

## Konstantina Nikita, IEEE Greece Section Chair

### Section Vitality

Last Section elections: February 2019

Currently planning 2021-2023 ExCom elections

The IEEE Greece Section counts 1638 members and has organised since the last report, more than 50 online events with more than 3000 participants.

Appointment of Newsletter Editor Officer (Mrs Georgia Fasoula); 3 newsletters have been released

Several Virtual ExCom communication rounds (January 11, 14, 15, 16, 19, 30) to discuss the proposal by the Section's Awards Chair of establishing awards to distinguished Greek engineers, in recognition of their achievements and contributions, on the occasion of the section's 50<sup>th</sup> anniversary. The ExCom made final decisions about the awards and agreed on organizational aspects of the corresponding awards ceremony.

### Students

List of Student Branches (16); University of Patras, University of Thessaly ( Lamia), Aristotle University of Thessaloniki, National Technical University of Athens, Technical University of Crete, University of Western Macedonia, Kozani, Democritus University of Thrace, University of Western Macedonia (Kastoria), University of Peloponnese, University of West Attica, University of Ioannina, International Hellenic University (Thessaloniki), University of Thessaly (Larissa/Volos), University of Piraeus, International Hellenic University ( Serres), Ionian University

Dissolved SBs (5); International Hellenic University, Technological Edu Inst of Ionian Islands, Hellenic Mediterranean University, University of Aegean, University of Peloponnese-Patras

**Seven** student branches were awarded as exemplary in 2020 and **one** received the Darrel Chong Student Activity Award.

The Student chapter of Democritus Univ of Thrace Robotics and Automation Society Student Branch Chapter was established.

The **IEEE Greece Computer Chapter** in collaboration with the **Greek Student Branches** organized five IEEEExtreme training sessions, attended by more than 70 students in which problems related to previous competitions were discussed. The IEEE Greece Section took part in IEEEExtreme with 65 teams from 12 Greek Universities; National Technical University of Athens (NTUA), Aristotle University of Thessaloniki, University of Patras, Democritus University of Thrace, Technical University of Crete, University of Western Macedonia, (Kozani, Kastoria), University of Ioannina, University of Thessaly (Larissa, Volos), University of West Attica, International Hellenic University (Thessaloniki, Serres). Three teams from the NTUA Student Branch ranked among the top 100 and two more NTUA teams between 100-150. The exact ranking of the top 5 Greece section's teams was as follows: Backtrack boys on the 17th position, FooBarFighters on the 76th, HTML1337HACK3R5 on the 96th, ExtrIMS on the 108th and TsiliCoffeeShop on the 120th position, worldwide.

The **Computer Society and the Robotics and Automation Society** chapters of the **Democritus University of Thrace (DUTH) Student Branch** in collaboration with the IEEE ETH Zurich Student Branch organized a webinar entitled "Introduction to Robotics", which took place on Tuesday 10 November 2020. The topic of the event was robotics and their applications that surround us.

The **IEEE Aristotle University of Thessaloniki (AUTH) Student Branch** organized, for the fifth consecutive year, the event "Career Day" on Tuesday, 8 December 2020. The event is aimed mainly, but not only, at students of the Department of Electrical and Computer Engineering and hosts consulting bodies, research centers as well as private companies. Before the event, interested students were given the opportunity to upload their CV, and during the Career Day were interviewed by industry representatives. Each company conducted the interviews in its own virtual room for which a separate link was sent.

On Tuesday, December 22, the **IEEE Greece Section** and the **IEEE Young Professionals (YP)** hosted the 2nd IEEE Greece Section online meetup, an event which aims at connecting students and young professionals to exchange best practises and fresh ideas. Firstly, The IEEE Greece Section Chair Professor Konstantina Nikita presented the section's past activities, the awards received over the year and the newly launched initiatives. Afterwards, the chairs of the greek affinity groups, Dr Panos Kotsampopoulos, YP Greece Chair and Dr Kalliopi Dalakleidi, Wie Greece Chair, informed us about their events and their future plans for the upcoming year. These opening remarks were followed by 15 student branches presentations in which active volunteers from all across Greece shared their work and the goals they have set for 2021. During the event the attendees had the opportunity to interact with active IEEE volunteers and be informed about the IEEE activities which are taking place at our Section.

On Wednesday, December 23, the **IEEE National Technical University of Athens Student Branch** and the **IEEE Greece Section** organised a recruiting event entitled 'Join our team!'. The event started with opening remarks by the IEEE Greece Section Chair Professor Konstantina Nikita and the IEEE NTUA student branch counselor Professor Nectarios

Koziris who serves as the Dean of the ECE NTUA school. In the second part of the event the IEEE Greece Section Student Representative, Georgia Saridaki, gave a brief presentation on the benefits of being an IEEE member as a student. Moreover, the student branch chair, Konstantinos Tsinnas and 5 officers of NTUA student chapters ( Engineering in Medicine and Biology, Power and Energy Society, Robotics and Automation, Computer and Communications) presented their activities over the past year, the ongoing projects and the possible ways to get involved in them.

