



IEEE

Foothill

August Monthly Newsletter

WHAT'S INSIDE

1-2

IEEE Foothill August ExCom/OpCom Monthly Hybrid Meeting

2

Student Branch Updates

3

SETC 2024

4

PES Report

5

IEEE Badge & Certificate

5

Upcoming Events

IEEE Foothill August ExCom/OpCom Monthly Hybrid Meeting

Prepared by: Max Cherubin | Proofread by: Prof. Gerald Herder

The IEEE Foothill Section held its August ExCom/OpCom Monthly Hybrid Meeting at DeVry University in Ontario. The meeting officially started at 7:10 p.m. The chair is still awaiting the approved minutes from March to December last year. The TAE Tour with the YP Affinity Group is now set for Sept. 27, 2024.

Membership Development

Kim Mosley reported that we are now a total of 915 members. 26 new member added by the end of summer semester. She was able to send out the revised Welcome Letter to the new members. We also had two senior elevation.

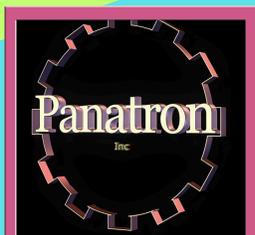
Social Media and Website

Osman Ceylan reported that the section's old Facebook page is no longer retrievable, so he created a new Facebook Group. The final design of the embroidery luggage tags is already done and will be available soon.



Technical Committees

Bo Chen reported regarding the CLEO-PR 2024 event last August 4-9, 2024. He is willing to volunteer for the section and create a Photonic-TIG (Technical Interest Group). He is now an appointed treasury of Foothill Section's Ed/CASS chapter.



This newsletter is brought by:

Scott Wedge reported that the distinguished lecturer Weng Hua Wu from Samsung presented a High-Performance fractional N Phase Lock Loop Design Application for a 5G New Radio. They discussed the challenges of implementing 5G technology on a chip. CPP alumni will teach at Mt. San Antonio College in January. Osman talked about the nanoVNA project. The unit is on order and waiting for shipment. They hope to use it in October–November.

Dr. Jenny Yu reported about the SETC 2024. 41 teams submitted from international teams. Seven from the USA, 34 from India. They had three categories of awards: High School, International School, and Domestic College—more of this report is on the following pages.

Dr. Koji Yamashita is in Knoxville and was able to report online. He reported about their webinar on August 07, 2024. There were 17 attendees for that webinar. Their next webinar will be in September. 04, 2024, the topic will be Evaluating the Impact of Retiring Synchronous Fossil Fuel Generators on Inter-area Oscillations in the US Western Interconnection. He also attended the PES General Meeting last July 21-25, 2024.

Bassem Maurice of the Computer Society reported on their event last July 17 with OC ACM/IEEE, Averting a Systems and Software-Induced Energy Crisis. They also have an upcoming event on the topic of the Tactical & AI Enabled Systems Initiative. The date is tentative yet.

Affinity Group

YP chair Pankaj Bhowmik finally confirmed the date of the TAE Tour 2024. Attire should be casual and should wear close type of shoes.

There was no Consultant Network meeting for the month of August. Next meeting will be in September.

Student Update:

CPP: Tyler McNeil attended the meeting for the first time and introduced himself. He is the vice-chair of CPP-ComSoc Student branch. He is an Electrical Engineering Student. Since the semester hadn't started he had nothing to report but we are glad for him to attend the meeting in person .

CSUSB: Freddie Martinez is accompanying incoming President who will take his role learning about how IEEE Student Branches work and their responsibility. Right now they are preparing everything for the next semester with the top three main officers of the club: President, Vice-president and Treasurer. Once everything is settle they will enroll their officers in vTools. They also have a project taken into consideration to also announce to the students their virtual AI project. For recycling projects, they will be announcing if any other student would like to get involved. Their drone project, they will be announcing that their school and as well like seeing whose can last the longest in the air, who can lift the heaviest or as well as whose the most stable. The section are ready to help them with funding.

CSUSB-WIE: Melissa Castro reported that their group just finished their chartering orientation. So it means they are now set to start the new year chartered. She spoke with their adviser Dr. Giorgio and he's going to book their venue for the next semester. They are preparing for the upcoming semester's Club Fair so that they reach out for more volunteer/member for their club. She also said that they do have an alumna who is willing to do some leak coding days or kind of like technical question days for those students. They are thinking to do it bi-weekly or weekly. They are also looking into mini drone project and intro to science date project and science data hackathon to test the students who can build the most accurate model given a certain data set. Social events are also one thing they have in plate so they are looking for the upcoming semester.

