



## **IEEE IoT Vertical & Topical Summit at RWW 2021**

**A virtual event conducted January 11<sup>th</sup> - 16<sup>th</sup> 2021**

### **Call for Speakers and Participation**



**IEEE**  
*Internet of Things*



The 4<sup>th</sup> IEEE Internet of Things (IoT) Vertical and Topical Summit at RWW 2021 addresses the important and crucial role that wireless devices play in the IoT ecosystem. The Summit is sponsored by MTT and by the multi-society IEEE IoT Initiative. The focus for the Summit is: “Wireless Sensing, with Wireless Sensors, in Wireless Sensor Networks for IoT Applications (WS3NI)”. This year’s theme emphasizes three aspects that are unique to wireless devices: (1) their use as sensors and consequently as the primary source of data for analytics in IoT applications and solutions; (2) their use as means of communications that allows the data and information, in either its raw or reduced form, to connect to computing, storage, and analysis platforms, as well as the return communications for executing actionable responses in the IoT control or decision cycle; and (3) the exploitation of networking for co-operative collection and analysis of data from a large number of sensors to create a more comprehensive situational view and understanding of conditions important for specific IoT applications.

In bringing the Worlds of IoT and MTT together the Summit also addresses the importance of mobile/dynamic platform based as well as distributed ground based stationary sensors. This includes sensors for passive and active electro-magnetic observations. One of the exciting developments is the emergence of platforms such as drone swarms, LEO satellite arrays, connected and autonomous vehicles fleets, bringing new opportunities but also new requirements for networked wireless sensor systems. The discussions around these is a key part of this year’s Summit. There are also significant advances in the underlying wireless technologies, both in sensing modalities and in aspects of communications and networking. The advances include new capabilities at THz frequencies for both sensing and communications, the proliferation of systems

in the mmWave range, that are exploiting new radio architectures, better antenna designs, electronic beam steering, and advanced signal processing techniques to deliver high bandwidths, and better timing and geo location methods that make it easier to accurately co-registration observations from large numbers of sensors. Lastly there is a steady growth in the variety of Vertical and Discipline based IoT applications and solutions in fields such as: Aerospace, Agriculture, Archeology, Automotive, Construction, Defense, Healthcare, Manufacturing, Planetary Observations, Retailing, Robotics, Smart Cities, and Transportation among others.

The upcoming Summit is a six-day event and designed to accommodate to the global effects of the COVID-19 Pandemic. We have chosen to deliver the program in two-hour sessions each weekday during January 11<sup>th</sup> – January 15<sup>th</sup> and a two two-hour sessions on Saturday, January 16<sup>th</sup>. Based on our experience with virtual programming for IEEE WF-IoT 2020 (<https://wfiot2020.iot.ieee.org/>), this make it easier to attract participation from attendees around the World. The Summit is meant to be highly interactive and each session is composed of three to four speakers and a moderated panel discussion with audience participation. For the final session on Saturday we will be hold a virtual roundtable discussion led by a moderator and use both prepared questions as well as open questions from the attendees. The Summit seeks to provide a balance of perspectives and the speakers include experts from industry, government, the research community, and experienced end-users. You can expect the presentations and discussions to address technical, business, and operational issues. The specific areas that the two-hour sessions will be addressing include but are not limited to the following:

- Day 1: Overviews of IoT and the role that wireless sensor networks play, wireless sensor technologies ranging from MHz to THz, high bandwidth wireless technologies, advances in sensor network architectures, and experiences from trials, demonstrations, and deployments.
- Day 2: Applications in Automotive and Transportation, addressing business, technical, and operational requirements, and specific sensor and communication technologies (including radar, lidar, ground penetrating radar for navigation, non-coherent wireless sensing, low latency control networks, and novel applications such as teleoperated vehicles)
- Day 3: Applications in Agriculture and Rural based Industries, addressing the use of satellite-based observations, ground sensors, use of wireless sensors for agricultural equipment, underground networks, autonomous vehicles in mining operations, and use of sensors and sensor networks in renewable energy production.
- Day 4: Industrial Applications, including manufacturing, man-machine interactions, reconfigurable industrial systems, in plant robotics, warehousing, control functions, and safety.
- Day 5: Platform Based Sensing for IoT, addressing the use of drones, vehicle based wireless sensors, LEO Satellites, mapping, spectrum mapping, sounding, and geospatial observations.
- Day 6-1: Wireless Sensor Networks across Diverse Applications, including Archeology, Healthcare, and Construction
- Day 6-2: Co-operative Wireless Sensor Networks using Swarms, Drone Swarm Communications, Swarm Motion Controls, and Swarm-to-base data and communication architectures.
- Day 6-2: Virtual Roundtable Discussion and Summary

The majority of the speakers for the summit are chosen by invitation. However, we will also accommodate a limited number of additional speakers whose presentations address the subjects we have listed above and whose proposals for presentations are in line with the theme of the Summit. If, you wish to submit a proposal for inclusion in the Summit, please follow the instructions on the Summit Website. We require all speakers and attendees to register for the Summit. Registration for the Summit can be done through the main Radio and Wireless Week website at: <https://radiowirelessweek.org/>.

