2021 4th IEEE 5G Workshop on First Responder and Tactical Networks

Online via Engagez

December 14, 2021, 8:30 AM–5:00 PM

In collaboration with the **Department of Homeland Security, Science and Technology Directorate** and the **Office of Under Secretary of Defense for research and Engineering (OUSD R&E) - 5G**

IEEE Future Networks

IEEE

APL Johns Hopkins Applied Physics Laboratory

Visit bit.ly/5G-21 to view the workshop website and speaker bios.

WORKSHOP AGENDA

MORNING PLENARY SESSION

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Session Chair: Ashutosh Dutta, Johns Hopkins University Applied Physics Laboratory (JHU/APL) and IEEE Future Networks Initiative Co-Chair

08:30 A.M. – 08:40 A.M. EST	Introductions (Ashutosh Dutta, Johns Hopkins University Applied Physics Laboratory (JHU/APL) and IEEE Future Networks Initiative Co-Chair)
08:40 A.M. – 08:50 A.M. EST	Welcome Remarks (Raymond Yuan, Johns Hopkins University Applied Physics Laboratory (JHU/APL))
08:50 A.M. – 09:20 A.M. EST	**Keynote:** Exploring 5G Use Cases in DHS Operational Environments (Russell Becker, DHS S&T)
09:20 A.M. – 09:40 A.M. EST	PAWR Platforms: National Assets for Advanced Network Research (Mari Silbey, US IGNITE/NSF)
09:40 A.M. – 10:00 A.M. EST	Spectrum for 5G (Nicholas Oros, FCC)
10:00 A.M. – 10:20 A.M. EST	6G Flagship research – Use case public safety (Ari Pouttu, 6G Flagship/University of Oulu)
10:20 A.M. – 10:40 A.M. EST	5G/6G Building Blocks for Public Safety Communications (Charles Clancy, MITRE)
10:40 A.M. – 10:50 A.M. EST	Program Overview (Brad Kloza, IEEE)
10:40 A.M. – 10:50 A.M. EST	**BREAK**
11:00 A.M. – 12:00 P.M. EST	Six Parallel Tracks: First Responder I & II, Tactical Networks I & II Research, Technology, (see **Track Details** below for a listing of talks and connection information)
12:00 P.M. – 12:30 P.M. EST	**BREAK**
12:30 P.M. – 02:30 P.M. EST	Six Parallel Tracks: First Responder I & II, Tactical Networks I & II Research, Technology, (see **Track Details** below for a listing of talks and connection information)
12:30 P.M. – 12:45 P.M. EST	**BREAK**

AFTERNOON PLENARY SESSION

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Session Chair: Pamela Patton, Johns Hopkins University Applied Physics Laboratory (JHU/APL)

02:45 P.M. – 03:15 P.M. EST	**Keynote:** OUSD R&E: NextG Tactical Networks (Sumit Roy, OUSD R&E)
03:15 P.M. – 03:35 P.M. EST	Evolving FirstNet for the Future (Jeff Bratcher, FirstNet)
03:35 P.M. – 03:55 P.M. EST	5G & AI for Public Safety Communications (Nada Golmie, NIST)
03:55 P.M. – 04:55 P.M. EST	**Panel:** 5G Technologies - Opportunities and Challenges for First Responder and Tactical Networks (Sean Brassard, JHU/APL, Navin Jaffer, ECD, Scott Fox, DOD, Clarence Huff, DOD, Jorge Pereira, European Commission)
04:55 P.M. – 05:00 P.M. EST	Closing Presentation (Rob Bartholet, Johns Hopkins University Applied Physics Laboratory)

TRACK DETAILS

Track 1: First Responder I

Click here to view these sessions.

Session Chair: Ryan Pepito, Johns Hopkins University Applied Physics Laboratory (JHU/APL)

11:00 A.M. EST	5G Information Overload and the Information Sharing Framework, (Ruth Vogel, John Contestabile, Rob Dew, Jay Chang, JHU/APL)
11:20 A.M. EST	Addressing IoT Device Security Concerns in Connected World:Evolutions of Standards, Certifications, Regulations (Anahit Tarkhanyan, Intel)
11:40 A.M. EST	Communication Technologies to Fight Forest Fires (Periklis Chatzimisios, Christos Iliopoulos)

