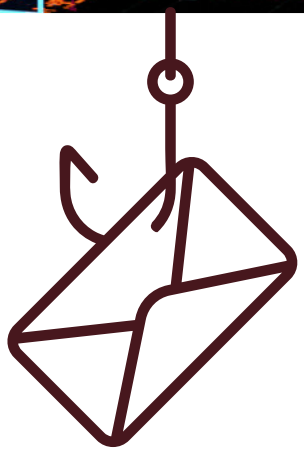
Risks, Vulnerabilities, and Protection Strategies

BY JAIRO RÍOS

In our daily lives, the use of technology has become more constant. We store valuable information on our devices, from the time and place of a meeting with an old friend to the credentials of our bank accounts. However, **have we ever considered whether this information is being transmitted securely? Or is it simply an aspect we overlook?**

Today, cyberattacks are increasing at an alarming rate, making anyone a potential target. One of the most common threats is **phishing**, where cybercriminals create fake websites that mimic trusted platforms and distribute them widely, hoping victims won't verify the site's authenticity before entering sensitive information.

Phishing is just one of many techniques used in social engineering, a set of strategies designed to manipulate people into unknowingly revealing confidential information. Social engineering relies on analyzing a victim's behavior, habits, interests, and needs, allowing attackers to profile their targets and increase the effectiveness of their attacks.



> **PROMOTING DIGITAL EDUCATION REDUCES COLLECTIVE VULNERABILITY.**

Artificial Intelligence and Emerging Threats

Recent studies have demonstrated how AI, such as ChatGPT, can be manipulated to generate fraudulent websites that closely resemble legitimate platforms. These deceptive pages can bypass security filters, making them accessible even to cybercriminals with limited web development knowledge.

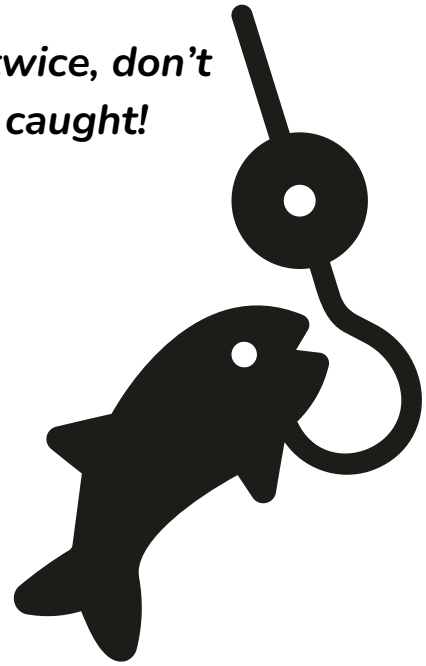
A study by the University of Texas at Arlington [Roy et al., 2023] shows how phishing attacks can be generated using AI, presenting new challenges for cybersecurity. This technological advancement expands the reach of cyberattacks and highlights the urgent need for more sophisticated protection measures.

How to Protect Your Personal Information?

To safeguard against these threats, it is essential to remain vigilant whenever personal data is at risk. Here are some key recommendations:

1. Check that website links start with "**https://**" before entering sensitive information.
2. Carefully inspect the URL spelling, as small variations may indicate a fraudulent page (e.g., www.google.com is not the same as www.G00GLE.com).
3. Verify the sender's email domain before sharing personal information—legitimate banks and institutions will never request credentials or verification codes via email.
4. Be cautious of alarming messages that create panic, such as urgent transaction alerts or account suspension warnings. When in doubt, always contact the financial institution directly.