### Affinity Groups

The **IEEE Young Professionals Greece** and the **IEEE Greece Section** have initiated a Mentoring Activity in order to support young engineers at their first professional steps. The Mentors will share their experience and provide guidance in achieving specific professional goals, improving skills and enhancing career development.

The **IEEE Greece Section Women in Engineering Affinity Group** celebrates the International Women's Day by organizing the IEEE Greece Section Women in Engineering Week 2021. On Monday 8 March at 18:00 a lecture entitled "Enhance gender balance in STEM fields" will be given by Dr Maria Flouri. The event is organized by the IEEE Greece Section Women in Engineering Affinity Group. On Tuesday 9 March at 19:00, a lecture entitled "Women's role in engineering & technology" is organized by the IEEE Women in Engineering Affinity Group of the Student Branch of the International Hellenic University in Thessaloniki. On Wednesday 10 March at 19:00 a lecture entitled "#metoo & Negotiations and Leadership in a workplace" will be given by Mrs Mavridaki, Mr Giannakoudi and Mrs Kouvidi. The event is organized by the IEEE Women in Engineering Affinity Group of the Student Branch of the Democritus University of Thrace in Xanthi. On Thursday 11 March at 18:00 a lecture entitled "Gender Equality in the time of Covid-19" will be given by Mrs Mastora and Mrs Saridaki. The event is organized by the IEEE Women in Engineering Affinity Group of the Student Branch of the University of Western Macedonia in Kastoria. On Friday 12 March at 17:00 a lecture entitled "Women in Science: Inspirational portraits" is organized by the IEEE Women in Engineering Affinity Group of the Student Branch of the University of Thessaly in Volos.

Appointment of **SIGHT Greece** chair (Mr Kostas Latoufis)

### Chapters

The IEEE Greece Section has 12 technical chapters (Power and Energy Chapter, Communications Chapter, Control Systems Chapter, Signal Processing Chapter, Computer Chapter, Consumer Electronics Chapter, Engineering in Medicine and Biology Chapter, Computational Intelligence Chapter, Electron Devices/Microwave Theory and Techniques/Antennas and Propagation Joint Chapter, Circuits and Systems/Solid-State Circuits Joint Chapter, Vehicular Technology/Aerospace and Electronic Systems Joint Chapter, Industrial Electronics/Industry Applications/Power Electronics Joint Chapter) and more than 20 technical student chapters.

The **IEEE EMB Greece Chapter** in cooperation with **IEEE Greece Women in Engineering** organized an online event entitled the "Elasticity Imaging and Ultrasound-based Therapeutics", under the auspices of Association of Fulbright Scholars, on Thursday 21 January 2021.

The **IEEE Greece Computer Chapter** organized an online event entitled 'AI and Games: the Co-revolution' on Friday, 29 January 2021. This talk focused on the wonderful and long-term relationship between games and AI and the impact such a relationship has had on our lives. Games have been a core driving force for the revolution of AI which, in turn, has reframed our culture, and reshaped our society at large. While games have been assisting AI since its birth it is only very recently that we experience a strong inverse relationship: AI nowadays designs exciting games for us to play and for AI to advance further. While games are arguably one of the last frontiers for AI, AI is also the next great leap forward for games.

The **IEEE Signal Processing Society (SPS) Greece Chapter** organized an online lecture entitled 'Learning-based optimization of distribution grids with renewables' which was given by Dr. Vassilis Kekatos, Assistant Professor at Virginia Polytechnic Institute and State University (Virginia Tech). Electric distribution grids are challenged by the rampant integration of rooftop photovoltaics and other distributed energy resources (DER). This talk has put forth novel learning-based solutions for the planning and operation of grids with high DER integration.

The **IEEE EMB Greece Chapter** celebrated EMBS day 2021 and organized a lecture which was given by Shankar Subramaniam, EMBS Past President on Friday 05 March 2021. The event was co-organised with IEEE EMB student branches of NTUA and AUTH. Over the past two decades Biomedical Engineering has emerged as a major discipline that bridges societal needs of human health care with development of novel engineering methods and technologies. Every medical institution is now equipped with technologies at varying degrees of sophistication monitoring human health in both non-invasive and invasive modes.