12:00 P.M. – 12:30 P.M. EST	**BREAK**
12:30 P.M. EST	Adaptable Communication System to the emergency scenario: challenges and opportunities for first responders (Alessandro Vizzarri; Romeo Giuliano Franco Mazzenga; Francesco Vatalaro; Anna Maria Vegni)
12:50 P.M. EST	HELPS for Emergency Location Service (Hichan Moon, Samsung Electronics)
01:10 P.M. EST	5G Capabilities for First Responders (Brian Daly, AT&T)
01:30 P.M. EST	IEEE MOVE supporting power and communications at disasters (Grayson Randall)
01:50 P.M. EST	A brief history and future of police radio communications in Hong Kong (Jolly C Wong, Shanghai University)
02:10 P.M. EST	Using PAWR platforms to explore AI-enabled O-RAN/ONAP-based disaster management in 5G multi-operator/multi-vendor environments (David Allabaugh, Fujitsu, Martin Skorupski, AlexandStancu, Highstreet Technologies, Ivan Seskar, Rutgers University/WINLAB, David Johnson, Jacobus Van der Merwe, University of Utah, Tracy Van Brakle, Giovanni Vannucci, AT&T)

Track 2: First Responder II

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Session Chair: Narendra Mangra, GlobeNet LLC, IEEE FNI INGR

11:00 A.M. EST	IEEE Public Safety Technology Initiative: Emerging Public Safety Technologies and Beyond! (Mehmet Ulema, Manhattan College; Doug Zuckerman, IEEE)
11:20 A.M. EST	National Security and Emergency Preparedness (NS/EP) Communications – Current and Future Initiatives (Subir Das, Peraton Labs; Frank Suraci, CISA)
11:40 A.M. EST	Non-RT RIC use case service assurance for first responder community, (Eugene Gomes and Deepak Kataria, Ericsson)
12:00 P.M. – 12:30 P.M. EST	**BREAK**
12:30 P.M. EST	Network Slicing and Traffic Prioritization for First Responder Emergency Services (Eapen Kuruvilla; Denise M.B. Masi; Steven Gordon;

	Muhammad Hussain; David Garbin, Noblis)
12:50 P.M. EST	Overview of Non Terrestrial Networks (Amitabha Ghosh, Nokia Labs)
01:10 P.M. EST	POWDER platform: Building blocks of a living lab enabling your research (Kobus Van Der Merwe, University of Utah)
01:30 P.M. EST	Innovating in the Critical Communications Space (John Macias, Verizon)
01:50 P.M. EST	Enabling Data sharing to maximize first-responder readiness: The IUDX case study (Inder Gopal, IUDX)
02:10 P.M. EST	Transforming First Responder Networks to 5G (Kelly Krick, Ericsson)

Track 3: Tactical Networks I

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Session Chair: Cherita Corbett

11:00 A.M. EST	Enabling 5G expansion into rural areas: The case study of LibreRouter (Sarbani Banerjee Belur; Dipen Parmar; Tejas Vaghela;Rajesh Kushalkar; Michael Jensen)
11:20 A.M. EST	Systems and networks for supporting land SAR actions in Poland. Perspective of introducing testbed for MANET/4G/5G net to First Responder duties (Maciej Gucma; Remigiusz Lysik; Miroslaw Radwan)
11:40 A.M. EST	Foundational Capabilities for Tactical 5G and Beyond (George F Elmasry; Paul Corwin; Rockwell Collins)
12:00 P.M. – 12:30 P.M. EST	**BREAK**
12:30 P.M. EST	Performance evaluation of Quality of Service in 5th Generation mobile Network (Huiam Eldai; Ibrahim Kh Eltahir)
12:50 P.M. EST	Mobile Networks for PPDR/Tactical Use at Work: the Athonet PriMo Solutions (Massimiliano Gianesin; Marco Centenaro; Nicola di Pietro; Daniele Munaretto; Simon O'Donnell)
01:10 P.M. EST	Colosseum: How can the World's Largest NetworkEmulator Accelerate Tactical Network Experimentation? (Abhimanyu Gosain, North Eastern University)
01:30 P.M. EST	Dependable 5G Networks for Emergency Applications

	(Eman Hammad, Texas A&M University System - RELLIS)
01:50 P.M. EST	Enabling Advanced Capabilities via Tactical 4G/5G Cellular Networks (Steve Vogelsang, Nokia)
02:10 P.M. EST	5G & Beyond Security for Mission Critical Communications (Arupjyoti Bhuyan, Idaho National Lab)

