

2020 IEEE 3rd 5G World Forum (5GWF'20)

Theme: 5G and Beyond

10-12 September 2020 || Virtual Event

Call for Papers and Proposals

The 2020 IEEE 3rd 5G World Forum (5GWF'20) virtual event seeks contributions on how to nurture and cultivate 5G technologies and applications for the benefit of society.

5G systems should unveil a novel mobile network architecture that not only improves physical data rate, but also creates a new ecosystem allowing the deployment of novel services and applications. A key target is to build a novel network architecture that should support not only classical mobile broadband applications and services but also vertical industry (e.g. Intelligent Transport, Industrial IoTs, eHealth, etc.) and other 5G-based services.

This conference aims to bring experts from industry, academia and research to exchange their vision as well as their achieved advances towards 5G, and encourage innovative cross-domain studies, research, early deployment and large-scale pilot showcases that address the challenges of 5G.

The IEEE 5G World Forum has decided to make our 2020 event fully virtual to eliminate uncertainty in light of COVID-19 and to ensure the health, safety, and well-being of our global community. With plenty of time to prepare, the goal is to make our virtual event as rich and comprehensive as our in-person events, including multiple tracks and exhibition opportunities for industry. Registration fees will be reduced, and we remain committed to the publication and indexing of all accepted and registered papers in IEEE Xplore. Stay tuned for the precise details of the virtual IEEE 5G World Forum.

[Call for Technical Papers](#)

[Call for Workshop and Special Session Papers](#)

[Call for Special Session Proposals](#)

[Call for Workshop Proposals](#)

[Call for Tutorial Proposals](#)

[Call for Vertical Areas Proposals](#)

[Call for Topical Areas Proposals](#)

[Call for Industry Forum & Panel Sessions Proposals](#)

[Call for Start-Ups](#)

[Call for Industry Demonstrations](#)

Original, innovative and high quality papers are solicited in the following technical topics of interest, but are not limited to:

Technical Paper Submissions

Track 1: 5G Technologies: [EDAS link](#)

Track 2: 5G Application and Services: [EDAS link](#)

Track 3: 5G & IoT: [EDAS link](#)

Track 4: 5G Security and Privacy: [EDAS link](#)

Track 5: 5G Trials, Experimental Results and Deployment Scenarios: [EDAS link](#)

Track 6: 5G Hardware and Test / Measurements: [EDAS link](#)

Track 7: 5G Special Verticals: [EDAS link](#)

Track 8: 5G Special Topicals: [EDAS link](#)

Proposals for sessions and events of general interest and relevance to 5G will be considered. These should address the Technical Community and/or provide educational or expository material or recognition of significant contributions to the advancement of 5G technologies.

Workshop and Special Session Proposal Submissions: [EDAS link](#)

Tutorial Proposal Submissions: [EDAS link](#)

Industry Forum Panel proposal submissions: [EDAS link](#)

Details of each submission are enumerated as follows:

A. Technical Paper Submissions

Track 1: 5G Technologies

<ul style="list-style-type: none"> o 5G New Radio (NR) specification o Flexible and programmable RAN o Cloud-RAN, functional split o 5G Ultra large Cell technologies o 5G Small Cell Technologies o Network Slicing o Multi-service architectures o 5G wireless technologies o Cloud-based 5G mobile architectures o 5G Network Function Virtualization (NFV) o Software Defined Networking (SDN) for 5G o Spectrum utilization and sharing o Massive MIMO Communications o Dynamic Beamforming techniques o Free Space Optical 	<ul style="list-style-type: none"> o Multicast / Broadcast in 5G o Convergence of RAN and Core Network o Novel mobility management o Mobile Edge Computing (MEC) o Multi-Connectivity/RAT o Resource (network, relay, cloud-computing, etc.) management techniques in 5G Wireless o Device-to-Device Communications and networking o Cognitive spectrum access o X-haul transport network o Self-backhaul / integrated access networks o Energy efficient network design and protocols for 5G 	<ul style="list-style-type: none"> o QoE/QoS management over 5G o Dynamic QoS framework as an enabler for disruptive use cases and services o Network and protocol interoperability in 5G Wireless Networks o Heterogeneous cells and communications o Millimeter wave communications o Coordinated and small-scale cell communications o Machine learning and adaptive techniques for 5G o Ultra-reliability and low-latency in 5G o 5G and AI
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Track 2: 5G Applications and Services