### Industry

These are the targets for the 1st quarter of 2021; first Industrial PhD in Greece (in cooperation with AUTH HVlab – Prof. Tsovilis and Prof. Mikropoulos and Raycap Dr. George Peppas), ECESCON presentation of industrial opportunities and engineering growth (Dr. George Peppas), industrial advisory boards with: DUTH (established) & AUTH (to be established)

7within 2021), aiming to identify opportunities for industry collaboration of academic and co-curricular activities, to enhance the course of studies by discussing the industry strategic needs and to help and ensure that the DUTH and AUTH university degrees reflect the current developments and industry skills requirements and continual internships with AUTH and DUTH universities and Raycap S.A.

### **Activities since the last report**

We celebrated the 50th Anniversary of the IEEE Greece Section with a series of interesting events organized by Technical Chapters, Affinity Groups and Student Branches.

The **IEEE Greece Section Engineering in Medicine and Biology (EMB) Chapter** successfully organized an online webinar entitled “Covid-19 challenges and the role of Biomedical Engineering”. The event took place on 29 October 2020 and featured presentations from two distinguished academics. First, Paraskevi Katsaounou, Assistant Professor at the Medical School of the University of Athens, in her presentation entitled “Covid-19 First Wave in Greece - Collateral Damage”, discussed the clinical challenges of the Covid-19 outbreak, based on the current state-of-the-art and her professional experience. Next, Nikos Paragios, Professor at the University of Paris-Saclay and Founder of the TheraPanacea company gave a presentation entitled “Holistic AI-Driven Quantification, Staging and Prognosis of Covid-19 Pneumonia”, where he discussed the role of AI in Covid-19 research. The event was attended by more than 100 participants. The speakers and audience were engaged in a lively and very interesting discussion not only about particular technical or clinical aspects of the Covid-19 research, but also about the dynamics of the collaboration between biomedical engineers and clinical professionals.

The **IEEE Signal Processing Society (SPS) Greece Chapter** organized an online lecture “The Computational Sensing Revolution in Array Processing” with Dr. Petros Boufounos, Senior Principal Research Scientist at the Mitsubishi Electric Research Laboratories (MERL) and IEEE SPS Distinguished Lecturer for 2019-2020. The lecture was held on Thursday, 5 November 2020, at 16:00 pm through the zoom platform.

On Friday, 20 November, 2020, the **IEEE VTS/AESS Joint Chapter** organized an interesting online Panel entitled “6G Wireless Communications: The Next Generation!”. The panel was co-organized with IEEE Greece Section and the IEEE National Technical University of Athens (NTUA) Student Branch. The agenda included four talks by Prof. Demosthenes Vouyioukas, University of the Aegean, Prof. George Tsoulos, University of Peloponnese, Ass. Prof. Charis Mesaritakis, University of the Aegean, Prof. Athanasios G. Kanatas, University of Piraeus that covered a variety of issues related to 6G systems. The event lasted almost two hours including a lively discussion session between the speakers and the 250 participants from academia and industry.

The **Computer Society chapter of the IEEE Democritus University of Thrace (DUTH) Student Branch**, in collaboration with the IEEE Student Branch at Sarajevo School of Science and Technology organized a webinar titled “Data Science vs Modern World” which took place on Thursday, 26 November 2020 at 7 pm via Google Meet platform. The topic of the event was concepts such as Data Science and Artificial Intelligence whose try to provide answers to great problems that concern humanity.

The **IEEE Engineering in Medicine and Biology (EMB) chapter of the Aristotle University of Thessaloniki (AUTH) Student Branch** and the **IEEE Aristotle University of Thessaloniki (AUTH) Student Branch** in cooperation with the **IEEE Democritus University of Thrace (DUTH) Student Branch** organized a webinar titled “5G and Human Health”. The webinar took place on Saturday, 28 November at 5 pm via the Google Meet platform and featured three presentations by distinguished academics. Georgios Karagiannidis, Professor at the Department of Electrical and Computer Engineering of AUTH gave a presentation on “5G Wireless Networks: Services and Fundamental Technologies”. Traianos Gioultsis, Professor at the Department of Electrical and Computer Engineering of AUTH focused on “Radio-frequency Communications: Measurements, Limits of Exposure and Ways of Protection”, while Theodoros Samaras, Professor at the Physics Department of AUTH, talked about “5G networks and possible effects on health”.

On Friday, 4 December 2020, at 4 pm, the **IEEE Signal Processing Society (SPS) Greece Chapter** organized an online lecture delivered by Prof. Nikos Sidiropoulos. Dr. N. Sidiropoulos is the Louis T. Rader Professor and Chair of the Electrical and Computer Engineering Department at the University of Virginia. Prof. N. Sidiropoulos is a Fellow of the IEEE and EURASIP, former Vice President of the IEEE SPS and IEEE SPS Distinguished Lecturer and a renowned researcher in the fields of signal processing, communications, optimization, tensor decomposition, and factor analysis, with applications in machine learning and communications. In his talk, Prof. Sidiropoulos presented a new non-parametric approach for multivariate probability density estimation from its characteristic function. The main idea of this approach is to leverage the low-rank structure of the characteristic function tensor model, which significantly improves the density estimate especially for high-dimensional data. The lecture was followed by a discussion between the speaker and the attendants and questions from the audience. The lecture was attended by more than 60 people from academia, postdoctoral researchers and students from all over Greece.

