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#### CONFERENCE REPORT

## The 2021 IEEE International Conference on Microwaves, Communications, Antennas, Biomedical Engineering, and Electronic Systems (COMCAS 2021)

by Shmuel Auster, IEEE COMCAS 2021 General Chair and IEEE Israel Section Chair, Itai Dabran, IEEE Israel ComSoc Chapter Chair, Amir Boag, IEEE COMCAS 2021 TPC Chair, Israel

The 8th biennial IEEE International Conference on Microwaves, Communications, Antennas, Biomedical Engineering, and Electronic Systems (IEEE COMCAS 2021) was held 1–3 November 2021 at the David Intercontinental Hotel in Tel Aviv, Israel. The first two days of the conference included the plenary sessions together with eight parallel sessions, while the third day was reserved for short courses and workshops in six parallel sessions as well as an additional two plenary sessions. In spite of the COVID-19 situation, the live conference was attended by more than 1200 engineers, academics, and technical developers.

IEEE COMCAS is organized as a multidisciplinary international conference where scientists, engineers, and students can meet and discuss their common interests. In addition, it includes an industry-focused exhibition that features leading companies in the fields of antennas, microwave, solid-state, and systems engineering, where colleagues researching and developing the products and systems of tomorrow can interact with their industry colleagues.

This conference was sponsored by the IEEE Israel Section and the Association of Engineers in Israel (AEAI). It was technically co-sponsored by the IEEE Region 8, Microwave Theory and Techniques Society (MTTS), Antennas and Propagation Society (APS), the Communication Society (ComSoc) Chapter Israel, Aerospace and Electronic Systems Society (AES), Electronic Packaging Society (EPS), and the European Microwave Association (EuMA).

This year we had more than 200 technical presentations, 50 posters, 10 courses and special sessions, 52 invited speakers, 88 sessions, 8 parallel halls, and 80 exhibition booths over more than 5700 ft<sup>2</sup>. Emphasis continued to be on applications-oriented research and development, from antennas and devices to systems and software, including 5G cellular mobile, biomedical systems and applications, and phased array radars, with strong industry patronage and participation.

Our plenary session was opened with welcome addresses by Shmuel Auster, IEEE COMCAS Founder and General Chair; Amir Boag, IEEE COMCAS TPC Chair; and Yossi Rosenwaks, Dean of Engineering at Tel Aviv University. It was followed by Goutam Chattopadhyay (NASA-JPL/Caltech, USA) who presented a keynote lecture, “NASA Technologies to Find Life Beyond Earth and Answers to Other Science Questions,” and Massimo Comparini (E-GEOS, Italy), who also presented a keynote lecture, “Evolution of Space On-Board Technologies in the Global Geospatial and Connectivity Era.” Afterward, a keynote lecture



Opening session: from left: Prof. Yossi Rosenwaks, Prof. Amir Boag, Ilanit Saban (conference coordinator) and Mr. Shmuel Auster



Opening Session



Exhibition

on “Addressing 6G Energy Efficiency with a Gearbox-PHY” was presented by Gerhard P. Fettweis (Technische Universität Dresden, Germany), and the “Electrophysiology Meets Printed Electronics: The Beginning of a Beautiful Friendship” keynote lecture was presented by Yael Hanein (Tel Aviv University, Israel).

Two more plenary talks were presented on the last day of the conference: “A Technical Confluence of UWB Radar and Com-

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## Comsoc Indonesia Chapter Activities in 2021: Stay Productive in the Pandemic

by Wiseto P. Agung, Indonesia Comsoc Chapter Chair

Even though the world in 2021 was still in a pandemic, the IEEE Communications Society Indonesia Chapter activities were still running well through online video conferences. Those activities consisted of 9 administrative meetings and 13 professional activities in collaborations with 6 universities in Indonesia as well as with IEEE ComSoc's New York Chapter. Furthermore, the total membership of the ComSoc Indonesia Chapter has increased 37 percent, from 80 to 110, through 2020 and 2021. As all activities were held virtually, it was accessible to a worldwide audience in real time. Furthermore, in the virtual conferences, all presenters were required to provide video presentations of their work in advance, but they still attended in real time during the online Q&A session.

The nine administrative meetings were mainly about coordination preparing IEEE international conferences between committees of the IEEE ComSoc Indonesia Chapter with the team from the universities. For the professional activities, there were 13 events, consisting of 8 international conferences, 3 webinars, and 2 Distinguished Lecturer Programs (DLPs). In the 8 conferences, there were 29 keynote presentations by academicians and industry leaders from 18 countries.