<ul style="list-style-type: none"> o Smart Cities, Smart Public Places o Smart Home, and 5G-based Building Automation o Smart Agriculture and Water Management o Cyber-physical systems, Context Awareness, Situation Awareness, Ambient Intelligence o Collaborative Applications and Systems o Service Experiences and Analysis o 5G and cloud services 	<ul style="list-style-type: none"> o Consumer Electronics, Assisted Living, Rural Services and Production o 5G Wireless Networks for body sensors o Crowd-sensing, human centric sensing o Big data and 5G Data Analytics o Internet Applications Naming and Identifiers o Social-aware 5G networks o Industry of the future, e.g., Industry 4.0 	<ul style="list-style-type: none"> o Semantic Technologies, Collective Intelligence o Cognitive and Reasoning about Things and Smart Objects o Mobile Cloud Computing (MCC) and 5G o Horizontal application development for 5G o Design principles and best practices for 5G application development o Open Communities, Open API, Open Source o Testbeds
<p>Vertical Oriented Applications</p> <ul style="list-style-type: none"> o Healthcare, e-Health, Assisted Living o Building Management and Operation Automation o Environmental Monitoring o Connected Car, Automotive Intelligent Transport 	<ul style="list-style-type: none"> o Aerospace and Defense o Smart Grid, Energy Management o Utilities Management and Operation o Consumer Electronics, Assisted Living, Rural Services o Mining, Oil & Gas, Digital Oilfield, Electronic Oilfield o Agriculture, Industrial IoT, Manufacturing, Hospitality, Retailing 	<ul style="list-style-type: none"> o Logistics, Entertainment o Large Event Management o Industrial Service Creation and Management o Financial Services o Health of Machinery o Highway, Rail Systems o Industry of the Future, e.g., Industry 4.0 o Media & Entertainment

Track 3: 5G and IoT

<ul style="list-style-type: none"> o Architecture of IoT in 5G networks o Software defined solutions for IoT o Energy efficiency and energy harvesting in IoT o Cooperative and smart sensing techniques 	<ul style="list-style-type: none"> o Data collection, processing, aggregation, and communication o Efficient resource allocation schemes, QoS, and QoE in IoT o Co-existence and device interoperability of sensors with 5G networks 	<ul style="list-style-type: none"> o Relay, multi-hop, and cooperative communication in IoT o Ubiquitous communication, routing protocols, and network selection in IoT o Machine-type communications in 5G systems
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<ul style="list-style-type: none"> o Channel characteristics and modeling with dense and sparsely populated sensors o Terminal intelligence and light weight sensors 	<ul style="list-style-type: none"> o Integrated D2D communication techniques for 5G networks o Self-organization and self-healing of IoT networks o Data processing and anomaly detection for IoT networks o Cross-layer design and optimization in IoT 	<ul style="list-style-type: none"> o Emerging IoT applications in 5G networks o Security issues and solutions for IoT in 5G networks o Sensor deployment, placement, control and management issues o Experimental results, prototypes and testbeds using sensors for 5G technologies
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Track 4: 5G Security and Privacy

<ul style="list-style-type: none"> o 5G and Blockchain o 5G Privacy and Security Concerns o Identification and Authentication Issues o Intrusion Detection in 5G o Cryptography, Key Management, Authentication and Authorization for 5G 	<ul style="list-style-type: none"> o Cross-layer Attacks in 5G o Security with QoS Optimization in 5G o Privacy based Channel Access in 5G o 5G Forensic Science o Big Data and Information Integrity in 5G 	<ul style="list-style-type: none"> o Communication Security in 5G o Security Standards in 5G o Open Communities, Open API, Open Source o Testbeds
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Track 5: 5G Experimental Results and Deployment Scenarios