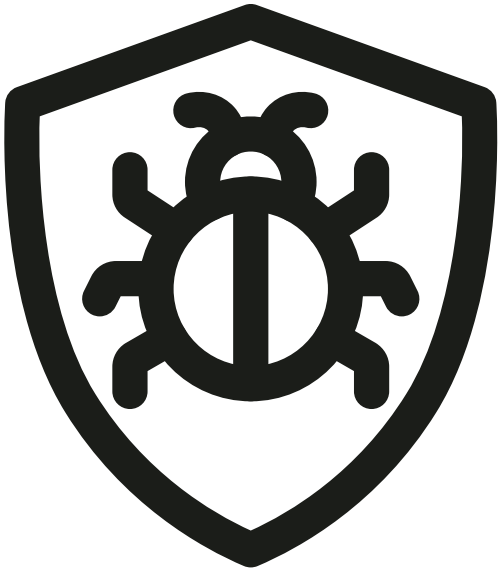
Think twice, don't get caught!



In addition to protecting our own information, it's important to create a cyber-safe environment within our close circles. Family and friends can benefit from the spread of good digital security practices. This way, we can implement a Cybersecurity Cocoon Strategy, where individual protection contributes to the safety of those around us.

Promoting digital education and sharing cybersecurity knowledge helps reduce collective vulnerability to cyber threats.
In an increasingly interconnected world, digital security doesn't rely solely on individual measures, it requires a community-based approach where all users take part in adopting responsible and safe practices.

Stay safe out there!



> **INDIVIDUAL PROTECTION CONTRIBUTES TO THE SAFETY OF THOSE AROUND US.**

IEEE VTools and IEEE Center for Leadership Excellence: Tools to Lead Your Student OU

BY SANTIAGO CASTRO

IEEE Center for Leadership Excellence

It is common for many IEEE members, at some point in their journey, to want to be part of the executive committee of a technical chapter, affinity group, or student branch. This is because these positions not only represent an opportunity to contribute to the development of the IEEE community but also to strengthen leadership, management, and teamwork skills. Many of these members have dedicated the necessary effort and commitment to be chosen for the role they aspired to, making it a moment of joy, celebration, and congratulations with friends or family. However, after the initial excitement, the following question may arise: **What now?**

You may already have an idea for a project or some changes you want to implement. Perhaps you have great intentions or even a "*million-dollar idea*", or maybe you are still unsure about the path forward. What you do know is that you want to contribute to humanity through the responsible use of technology as a student. So, **how do you start executing your ideas? How should you proceed? How should you perform in your role?**

To address this situation, IEEE offers a tool that is not only available to executive board members but also to any interested member: IEEE Center for Leadership Excellence. As its name suggests, it is a platform specifically designed to provide training to a wide range of IEEE communities. It offers skill development resources and programs not only for volunteers and students but also for professional members and organizers of conferences and congresses.

The goal is to promote leadership excellence, support IEEE members in their various roles, and provide them with training for their development. What makes this platform stand out is that it not only offers individual courses such as **"Introduction to IEEE"** or **"IEEE Code of Ethics"**, but it also provides comprehensive programs tailored to specific roles, whether you currently hold one or aspire to in the future, such as ***"Student Branch Chair"***. It even extends beyond student branches, including positions like ***"Section Student Representative"***.

Each program consists of multiple modules or courses that are rigorously selected to help you acquire the necessary skills and competencies to perform with excellence in your leadership role.

Although this site offers a wide range of soft skills training, one of the key aspects is learning, consistency, and practice. Naturally, one may ask: How can I effectively apply these skills within IEEE? The answer lies in IEEE Volunteer Tools.

"WITH TOOLS LIKE IEEE VOTING, OFFICER REPORTING, AND ENOTICE, LEADERSHIP BECOMES AN ORGANIZED, TRANSPARENT, AND EFFECTIVE PROCESS.

Some of the main tools available include:

1. **IEEE eNotice:** This service facilitates the mass distribution of newsletters, meeting notices, conference materials, and activity announcements via email. It is a highly useful tool as it allows you to quickly and effectively send information to your Organizational Unit (OU) members. Keeping your members informed about activities, events, or opportunities fosters participation and maintains group cohesion.

2. **IEEE Events:** This tool allows you to create and manage meetings and/or events for your Organizational Unit. It is essential for IEEE since, through this platform, the organization can track activities carried out. Reporting all your activities is important, as your unit's activity level may be considered when applying for awards or funding opportunities.