The first virtual international conference held in 2021 was the IEEE Asia Pacific Conference on Wireless and Mobile 2021 (ApWiMoB) held on 8–10 April 2021, focusing on wireless and mobile technologies. ApWiMoB was hosted by Telkom University and ARS University, and the IEEE ComSoc Indonesia Chapter was the sponsor and organizer of this event. ApWiMoB reviewed 110 papers and had a 40.9 percent acceptance ratio: 45 papers were accepted from 10 countries. The keynote speakers were Prof. Shin Soo Young (Kumoh National Institute of Technology, Republic of Korea), Prof. Maryline Chetto (University of Nantes, France), and Dr. Fal Sadikin (Signify/Philips, the Netherlands).

The second was the 2021 IEEE International Conference on Communication, Networks, and Satellite (Comnetsat) held on 17–18 July 2021. Comnetsat aims to address the current state of technology and the outcome of ongoing research in Broadband & Photonics, Communication, Data Science & Artificial Intelligence, Network, and Satellite. This year, IEEE Comnetsat 2021 was organized by Institut Teknologi Telkom Purwokerto (ITTP), and the IEEE ComSoc Indonesia Chapter sponsored this event. The acceptance rate was 56 percent: out of 117 papers submitted, 65 papers were accepted. The keynote speakers were Prof. Mathini Sellathurai (Heriot-Watt University, U.K.), Assoc. Prof. Dr. Agustian Taufiq Asyhari (Birmingham City University, U.K.), Prof. Mamoun Alazab (Charles Darwin University, Australia), Prof. Josaphat Tetuko Sri Sumantyo (Chiba University, Japan), and Prof. Ridha Hamila (Qatar University, Qatar).

The third was the IEEE International Conference on Industry 4.0, Artificial Intelligence, and Communications Technology (IAICT) held on 27–28 July 2021. There were 85 submitted papers from 32 countries. The acceptance ratio of submission was 57.6 percent (49 papers) with a minimum of 3 international reviewers each to maintain the quality of the papers. The keynote speakers were Danilo Pelusi (University of Teramo, Italy) and Prof. Indra Jaya (Institut Pertanian Bogor University, Indonesia).

The fourth was the Fourth International Conference on Vocational Education and Electrical Engineering (ICVEE) held on 2 October 2021, hosted by Universitas Negeri Surabaya. The keynote speakers were Prof. Nobuo Funabiki (Okayama University, Japan), Dr. Taufiq Asyhari (Birmingham City University, U.K.), Muhammad Ghifary, Ph.D. (PT. Bank Rakyat Indone-

sia, Indonesia), Prof. Subir Kumar Sarkar (Jadavpur University, India), and Prof. Manuel Gradim de Oliveira Gericota (Polytechnic Institute of Porto, Portugal).

The fifth was the International Biomedical Instrumentation and Technology Conference (IBITeC), held on 27–29 October 2021. IBITeC was hosted by Universitas Islam Indonesia and the IEEE ComSoc Indonesia Chapter as co-sponsors. The keynote speakers were Prof. Dr. Edward Sazonov (Alabama College of Engineering, USA), Desiree Abdurrachim, Ph.D. (Merck Sharp and Dohme, Singapore), and Assoc. Prof. Noor Azurati Ahmad (Universiti Teknologi Malaysia, Malaysia).

The sixth event was the International Conference on Artificial Intelligence and Big Data Analytics (ICAIBDA 2021), which was held 27–29 October 2021. This event was hosted by Padjajaran University, and the IEEE ComSoc Indonesia Chapter sponsored this event. The keynote speakers were Prof. Mirkin Boris (National Research University Higher School of Economics, Moscow RF & Birkbeck University of London, U.K.), and Dr. Mahardika Pratama (Nanyang Technological University, Singapore).

The seventh was the 2021 IEEE International Conference on Internet of Things and Intelligence Systems (IoTals) held on 23–24 November 2021. IoTals was organized and sponsored by the IEEE Communications Society Indonesia Chapter and supported by Telkom University, IEEE IoT Initiatives, and IPv6 Forum. IoTals received 87 submitted papers and accepted 42 papers with a 48.2 percent acceptance ratio. There were 157 registered authors from 18 countries. The keynote speakers were Dr. Pascal Thubert (Cisco, USA), Dr. Jorge Pereira (European Commission, Europe), and Prof. Ari Pouttu (University of Oulu, Finland).

The last conference this year was the 2021 IEEE Symposium on Future Telecommunication Technologies (SOFTT), which was held on 7–8 December 2021, hosted by Telkom University, where the IEEE ComSoc Indonesia Chapter was the sponsor. This event was also attended by the Minister of Communication and Information Technology, Republic of Indonesia, Mr. Johnny Gerard Plate, who gave an opening and keynote speech. The other keynote speakers were Prof. Gerhard Fettweis (Vodafone Chair Professor at TU Dresden, Germany), Prof. Tharek Abd Rahman (Commission Member of the Malaysian Communications and Multimedia Commission (MCMC), Malaysia), Prof. Tadashi Matsumoto (JAIST, Japan and University of Oulu, Finland), Marfani Hasan (VP Network Architecture and Design, PT Telkomsel), and Ehsanul Islam (VP Engineering & Head of Sales and Marketing Qualcomm, SEA).