<p>5G Experimental Scenarios</p> <ul style="list-style-type: none"> o Closing the Gap between Research and Implementation o Experimental prototypes, Test-Bed and Field Trial Experiences o Multi-Objective 5G System Modelling and Analysis—Performance, Energy, Reliability, Robustness 	<ul style="list-style-type: none"> o 5G Interconnections Analysis—QoS, Scalability, Performance, Interference o Real case deployment scenarios and results o 5G deployment at Government and ISPs o 5G deployment on agriculture, retails, smart cities, etc. 	<ul style="list-style-type: none"> o 5G Interconnections among ISPs Analysis—QoS, Scalability, Performance, Interference management o Gap Analysis for real deployments o 5G and Future Internet architectures o Standardization and Regulation
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Track 6: 5G Hardware and Test / Measurements

<ul style="list-style-type: none"> o Massive MIMO, MU-MIMO, Multi-RAT system architectures o Reconfigurable and switching wireless network topologies o RF beamforming, digital beamforming and hybrid beamforming architectures o Beam steering and phased arrays o Antenna system architectures o 5G Radio designs o RFIC and CMOS technologies and architectures for 5G 	<ul style="list-style-type: none"> o RF, PA, PLL, Source, phase shifting, ADC/DAC/Modem blocks Full-Duplex and STAR architectures and evaluation methods o RF blockers and interference cancelers o Test and measurement over entire 5G ecosystem. o Multi-standard coverage and measurement approaches o Antennas and Massive MIMO OTA tests o Array timing and synchronization 	<ul style="list-style-type: none"> o Channel measurements and modeling o Radio measurements at microwave and mm-waves o Signal characterization o 5G device/component level testing; mmWave Material, transistor and nonlinear device measurements o Terahertz (6G)
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Track 7: 5G Special Verticals

<ul style="list-style-type: none"> o Tactile Internet o Smart factories and Industry 4.0 o Automotive, Intelligent Transport o 5G & Autonomous Driving 	<ul style="list-style-type: none"> o Industrial 5G Service Creation and Management Aspects o Smart Grid, Energy Management o 5G-based Supply Chains & Logistics 	<ul style="list-style-type: none"> o 5G Wireless Networks for the Industrial Internet of Things o E-Health and mobile health over 5G networks
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Track 8: 5G Special Topicals

<p>Policy & Regulation</p> <ul style="list-style-type: none"> o Policy and Regulations o 5G Spectrum o Best Practices, Standards, and Open Source o Technical enforcement of legal 5G regulations, service level agreements, mutual legal assistance requests, etc. 	<ul style="list-style-type: none"> o Privacy and security in 5G Internet of Things: data sharing, threats, liability, audit and compliance concerns for cloud-supported 5G, fog and edge computing 	<p>5G Standardization</p> <ul style="list-style-type: none"> o ITU-T IMT2020 Spectrum standardization o IEEE 5G standardization o 3GPP 5G standardization o ITU-T 5G standardization
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The 3rd IEEE 5G World Forum (IEEE 5GWF'20) solicits technical paper submissions.

- **Full papers** describing original research. Suggested size is four pages; papers up to six pages will be accepted. Extended versions of selected papers may be considered for publication in alternative IEEE publications.