> **Reporting your activities and updating your team in vTools can make a big difference when applying for awards and funding.**

3. **IEEE Officer Reporting:** Use this tool to document and update the positions held in the executive committee. This helps track each member's responsibilities and generates certificates that validate their participation in the management of the unit. Additionally, these records synchronize with **IEEE Collaboratec**, displaying all the positions you have held throughout your IEEE journey on your profile.

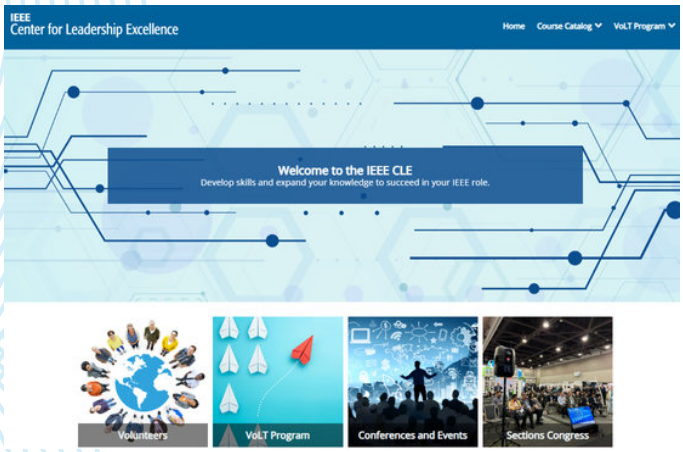
4. **IEEE Student Branch Reporting:** This tool is specifically for IEEE student branches. It allows the annual plan of the student branch to be submitted as a report to IEEE worldwide. Systematically registering your projects and achievements ensures compliance with requirements to obtain rebates or funding.

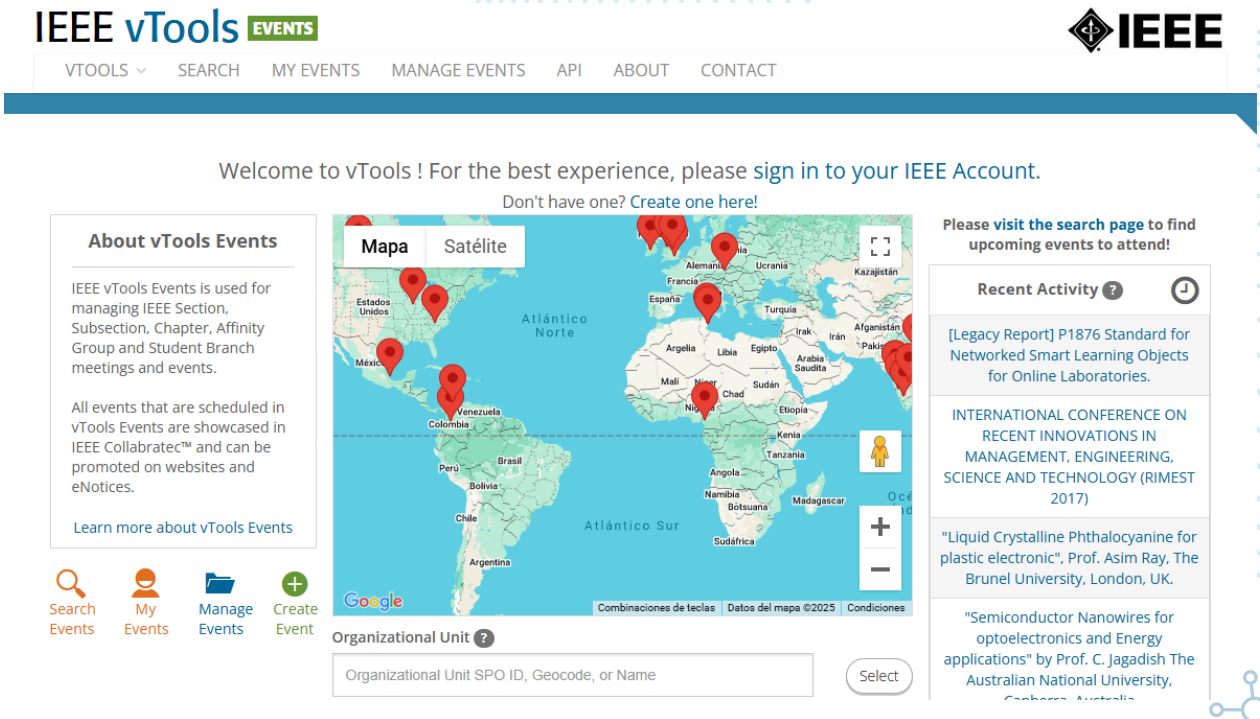
5. **IEEE Voting:** This is IEEE's official voting mechanism. The platform enables internal electronic elections in a transparent manner. For example, you can organize an electronic vote to select new leaders or decide on strategic initiatives within your unit.