IEEE Student Engineering Team Challenge 2024: Reported by Dr. Jenny Yu

The IEEE Foothill and Orange County joint Sections Nanotechnology Council organized the IEEE Student Engineering Challenge 2024 STEM event during the past.

The IEEE SETC 2024 was focused on students from socio-economic disadvantaged communities with the goal to stimulate interest in the STEM fields. This challenge was actively looking to include minority children of color. These students were invited to participate, along with a few targeted topics.

Student in High School and College considering College majors in science and engineering disciplines were encourage to try their hand at meeting this team challenge by designing and displaying a solution for an investigation into a problem area associated with one of the topical boundaries of this year's challenge.

Team projects that were inclusive and collaborative showcasing creativity and ingenuity were shared with an audience of academic and industrial technical experts who provided recognition and award prizes in several participant categories.

As of May 31, 2024, there were 22 final team submissions received. These included submission from four High School, fifteen Foreign and three domestic college participants. Prizes were awarded in the three categories: High School, Domestic College and Worldwide Non-USA. One first, second and third prize were awarded in the High School and Domestic College categories. IN the Non-USA category two third prizes were awarded along with one first and second place. All of the awardees will receive an embossed IEEE Award Certificate stating their accomplishments.

There were 10 Engineers and Academics and Industry Professionals who serve on the Organizing Committee and as Judges and as support persons in a number of ways and the IEEE SETC 2024 extremely grateful for their service. The Region 6 Pace and the IEEE Nanotechnology Council provided financial along with the Orange County Section for the awards made to the winners.

The principal organizers were Chapter Chair. Dr. Jenny Zhen Yu and Chapter Sec. Nick Massetti.

Section:
Introduction > Participation

- 41 teams submitted from international teams
 - USA - 7
 - India - 34
- 22 final submissions received
- Three categories awards:
 - **High school** - 1 First, Second and Third prize
 - **International school**- 2 Third prizes were awarded along with 1 First and Second Prize
 - **Domestic College** - 1 First, Second and Third prize

IEEE Student Engineering Team Challenge (SETC) Spring 2024 <https://ieeetc.org/>

Section:
Organizers & Supporters > Organizers

Organizers

- **IEEE NTC Committee:** Chair Jenny Yu, Vice- Chair Yu Bai, Secretary Nick Massetti
- **CPP Hyperloop President:** Christopher Lai
- **CPP Robotics President:** Borick Lieng
- **IEEE Foothill:** Chair Max Cherubin, Vice-Chair Osman Ceylan, Secretary Gerald Herder
- **IEEE Orange County:** Chair Alberto Yong, Secretary Nick Massetti
- **Judges:** Ben Cheng, Osman Ceylan, Gerald Herder, Alberto Yong, Max Cherubin, Ranjeet Pancholy, Sean Monemi, Tim Lin, Joichi Mochizuki, Nick Massetti, Jenny Yu
- **Diamond Bar High School Representative:** An Tran
- **Walnut High School Representative:** Harris Song
- **Eleanor Roosevelt High School Representative:** Pragun Bethapudi
- **Glen A. Wilson High School Representative:** Borick Lieng
- **Crean Lutheran High School:** Fiona Wang

IEEE Student Engineering Team Challenge (SETC) Spring 2024 <https://ieeetc.org/>

List of Sponsors:



IEEE PES Foothill Section Seminar:

Overview of Demonstration Projects Aimed at Harnessing Renewable Energy on Remote Islands: Reported by Dr. Koji Yamashita

The IEEE PES Foothill Seminar, titled "Overview of Demonstration Projects Aimed at Harnessing Renewable Energy on Remote Islands," was held online on Aug. 06, 2024. Prof. Petros Aristidou from the Cyprus Technological University showcased a demonstration project in small isolated island grid in Cyprus, highlighting the current technical challenges and their mitigations.

Dr. Aristidou started with the informative technical challenges caused by decrease in grid inertia by augmenting inverter-based resources (IBRs). He then delved into small grid-specific technical problems, i.e., frequency violation and fault current deficiency. One of his critical messages is that the frequency nadir cannot be discussed a possible countermeasure for the challenges, focusing on enhancing frequency response.