Papers will be fully peer reviewed. Accepted papers will be submitted for inclusion into IEEE Xplore. IEEE takes the protection of intellectual property very seriously. All submissions will be screened for plagiarism using Cross Check. By submitting your work you agree to allow IEEE to screen your work for plagiarism: <http://www.crossref.org/crosscheck/index.html>

How to submit

Technical paper submissions can be up to 6 pages long and should be written either in a MS Word format or in a Latex format using the templates available at <https://www.ieee.org/conferences/publishing/templates.html>. All papers must be submitted electronically: <http://www.ieee-wf-5g.org/>

Important Dates for Paper Submissions

Technical paper submission: ~~March 31, 2020~~ **30 May 2020 (final extension)**

Acceptance Notification: **July 15, 2020**

Camera-ready submission: **July 31, 2020**

Papers must be submitted electronically - see above for EDAS links for each track

Contacts for Technical Papers

Antonio Skarmeta, TPC Chair, skarmeta@um.es, University of Murcia, Spain

Dilip Krishnaswamy, TPC Co-chair, dilip@ieee.org

Debabrata Das, TPC Co-chair, ddas@iitb.ac.in

B. Special Sessions and Workshop Proposal Submissions

IEEE 5GWF'20 will be hosting a series of special sessions and workshop. Special sessions and workshop feature topics relevant to the 5G community on the latest research, engineering, standards and business issues. They provide a sample of the state-of-the-art research in both academia and industry in special, novel, challenging, and emerging topics. Special sessions and workshops typically include a mix of regular and invited presentations including regular papers, invited papers, as well as invited presentations and panels to facilitate highly interactive sessions. Special-session proposals should be submitted by the prospective organizer(s) who will commit to promoting and handling the review process of their special session or workshop as Chairs or Co-Chairs of the event. Proposals should include the following information (maximum five pages):

- Special session or Workshop title
- Length of the special session (half/full day)
- Name(s) of special session organizer(s)
- Email of main contact person
- A brief biography (no more than 200 words per person) of special session organizer(s)
- Brief description of the special session including abstract, scope, outline, importance, and timeliness
- Planned format of the special session including projected number of referred papers and hot topic sessions
- Potential participants including program committee members and invited speakers
- Related topics
- Prior history on past editions of the special session, if any, including the number of submitted and accepted papers, the number of attendees, etc.
- A draft of the call for papers

Accepted events must follow IEEE academic best practices regarding peer reviews and paper publication. Papers submitted to special sessions will have to be evaluated and peer-reviewed along the very same criteria of the regular sessions. Accepted papers will be submitted for inclusion into IEEE Xplore.

Important dates for Special Session and Workshop proposal submissions

Proposals due: ~~January 6, 2020~~ **January 24, 2020**

Notification of selection: January 30, 2020

Website for special session and workshop: February 5, 2020

Deadline for paper submission: ~~May 1, 2020~~ **June 17, 2020**

Acceptance Notification: ~~June 30, 2020~~ **July 15, 2020**

Camera-Ready Submission: July 31, 2020

Submission Guidelines

Please provide all the information requested above when preparing your special session proposal before electronically submitting it in PDF format to [EDAS link](#).

Contact for Special and Workshop Sessions

Subhas Mondal, subhasmondal2007@gmail.com

Yoshihiro Ohba, yoshihiro.ohba@kioxia.com

Venkatesha Prasad, rvprasad@gmail.com

Sunil Maharaja, sunil.maharaj@up.ac.za

C. Workshop and Special Session Papers

- [SS1: New IP and Future Internet data Planes \(NIPFIP\)](#)
- [WS1: Workshop on 5G Security: Current Trends, Challenges and New Enablers](#)
- [WS2: Workshop/Industry Panel: 5G Validation Trials Across Multiple Vertical Industries](#)
- [WS3: Blockchain based Secure Trust Environment Model for 5G \(B-STEM-5G- 2020\)](#)
- [WS4: 5G from Theory to Practice \(5GToP\) Workshop](#)
- [WS5: 3rd Workshop on Blockchain for 5G/6G, IoT, and CPS](#)

- [WS6: Workshop Evolution of Connected Vehicles: The Role of AI/Machine Learning, Emerging Standards, and 5G and Beyond](#)
- [WS7: Workshop on Satellite and Non-Terrestrial Networks for 5G](#)
- [WS8: Workshop on Optical Wireless Communication for 5G and Beyond](#)
- [WS9: Workshop on Large Scale Experimentation](#)
- [WS10 – IMT 2020 Radio Interface Technologies](#)