Leading a student organizational unit within IEEE is a valuable opportunity to develop management, leadership, and teamwork skills. However, success in these roles depends not only on initial enthusiasm but also on having access to tools and resources that facilitate the planning and execution of initiatives.

IEEE Center for Leadership Excellence provides specific training to strengthen volunteers' competencies, while IEEE vTools offers essential tools for efficiently managing activities, reports, and communication within the IEEE community. Taking advantage of these resources will not only help you perform better in your role but also contribute effectively to the growth and strengthening of your Organizational Unit.

> **"IEEE vTools provides key resources to communicate, organize, report, and vote within your organizational unit.**





IEEE Young Professionals: Empowering the Transition from Classroom to Career

BY ESTEBAN ARIAS-MÉNDEZ

IEEE young professionals
Region 9

Graduation is a significant milestone, marking the culmination of years of study and dedication. However, for many students, this achievement also signifies the beginning of a period of uncertainty as they transition from academia to the professional world. In this challenging context, IEEE Young Professionals (YP) emerges as a crucial ally, providing a robust bridge and an invaluable support network for graduating students and young professionals.

IEEE YP R9

Who we are?

Key benefits

Testimonial

Recommendations

What is IEEE Young Professionals?

IEEE Young Professionals (YP) is a vibrant and global community within the Institute of Electrical and Electronics Engineers (IEEE), specifically designed for members and volunteers who have obtained their first professional degree within the last 15 years. YP is not just a demographic group; it is a dynamic platform dedicated to supporting professional development, personal growth, and networking among the engineers and technicians of the future. By joining IEEE YP after graduation, you become part of a global network of more than 400,000 professionals, all united by their passion for technology and innovation. This connection provides essential resources and opportunities to stay at the forefront of technological advancements and collaborate in a global environment.

Key Benefits for Graduate Students

The transition from student to professional is full of unique challenges, from securing the first job to developing professional skills and expanding one's network. IEEE YP directly addresses these needs by offering:

Networking y Mentorship: YP facilitates connections with experienced professionals and peers at different career stages. Through regional events, local activities in your country, professional chapter events, and mentorship programs, students can build valuable relationships that open doors to new opportunities and provide career guidance.

Professional Skills Development: YP offers exclusive access to webinars, workshops, and online resources designed to enhance both technical and soft skills. These resources are crucial for continuous professional growth and staying competitive in an ever-evolving job market.

Leadership and Volunteering Opportunities: Participating in YP provides platforms to take on leadership roles and engage in volunteer initiatives. These experiences not only enrich your resume but also help develop leadership, project management, and teamwork skills—highly valued by employers.

Access to Educational Resources and Scholarships: IEEE YP provides access to a wide range of educational and training resources, as well as information on scholarships and grants that can support continued education and innovative projects. IEEE Foundation, Inc. offers details on scholarships and financial aid available for young professionals.