Also, in 2021, the IEEE ComSoc Indonesia Chapter held three webinars. The first was Innovation Accelerations Using OpenSource Core as a Service in 5G Technology held on 23 July 2021, and the second was Strengthening Security and Intelligence in the Post-Quantum Era was held on 27–28 July 2021. The speaker of both webinars was Dr. Gandevara Bayu Satrya, a Senior Member of the IEEE ComSoc Indonesia Chapter. The third webinar held on 13 November 2021 was a collaboration with NetCo and the Indonesian diaspora in Japan, which was Telco Sharing Session "How's the 5G in Japan."

Then two Distinguished Lecturer Programs (DLPs) were held in 2021. First, on 4 September 2021, on "Channel Modelling for Evaluation of Communication System," the speaker was Prof. Gamantyo Hendrantoro (Institut Teknologi Sepuluh November Surabaya, Indonesia), and the recording was also uploaded on the IEEE ComSoc Indonesia Chapter YouTube channel. The other DLP was in cooperation with the IEEE ComSoc New York Chapter on "Connecting Space Assets to the Internet: Challenges and Solutions"; the speaker was Prof. Mohammed Atiquzzaman (University of Oklahoma, USA).

As a concluding remark, it should be noted that COVID-19 has changed the activities landscape. Nevertheless, the IEEE ComSoc Indonesia Chapter has stayed productive, and our

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activities can be sustainable. There were numerous international conferences, topics, webinars, and DLPs with many collaborations held in 2021 as online events during the pandemic. Regardless of virtual events, the atmosphere of all the activities was as strong as an offline event. These have brought us such

delightful experiences and lead to many potential collaborations with all of the components of the industry ecosystem in the near future.



## CHAPTER REPORT

### North Jersey ComSoc Chapter's Virtual Year

by Amit Patel, IEEE North Jersey Section ComSoc Chapter Chair, USA

2021 was a rather virtual one for the North Jersey ComSoc chapter (USA). The year actually happened, and many activities were coordinated and executed, so in that sense, the year was very much a real one. But all the events for the year happened using everyone's favorite online tool, Zoom, for hosting the seminars and symposium. Planning for joint seminars and Distinguished Lecturers resulted in a handful of speakers and dates being set. Then began the work of making them happen.

This year saw a return to many more seminars as the easiest, preferred online format. Speakers from many distant institutions were invited to deliver virtual talks to chapter members. This was a way to bring some new information and learning opportunities while still maintaining a sense of continuity using regularly planned talks. This year also saw many more co-sponsored events with local section chapters and other ComSoc chapters in neighboring sections.

The year started fast with four seminars. First was on Saturday, March 20, 2021, with ComSoc Distinguished Lecturer Mr. Fawzi Behmann, President, TelNet Management Consulting Inc. He spoke on the topic "During Covid-19 How Can Technology Help" (event details: <https://events.vtools.ieee.org/m/263219>). Next was "Extreme IoT: Wireless & Sensor Technologies for Oceans, Health, and Robotics" by Dr. Fadel Adib on Monday, March 22, 2021 (event details: <https://events.vtools.ieee.org/m/264128>). The third was "Spectrum Situation-

al Awareness through Distributed RF Sensing" by Dr. Andrew Portune, Senior Research Scientist, Perspecta Labs on April 8, 2021 (event details: <https://events.vtools.ieee.org/m/263634>). Last was another IEEE Distinguished Lecturer, Dr. Shiwen Mao, who gave a talk on "RFID for Human Activity Sensing: Challenges, Solutions and Applications" on May 2, 2021 (event details: <https://events.vtools.ieee.org/m/265684>).

The chapter's flagship workshop was the ninth annual Advanced Communication Symposium. Normally, it is a live in-person event hosted at the Babbio Center, Stevens Institute of Technology, Hoboken, New Jersey, on a fall Saturday in conjunction with a student poster competition. This year was a Zoom event, hosting just seminar speakers with no student paper competition on Saturday, September 18, 2021. The symposium consisted of four keynotes and offered CEU credits to interested attendees. The symposium was well attended with a peak close to 50 attendees, speakers, and volunteers from the New York/New Jersey metro-area.