The **Computer Society chapter of the IEEE Democritus University of Thrace (DUTH) Student Branch** organized a webinar titled “Introduction to Internet of Things Protocols and Applications”, which took place on Wednesday, 9 December 2020, at 6 pm. The speaker of the webinar, Dr. Sotirios K. Goudos, is an Associate Professor at the Department of Physics of the Aristotle University of Thessaloniki. Dr Goudos made a brief introduction to the IoT protocol stack, and

presented physical-level IoT technologies, data link (RFID, IEEE 802.15.4 5, IEEE 802.11ah, Bluetooth low energy (BLE)), network-level (IPv6, 6LoWPAN), transport and application technologies (CoAP). In addition, Dr Goudos made a brief introduction to long-range IoT technologies (LoRaWAN, NB-IoT), followed by an overview of IoT applications with an emphasis on “smart farming” applications.

The TeamUp5G project, in collaboration with the **IEEE Communication Greece Chapter**, the Communications, Cybersecurity and IoT Research Group (International Hellenic University) and the **IEEE Student Branch IHU (Thessaloniki)** organized a week full of events, entitled “5G and Internet of Things Thessaloniki Week 2020”, which took place from 14 to 18 December 2020. More specifically, the week included; the “Winter School on 5G and Internet of Things” on Monday 14 and Tuesday 15 of December the “IEEE 5G Thessaloniki Summit 2020” on Wednesday 16 of December 16 and the “1st Training on Standards and Standardization” on Thursday 17 and Friday 18 of December 2020.

The **Computer Society chapter of the IEEE Democritus University of Thrace (DUTH) Student Branch** in collaboration with the IEEE Engineering in Medicine and Biology (EMB) chapter of the Aristotle University of Thessaloniki (AUTH) Student Branch organized a webinar titled “AI in Medicine”. The webinar took place on Thursday, 17 December 2020 via the Google Meet platform and featured a presentation by Dr. Leontios J. Hadjileontiadis, Professor of AUTH and IEEE Senior Member.

The **IEEE University of Western Macedonia (UoWM) at Kozani Student Branch**, in collaboration with the software development Department of the Supreme Council for Civil Personnel Selection (ASEP), organized an online event on Monday 21 December 2020. The event was entitled “Blockchain Applications & QualiChain” and featured presentations by Dr. K. Siassakos, Current Executive and Consultant of ASEP and P. Zarafidis, Head of Software Development Department of ASEP. The presentations focused on an Introduction to Blockchain, Pillars and Blockchain Applications. In addition, the ASEP research project, entitled QualiChain, funded within the framework of the H2020 program, was presented. QualiChain focuses on the application of Blockchain technologies in the field of education. The aim of the event was to provide an overview about decentralized blockchain technology and its possible applications in various fields.

### **Planned activities**

The **IEEE Greece Section**, the **IEEE Engineering in Medicine and Biology (EMB) Greece Chapter**, and the **IEEE National Technical University of Athens Student Branch** organise an online lecture entitled ‘Model-based Signal Processing for Improved Neurocritical Care’ which will be given by the EMBS Distinguished Lecturer, Dr. Thomas Heldt, Associate Professor at the Department of Electrical Engineering & Computer Science, Massachusetts Institute of Technology, on Tuesday, 9 March 2021, at 6 pm. In this talk, Prof. Heldt will highlight his team’s work in model-based signal processing for improved neurocritical care to derive additional and clinically useful information from routinely available data streams. He will present their model-based approach to noninvasive, patient-specific and calibration free estimation of intracranial pressure and highlight how novel algorithms motivate biomedical device innovation and translation of such systems to the patient’s bedside.

The **IEEE Greece Section** in cooperation with the **Biomedical Simulations and Imaging (BioSim) Laboratory of the School of Electrical and Computer Engineering (ECE)** and the **IEEE NTUA Student Branch** organizes a lecture on Wednesday, 17 March 2021, at 5 pm entitled “From NTUA to investing in Discord & Snap in Silicon Valley as a VC a few years later” which will be given by the ECE-NTUA alumnus, Niko Bonatsos, managing director at General Catalyst. Abstract: How an engineering and research heavy background can lead to a career in startups and venture capital. What are the skills required to break into Silicon Valley and VC in particular? What are VCs looking for when they are investing in tech startups? Europe is emerging as a great player in the world of startups now that Silicon Valley is a mindset! How can today’s undergrad and graduate students seize the day.