TESTIMONIALS: YP AS A CAREER CATALYST

Numerous professionals credit their participation in IEEE YP with having a significant impact on their careers. They share how the networking connections made through YP have opened doors to unexpected job opportunities and how the professional development programs have provided them with the necessary tools to advance rapidly in their fields. Additionally, volunteering and leadership experiences in YP have been instrumental in demonstrating their skills and competencies to future employers. These experiences highlight the practical and tangible value of being part of the YP community.

RECOMMENDATIONS FOR STUDENTS IN TRANSITION

For students preparing to enter the professional world, IEEE YP offers the following recommendations:

Get Involved Early: Start participating in IEEE YP activities even before graduating. Attend events, webinars, and workshops to begin building your professional network and familiarize yourself with available resources.

Be Proactive in Networking: Use YP platforms to connect with other members. Don't hesitate to start conversations, engage in discussions, and seek mentors who can offer guidance and support.

Leverage Professional Development Resources: Explore and actively utilize the educational and training resources offered by YP. Identify the skills you need to develop for your career and take advantage of workshops and webinars to acquire them.

Seek Leadership Opportunities: Consider applying for volunteer or leadership roles within YP. These experiences are invaluable for skill development and demonstrating your commitment and abilities to future employers.

Stay Connected and Engage Continuously: The transition into the professional world is an ongoing process. Stay connected with the YP community, participate regularly in its activities, and continue leveraging its resources to keep growing and advancing in your career.

IEEE young professionals
Region 9

IEEE Young Professionals is not just an organization, it is a support community, a development platform, and a catalyst for opportunities. For graduating students, joining YP is a strategic step toward a successful and fulfilling professional future.

Follow Us!

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Eng. Esteban Arias-Méndez, M.Sc.
estebanarias@ieee.org

Help us share your journey

Ideas that move IEEE Region 9

The best ideas often start in university hallways, casual meeting spots, or after a quick video call between friends who want to do something different. In this section, we highlight exactly that, the energy, creativity, and drive of IEEE students who keep things moving across the region.

Here you'll find stories about events, initiatives, and projects that show how student leadership can transform not just communities, but lives. From tech competitions to science fairs, wellness campaigns to hackathons — each experience is a reminder of what we can achieve when we take action and work together.

How to participate?

Through the social media channels of the SAC Team Region 9, we make open calls to gather the most outstanding student activities. In the form we share, you'll find all the instructions, guidelines, and examples to easily submit your initiative.

> **"Don't miss the chance to inspire others with the great work your Student Branch, Chapter, or Affinity Group is doing.**

COSTA RICA

Transforming movement into light! In today's workshop at Escuela República de Italia, our IEEE students showed how we can light an LED using a DC motor, connecting the concepts of kinetic energy in a practical and fun way. The Republic of Italy School students learned that when the motor is turned, the kinetic energy is converted into electrical energy, enough to illuminate the LED. A simple and powerful way to understand how electricity generation works. Thank you to the IEEE Student Branch, which organized the event, the EDS chapter, and all the participants for making this experience an opportunity to ignite curiosity and interest in applied sciences.

MEXICO

The Congress of Engineering and Innovation for Space Exploration (CONIIEE) at UPIITA-IPN is an event designed to inspire and educate students and professionals about the latest advancements in aerospace technology. Through a series of keynote lectures, hands-on workshops, and live demonstrations, the congress highlights how different engineering disciplines contribute to the development of innovative aerospace solutions.

As part of the event, we seek collaboration for:

- Expert talks on aerospace-related topics
- Workshops held at our facilities
- Exhibitions and demonstrations showcasing cutting-edge projects and technologies

CONIIEE serves as a platform for knowledge exchange, fostering connections between students, researchers, and industry professionals to drive the future of space exploration.

BRAZIL

The Welding Club, created by the IEEE PES UFCG Student Chapter, was established to address the need for a deeper understanding of welding while combining theory and practice in an accessible and collaborative way. The main goal was to equip participants with essential technical skills while fostering teamwork and knowledge exchange within the academic environment.