The program ran from 1 to 5 p.m. with welcome remarks given by Symposium Chair Dr. Adriaan van Wijngaarden, Nokia Bell Labs, and acknowledgments and thanks to the many technical and financial supporters were given by Mr. Amit Patel, IEEE North Jersey Section ComSoc Chapter Chair. Symposium Program Chair and Stevens Professor, Dr. Yu-Dong Yao delivered opening remarks remotely from China. Additional co-sponsors for the event included IEEE North Jersey Section, ComSoc Chapter (which had received additional financial support from the IEEE Communications Society), and its Information Theory, Vehicular Technology, Computer, AP/MTT Chapters, and METSAC.

Dr. Yao then gave program remarks and introduced this year's theme of "Deep Reinforcement Learning." The program

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munications in a Congested RF Environment” by Mark E. Davis (Medavis Consulting, USA) and “A New Generation of Metasurface Antennas” by Stefano Maci (University of Siena, Italy).

Short courses “Array Antenna Synthesis — Theory, Techniques, and Applications” and “Inverse Scattering and EM Imaging — Theory, Techniques, and Applications” were presented by a team led by Andrea Massa, Giacomo Oliveri, and Paolo Rocca (University of Trento, Italy). The courses were highly successful and attracted large audiences.

Session topics at IEEE COMCAS 2021 included Network Routing and Performance, Microwave Systems & Radar, Computational Photonics: Theory and Applications, Wireless Apps, Antennas & Radomes, Underwater Acoustics, Biomedical Engineering, Communications for Societal Needs, Active Metamaterials, Bio-Electromagnetism, Millimeter Wave CMOS Circuits, Quantum Technologies, Communication Theory, Software and Techniques, and many more.

Our WIM/WIE Session was organized by Alina Karabchevsky and moderated by Maya Shor-Peled, Esti Toledo, and Alexandra Makarochkin. It hosted an invited talk by Dr. Irit Idan, Executive Vice President R&D at Rafael Advanced Defense Systems. The panel in this session, which included Prof. Yael Hanein from Tel Aviv University, X-trodes, and Nano Retina, Neta Goshen from Electrum Ltd., and Dana Cohen from Tel Aviv University, discussed Career Crossroads — Dilemmas of Women in Engineering.

Many dedicated members of the COMCAS team, both industrial supporters and conference organizers, saw their contributions recognized at the conference’s social events. Conference Chair Shmuel Auster presented Certificates of Appreciation to those who made special contributions to the conference.

Hosting regional conferences in various locations around the world is an excellent way to encourage IEEE members and societies and the technical community at large to participate. This helps improve recognition and generates growth for IEEE and its Sister Societies. The 8th IEEE COMCAS conference was highly successful, with participants from 32 countries who expressed their positive feedback and comments during and after the conference. COMCAS continues to be very successful and will likely be well attended in the future by many technologists who lead innovation and have an impact on the microwave, communications, antennas, biomedical engineering, and electronic systems technologies.

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began with Prof. Toby D Hocking, Northern Arizona University, USA giving the first lecture on “Functional Pruning for Fast Learning Algorithms in Optimal Change Point Detection.” This was followed by Prof. Yiyu Shi, University of Notre Dame, Indiana, USA on “Hardware/Software Co-Design of Deep Learning Accelerators.” The program continued with “Some New Results on Federated Learning” by Prof. Pramod Varshney, Syracuse University, New York, USA. This was followed by a lecture on “Learning-Based Strategies in Aerial Networks with UAVs” by Prof. M. Cenk Gursoy, Syracuse University. Abstract summaries and speaker biographies for all presentations can be found at <https://events.vtools.ieee.org/m/280515>.

In his closing remarks, Dr. van Wijngaarden thanked Stevens Institute of Technology for hosting the symposium virtually. Additional thanks went to all co-organizers and volunteers for their hard work that made the symposium a success, including Michael Newell, Registration Chair and Bennet Meyer, CEU coordinator. Please contact the organizing committee or volunteers for any additional follow-up questions or feedback on the event.

The year then closed on a strong note with two additional virtual talks. A presentation on “Connecting Space Assets to the Internet: Challenges and Solutions,” by Prof. Mohammed Atiquzzaman on Friday October 29, 2021 (event details: <https://events.vtools.ieee.org/m/282376>). The last was on Tuesday November 30, 2021, on “Algorithm and Hardware Co-Design for Energy-Efficient Deep Learning” by Dr. Bo Yuan, assistant professor in the Department of Electrical and Computer Engineering at Rutgers University (event details: <https://events.vtools.ieee.org/m/282338>).

Even though there were no opportunities to meet in person and conduct in-person events, a robust slate of virtual talks can be planned and coordinated with a number of different chapters and sections. This is a one sure way to keep a chapter fresh and participating in value added events that members can enjoy. It is unclear what 2022 will be like and what the year ahead will bring, but regular virtual seminars is something that can work for any section.

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