Track 4: Tactical Networks II

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Session Chair: Julia Andrusenko, Johns Hopkins University Applied Physics Laboratory (JHU/APL)

11:00 A.M. EST	Future Tactical First Responder Networks: From Spectrum Agility to Network Agility (Apurva Mody, Airnaculus)
11:20 A.M. EST	COSMOS: An Open, Programmable, City-Scale Wireless and Optical Testbed (Ivan Seskar, Rutgers University/WINLAB)
11:40 A.M. EST	Non Terrestrial Networks – Introduction, Applications, and Technology Challenges (Adnan Khan, Anritsu)
12:00 P.M. – 12:30 P.M. EST	**BREAK**
12:30 P.M. EST	AERPAW: Aerial Experimentation and Research Platform for Advanced Wireless (Ismail Guvenc, North Carolina State University)
12:50 P.M. EST	Open Source 5G Security Testbed for Edge Computing (Ryan Pepito, Ashutosh Dutta, JHU/APL)
01:10 P.M. EST	Testing and Analyzing 5G Networks (Samir Chatterjee, Rebaca)
01:30 P.M. EST	Edge Services, IAB, and ORAN for the Tactical 5G Networks (Richard Russell, Radisys)
01:50 P.M. EST	Leveraging Physical Layer Security in First Responder and Tactical Networks (Arsenia Chorti, ENSEA)
02:10 P.M. EST	An Open Source 5G-Enabled Edge Cloud (Larry Peterson, ONF)

Track 5: Research

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Session Chair: Jared Everett, Johns Hopkins University Applied Physics Laboratory (JHU/APL)

11:00 A.M. EST	A Comprehensive Evaluation on Multicast and Unicast in Public Safety Communications (Chunmei Liu, NIST)
11:20 A.M. EST	5G and Beyond Communications Security with Adversarial Machine Learning (Yalin E Sagduyu; Tugba Erpek, BlueHalo Company)
11:40 A.M. EST	5G NR and LTE Coexistence in Public Safety Communications (Sneihil Gopal, Georgetown University/NIST; David Griffith, NIST)
12:00 P.M. – 12:30 P.M. EST	**BREAK**
12:30 P.M. EST	Distributed Beamforming with Autonomous UGVs (Brian M Sadler, Army Research Lab)
12:50 P.M. EST	Security Analysis of 5G First Responder Networks (Steven Yuen, FirstNet)
01:10 P.M. EST	Network Simulator for Public Safety Communications (Richard Rouil, NIST)
01:30 P.M. EST	A Study on Using 5GC User Plane Function for Detecting and Monitoring Arrhythmia Symptoms with Portable Single-Lead ECG Devices in Emergency Medical Services (Bhuvaneswari Arunachalan, PSG College of Technology)
01:50 P.M. EST	Design and Development of Compact Microstrip Patch Antennas Using Ceramic Substrates (S. Kannadhasan, Cheran College of Engineering)
02:10 P.M. EST	5G, an Innovative Network for Ghana and Other Parts of Africa Timothy Kwadwo Asiedu (TIM Technology Services)

Track 6: Technology

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Session Chair: Oscar Somelock, Johns Hopkins University Applied Physics Laboratory (JHU/APL)

11:00 A.M. EST	Security Risk Analysis of IoT and Edge Networks (Ashish Kundu, Cisco)

11:20 A.M. EST	Ubiquitous coverage of 5G through Non-Terrestrial Networks: What is it and How to Prototype it (Raymond Shen, Keysight)
11:40 A.M. EST	Testing and Performance of free5GC (Jyh-Cheng Chen, National Yang Ming Chiao Tung University)
12:00 P.M. – 12:30 P.M. EST	**BREAK**
12:30 P.M. EST	Leverage and enhance 5G/NextG for tactical use through collaboration (Lizy Paul, National Spectrum Consortium/Lockheed Martin)
12:50 P.M. EST	Deployable Technology Expectations and Realities for the First Responder (Gordon Beattie Jr., Viavi Solutions)
01:10 P.M. EST	RAN disaggregation for a flexible and reliable network (Rajat Prakash, Qulacomm)
01:40 P.M. EST	Rescue Services and the Multi-Cloud Service Grid (Sven van der Meer, VMWare)
02:00 P.M. EST	5G Digital Twin and Network Transformation (Glen Stern, Spirent)
02:20 P.M. EST	A Wide-Band DPA (Doherty Power Amplifier) for 5G Communications (Ki-Jin Kim, Korea Electronics Technology Institute)

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