To make this initiative possible, the project relied on strategic partnerships, including the UFCG Welding Laboratory (LabSol) and the IEEE MTT-S UFCG Student Chapter, which provided technical support, infrastructure, and materials. The methodology was structured around three key pillars: the development of a didactic handbook, theoretical activities conducted at the Applied Electromagnetism and Microwaves Laboratory (LEMA), and the practical application of knowledge at LabSol.

One of the challenges faced was integrating power concepts with welding and achieving the precision required in microwave-related processes. Despite these obstacles, the results were highly positive: participants gained stronger technical knowledge, improved their practical skills, and strengthened connections between different student groups. Moreover, the project's impact extended beyond the academic setting, sparking interest among other students and the local community.

With the success of this initiative, discussions about future editions of the Welding Club are already underway. The aim is to expand its reach and involve even more students eager to develop technical skills through a hands-on and collaborative approach.

CHILE

CANELOS: "CAD and Nanoelectronics Seminar" is an annual event organized by the CASS/SSCS/EDS student chapter at Universidad Técnica Federico Santa María. It serves as a meeting point for the Chilean and Latin American microelectronics community. The aim is to promote knowledge and industry development in this field. This edition included a three-day hands-on workshop on integrated circuit design, followed by two days dedicated to the CANELOS seminar.

During the workshop, the research center IHP from Germany, academics from AC3E at our university, and professors from UCLouvain in Belgium provided valuable support. Participants worked on the design of analog, digital, and mixed-signal circuits, including DC-DC converters, a neural network for computation acceleration, and an analog multiplexer. This effort culminated in 2024 with the free fabrication of the designs using IHP's Open-Source Process Design Kit.

This edition of CANELOS featured representatives from leading companies, research institutes, and universities, such as INAOE, RYDEV, Synopsys Chile, RISC-V, FermiLab, MCCI, and TIMELESS-IC, who delivered high-level industrial and technical talks. Attendees also had the opportunity to network during coffee breaks, and the event concluded with a discussion forum focused on the global semiconductor industry and Latin America's role in it.

Throughout the week, we shared our passion for microelectronics with students and professionals across Chile, even inspiring some student groups to establish their own CASS, SSCS, or EDS chapters. We sincerely thank all participants and invite everyone to join us again in August 2025!

COLOMBIA

¡Que no se te vayan las luces! (Don't let the lights go out!) is a campaign focused on reducing electrical accidents in vulnerable areas of Barranquilla, Colombia, and its metropolitan area. Led by CIDET in collaboration with the Secretary of Education of Barranquilla and Universidad del Norte's IEEE Student Branch, the initiative uses playful-pedagogical methods to educate communities about electrical risks while promoting STEM careers.

The campaign implements a three-day educational program in schools called "Electric Day," "Electric Hour," and "Electric Safety." On Electric Day, presenters introduce IEEE and STEM careers, followed by interactive competitions about electricity benefits. During Electric Time, they focus on electrical dangers and implement the "Electric Challenge" card game, which teaches risk identification and solutions. The final day, Electrical Safety, includes feedback sessions and the distribution of "Electrikidz" comics featuring young protagonists dealing with electrical safety scenarios.

Initially launched in neighborhoods during 2022, the program shifted its focus to schools in 2023 for better safety and effectiveness. This strategic change was made after facing challenges such as long travel times and security concerns in certain areas. The campaign benefits from strong partnerships with organizations like Enel and Air-e (energy companies), local educational institutions, and support from the Universidad del Norte's IEEE student chapter, including its PES technical chapter and SIGHT affinity group.

The 2024 program culminated with a closing ceremony on February 17, 2025, where certificates were awarded to the participating volunteers, recognizing their dedication and contribution to the community's electrical safety education.

ECUADOR

For adults, the training focused on more advanced topics. The same models were used to explain residential electrical circuit installation in detail, emphasizing the importance of proper setup and maintenance for household safety. The sessions allowed participants to ask questions, engage in discussions, and participate in practical workshops, ensuring a hands-on learning experience and reinforcing the application of acquired knowledge.