The website and program for the upcoming summit and as well as presentation material from past summits can be found through:

<https://rww2021.iot.ieee.org/program/> - San Diego CA – RWW2021 draft virtual program  
<https://rww2020.iot.ieee.org/program/> - San Antonio TX - RWW2020 program and presentations  
<http://rww2019.iot.ieee.org/program/> - Orland FL - RWW2019 program and presentations  
<http://sites.ieee.org/rww-2018/program/> - Anaheim CA - RWW2018 program and presentations

If you are a policy maker, a strategist, a corporate manager, administrator, product developer, an IoT or mmWave Engineer, a technologist, researcher, educator, working in industry, government, or academia, or just curious about IoT, Wireless Sensors, and Communications Systems, you will find the Summit stimulating and rewarding. We look forward to having you join us virtually on-line January 11<sup>th</sup> through 16<sup>th</sup>, 2021 and participating in the dialog.

If you would like to be a speaker or recommend a speaker for the IoT Summit, please contact us.

Thank you!

---

Adam T. Drobot ([adam.drobot@opentechworks.com](mailto:adam.drobot@opentechworks.com)) is Chairman of OpenTechWorks, Inc., Wayne, Pennsylvania, United States, and the past Chair of the IEEE Internet of Things (IoT) Activities Board. Charlie Jackson ([Charles.M.Jackson@ngc.com](mailto:Charles.M.Jackson@ngc.com)) is with Northrop Grumman Corporation and specializes in mmWave technology.

## Prospective Program and Schedule

| <b>IEEE IoT Vertical and Topical Summit at RWW2021 January 11<sup>th</sup> – 16<sup>th</sup> , 2021</b><br><b>“Wireless Sensing, with Wireless Sensors, in Wireless Sensor Networks for IoT Applications”</b> |      |   |
|---|------|---|
| <b>Monday Jan 11, 2021</b><br><b>11:00am-1:00pm Eastern Time</b>  | VT01 | <ol style="list-style-type: none"> <li>1. Overview of IoT and Wireless Sensor Networks</li> <li>2. Wireless Sensors and Wireless Network Technologies for IoT from MHz to THz</li> <li>3. Moderated Panel Discussion</li> </ol>                                     |
| <b>Tuesday Jan 12, 2021</b><br><b>11:00am-1:00pm Eastern Time</b>   | VT02 | <ol style="list-style-type: none"> <li>1. Applications in Automotive and Transportation</li> <li>2. Mobile Vehicle Communication Technologies</li> <li>3. Radar other Wireless Sensors for Mobility</li> <li>4. Moderated Panel Discussion</li> </ol>               |
| <b>Wednesday Jan 13, 2021</b><br><b>11:00am-1:00pm Eastern Time</b>   | VT03 | <ol style="list-style-type: none"> <li>1. Applications in Agriculture and Rural Settings</li> <li>2. Wireless Sensing technologies and Sensor Systems</li> <li>3. Underground Wireless Networks</li> <li>4. Moderated Panel Discussion</li> </ol>                   |
| <b>Thursday Jan 14, 2021</b><br><b>11:00am-1:00pm Eastern Time</b>  | VT04 | <ol style="list-style-type: none"> <li>1. Industrial Applications</li> <li>2. Wireless Sensors for Safety and Control</li> <li>3. Industrial Site High Bandwidth Systems</li> <li>4. Moderated Panel Discussion</li> </ol>  |
| <b>Friday Jan 15, 2021</b><br><b>11:00am-1:00pm Eastern Time</b>  | VT05 | <ol style="list-style-type: none"> <li>1. Satellite Based Wireless Sensors</li> <li>2. Space Based Wireless Instrument Design</li> <li>3. LEO Based Network Systems</li> <li>4. Moderated Panel Discussion</li> </ol>   |
| <b>Saturday January 16, 2021</b><br><b>11:00am-1:00pm Eastern Time</b>  | VT06 | <ol style="list-style-type: none"> <li>1. Applications of IoT Sensor Networks</li> <li>2. Applications in Archeology</li> <li>3. Applications in Healthcare</li> <li>4. Applications in Construction</li> <li>5. Moderated Panel Discussion</li> </ol>              |
| <b>Saturday January 16, 2021</b><br><b>1:00pm-3:00pm Eastern Time</b>   | VT07 | <ol style="list-style-type: none"> <li>1. Drone based Wireless Sensors and Networks</li> <li>2. Networking Cooperative Swarms</li> <li>3. Expert Panel Discussion on the Future of Integrated Wireless Sensors Systems and Wireless Networks and Summary</li> </ol> |