A total of 17 participants attended this webinar. During the discussion segment, speakers and the audience elaborated on the strength of the forthcoming technologies, grid forming converter technologies, contrasting the frequency response capabilities that grid forming converters have, but grid following converters do not have. Slides are available thanks Dr. Aristidou's kind treatment. Interested individuals can contact Dr. Koji Yamashita at kyamashita@ucr.edu to acquire the PDF format file.

The next topic is Dynamic Stability Study with Grid Forming Converters in Spain. The speaker, Jesus Castro, an assistant professor at the University of Carlos III de Madrid will demonstrate state-of-the-art academic researches highlighting forthcoming grid forming converter technologies in October.



**Enhancing System Security in Cyprus:
Addressing Low-Inertia Challenges and Frequency Stability**

Petros Aristidou
Department of Electrical Engineering, Computer Engineering & Informatics
Cyprus University of Technology

IEEE
Online, 7th August 2024

Cyprus system description

- Islanded system @ 50 Hz
- 132 kV transmission system
- 1465 MW installed capacity (conventional units) at three locations
- Peak load ~ 1250 MW
- Significant PV penetration (currently ~700 MW installed)
- Heavily depends on UFLS to maintain frequency security (first stage at 49 Hz)

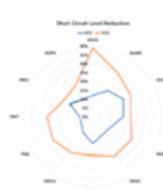


Power Station	Generation Unit	Number of Units	Capacity (MW)
Vasilikos	Steam Turbine	3	130MW
	Combined Cycle Gas Turbine	2	220MW
	Gas Turbine	1	32.5MW
Diklerio	Steam Turbine	6	60MW
	Internal Combustion Engines	6	17MW
Masa	Gas Turbine	4	35MW

Current and future challenges in Cyprus

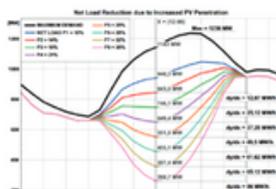
Low Loading Conditions

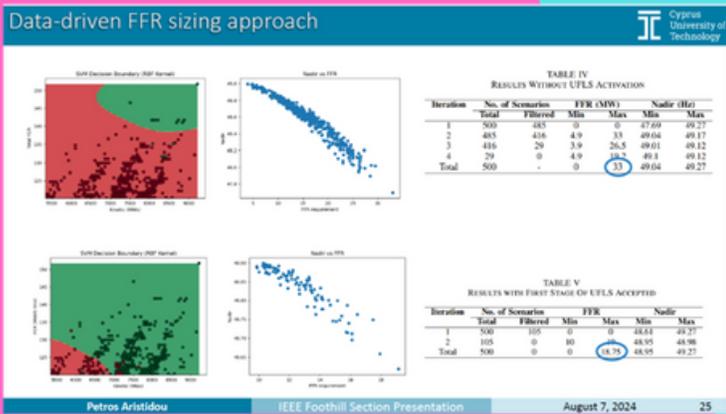
- Frequency response (mainly Nadir problems) → [next slide](#)
- Reduced system strength (blue: current, orange: predicted 2028)



Medium and High Loading Conditions

- Network congestion (limited RES hosting capacity)
- Increased ramp rate requirements for generators





Summary

Conclusion

- The penetration of power-electronic-interface resources is converting traditional power systems into low-inertia power systems. This comes with many opportunities and challenges
- The impact is more prominent now in small, islanded, systems (like Cyprus) but will gradually become an issue in bigger countries
- For the first time, small countries are forced to be pioneers in this area, developing and implementing practical solutions that are widely untested

Future steps

- Moving to grid-forming technologies is a necessity for Cyprus. However, there is a lack of standardization and industrial requirements for these technologies
- Need to be proactive rather than reactive

Petros Aristidou | IEEE Foothill Section Presentation | August 7, 2024 | 27



The IEEE Corporate once again recognized the section for being outstanding in recruiting volunteers. This is a terrific milestone for our section. Thank you so much volunteers for your support to our section.

UPCOMING EVENTS

- 9/10** IEEE Foothill September ExCom/OpCom Monthly Hybrid Meeting
- 9/04** IEEE Foothill Consultant Network September Meeting
- 9/27** TAE Tour 2024

Look Here

We are looking for volunteers. You can email sec.foothill@ieee.org

Social Media

Facebook Page

LinkedIn

TikTok