The project followed a structured approach, including planning, execution, and final evaluation phases, ensuring comprehensive organization and assessment. The feedback from participants was highly valuable. This initiative strengthened the relationship between the local community and the university, promoting technical skill development and contributing to improved electrical conditions in local homes.

The "Robotics and Residential Electrical Installations" project was developed with the IEEE Power & Energy Society (PES) Student Chapter from the Escuela Politécnica Nacional and its Department of Electrical Energy. Senior electrical Engineering students carried out the initiative, traveling from Quito to the Autonomous Decentralized Government (GAD) of Ilumán to conduct the workshops. The training was designed for two groups: children and adults, attracting 70 participants.

Interactive and visually engaging sessions were held for children to introduce them to basic electricity concepts. While using models, instructors illustrated in an easy way how lighting and power circuits work, explaining how current flows and the voltage levels needed to power light bulbs. The activities included hands-on dynamics, question rounds, and refreshments, keeping the children engaged and actively participating. In order to expand their knowledge, electronic components were introduced through interactive workshops using Snap Circuits modules, reinforcing their learning experience.

COLOMBIA

Strengthening Bonds and Celebrating Achievements at IEEE UPB Montería

The IEEE Student Branch at Universidad Pontificia Bolivariana Montería held a special gathering to share with the community the recognition awarded by the IEEE Caribbean Colombian Section. This award highlights the active branch's participation in social and technological impact initiatives in the region.

The projects that have elevated the branch at both national and international levels were presented during the event. One of the key highlights was the development of the EPICS IEEE project “Water Storage, Automated Irrigation, and Waste Management in the Matoruco Agroecological Garden”, a sustainable solution aimed at optimizing water usage and promoting responsible agriculture in rural communities. Additionally, the branch shared its outstanding participation in the Tech4Good Challenge, where the ElectroMech and TecnoImpacto teams worked on innovative solutions for energy self-sufficiency and healthcare access for individuals with mobility impairments.

The gathering also reflected on the experience of hosting the Tropic Topic Tour 2024, an event that welcomed prestigious universities from the region and featured renowned speaker Dr. Adel Elmaghraby, IEEE Life Senior Member and Director of Industrial Research and Innovation at the Speed School of the University of Louisville. He provided valuable insights into artificial intelligence and digital transformation, enriching the experience for all attendees.

PERU

Detectando a tiempo (Detecting in Time) was an educational event designed to strengthen the culture of health prevention in Peru, highlighting the key role of medical signal and image processing in the early detection of diseases. Through lectures, workshops, and outreach activities, participants learn about early diagnosis equipment, image processing algorithms, and the interpretation of medical signals.

The event addressed the urgent need to raise awareness about the early detection of diseases such as cancer and cardiovascular conditions, whose timely diagnosis can significantly improve recovery rates. To this end, various activities were carried out that allowed attendees to understand the importance of biomedical technology in health. Among them, there were specialized presentations on the impact of technology on early diagnosis in the public and private sectors. Lectures were also given on medical signal and image processing, as well as on advanced diagnostic equipment.

Complementing these activities, practical workshops allowed participants to apply algorithms for diseases detection such as cancer, tuberculosis, hypertension, and diabetes, reinforcing their learning with exercises applied to real cases. In addition, interviews were conducted with health and medical technology experts to learn about the context of prevention in Peru and compare it with other countries, identifying gaps and opportunities for improvement.

Technical visits to hospitals were also organized, where attendees observed first-hand the operation of equipment such as CT scanners and magnetic resonance imaging, understanding their importance in disease detection and treatment. Finally, schools were visited to give talks on prevention and the role of technology in early diagnosis, promoting a more informed and aware society about the impact of technology on public health.

ECUADOR

The Universidad Bolivariana del Ecuador (UBE) has taken a significant step by officially launching its IEEE Student Branch. This achievement opens new opportunities for students in engineering, technology, and related fields, enriching their academic experience. The IEEE Student Branch at UBE will provide a platform for students to develop innovative projects, participate in workshops and conferences, and connect with a global network of professionals. Through these initiatives, students will enhance their leadership, teamwork, and creativity skills—key elements for their future careers.

One of the most impactful aspects of this launch is the positive influence the IEEE Student Branch will have in Durán, a city facing various social challenges. In this context, even the smallest projects can make a significant difference in the daily lives of its residents. By joining the UBE Student Branch, students may apply their knowledge to design solutions that improve the quality of life in their community. From initiatives that optimize resource use to technological projects that enhance safety, each one of the proposals has the potential to drive meaningful change.

PERU

The STAR Program Project is an initiative aimed at fostering interest in science and engineering among children and teenagers, particularly those from low-income backgrounds. By collaborating with university students, professionals, and companies, the project exposes students to the vast opportunities in STEM fields.

In 2024, the program was implemented in public schools in Piura, Peru, specifically at the Complejo Educativo de Jambur and the Centro de Educación Básica Alternativa N° 14121 - La Arena. The event took place on November 14 and 15, running for 6 hours and 30 minutes each day, and reached a total of 200 students. Our key collaborator for organizing activities in Piura was IEEE WIE UDEP Student Affinity Group.

This initiative supports the United Nations Sustainable Development Goals, particularly Goal 4 (Quality Education) and Goal 5 (Gender Equality), by promoting inclusive learning opportunities. Additionally, it aligns with IEEE WIE's mission to inspire young students, especially girls, to pursue STEM careers. The project also integrates into corporate social responsibility (CSR) strategies, fostering collaboration between academia, industry, and community programs.

PROJECT MILESTONE SCHEDULE: The Robotic Hand Workshop, The Newton Pendule, and Programming Workshop were organized by IEEE WIE UDEP SAG.
IEEE WIE UNMSM SAG led Robots Building, Race to Space: Chemical Rockets in Action, Robot Sumo Challenge, The Art of Deciding Your Business Dashboard, Augmented Reality Workshop: Hologram Boxes, Factory of Recyclable Agendas Workshop, and Virtual Reality Workshop.

Your work deserves to be seen

Student Activities

We appreciate the IEEE Student Organizational Units for being part of this and sharing your stories.

San Carlos IEEE Student Branch
Costa Rica

Capítulo Estudiantil IEEE PES UFCG
Brazil

Federico Santa Maria Tech Univ,CAS04/SSC37/ED15
Chile

IEEE PES - Universidad del Norte
Colombia

Rama estudiantil IEEE UBE
Ecuador

Student Branch Universidad Pontificia Bolivariana-Monteria
Colombia

IEEE Signal Processing Society Universidad Nacional Mayor de San Marcos
Peru

IEEE PES - Escuela Politécnica Nacional
Ecuador

IEEE WIE UNMSM SAG
Peru

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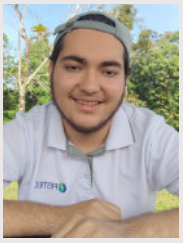

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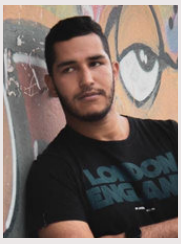

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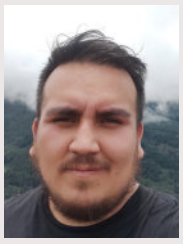

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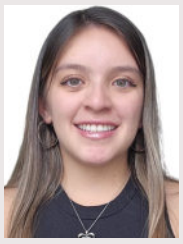

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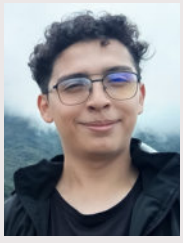

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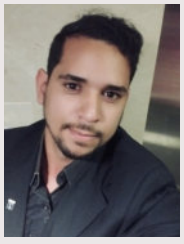

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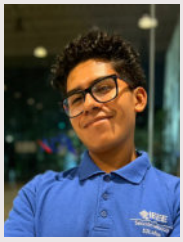

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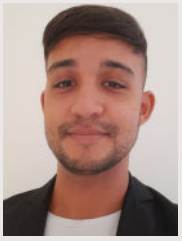

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