Contact for Special and Workshop Sessions

Subhas Mondal, subhasmondal2007@gmail.com

Yoshihiro Ohba, yoshihiro.ohba@kioxia.com

Venkatesha Prasad, rvprasad@gmail.com

Sunil Maharaja, sunil.maharaj@up.ac.za

Important Dates for Special Session and Workshop Papers

Paper Submission Due: ~~May 1, 2020~~ **June 17, 2020**

Acceptance Notification: **July 15, 2020**

Camera-Ready Submission: **July 31, 2020**

D. Tutorial Proposal Submissions

IEEE WF-5G 2020 solicits proposals for 1.5 hour Tutorials that complement the regular program with clear and focused coverage in new and emerging topics within the scope of conference. Tutorials are an opportunity for researchers, developers, and practitioners from academia and industry to learn about the state-of-the-art research. Proposals should concisely describe the motivation, the content, and the structure of the tutorial.

Tutorial Proposal Format

Tutorial proposals (4 pages maximum) in PDF format (Column: Single, Font: Times Roman, Size: 11 pt) should be submitted by the prospective Tutorial Speaker(s). Tutorial proposal submission must include the following:

- Title of Tutorial
- Name, Affiliation and E-mail of Tutorial Speaker
- Abstract (200 words)
- Description of the Tutorial Proposal
 - Objectives and motivation
 - Novelty, highlighting the technical innovations presented in this tutorial
 - Tutorial content, indicating the topics that the tutorial will cover in detail
 - Tentative timeline schedule
- Tutorial Length: Maximum length of 1.5 hours
- Intended audience
- Prior history of the tutorial presentations and number of past attendees, if applicable
- Short biography (half page) of Tutorial Speaker

How to submit

Tutorials should complement the regular program with new and emerging topics of interest. Tutorial Proposals must be in single PDF file not exceeding Four Pages and submitted electronically to IEEE WF-5G 2020 Tutorial Track using the [EDAS Link](#).

Important dates for Tutorial proposal submissions

Proposal submissions: ~~June 1, 2020~~ **June 17, 2020**

Acceptance Notification: ~~June 30, 2020~~ **July 15, 2020**

Final manuscript: **July 31, 2020**

Contact for Tutorials

Amruthur Narasimhan, narasimhan83@gmail.com

Bala Krishna Maddali, m.bala.krishna@ieee.org

Christopher Udeagha, udeaghac@gmail.com

E. 5G Focus - Vertical Areas and Topical Areas Propositions

Proposals in the Vertical and Topical Areas should address: suggestions for speakers, panel discussions, roundtables, presentation sessions on focus topics, demonstrations of novel or important technologies, and events with other formats that may be effective for furthering the involvement and participation of the attendees.

Vertical/Topical Areas Proposal Format

Each proposal (maximum 3 pages) must include:

1. Title of the Vertical or Topical Area Proposal
2. Names, Institutions, addresses, and a short biography (up to 200 words) of the organizers

3. Motivation, background, objective, description of the challenges issues to be covered (1-page max), and timeliness
4. Structure proposal, tentative invited panelist and their bio
5. If appropriate, a description of past versions of the previous Vertical or Topical Area session, the number of attendees, etc.
6. Public adequacy

Anyone Interested on submitting a proposal on these tracks should get in contact via e-mail with the corresponding contact persons indicated below

Contact for Vertical / Topical Areas Proposal:

Aloizio Pereira da Silva, a.pereiradasilva@northeastern.edu

Ivan Seskar, seskar@winlab.rutgers.edu

Kishor Narang, kishor@narnix.com

Important dates for 5G Focus Vertical and Topical Area Proposal Submissions

Proposal submissions: ~~June 1, 2020~~ June 17, 2020

Acceptance Notification: ~~June 30, 2020~~ July 15, 2020

Final manuscript: July 31, 2020

F. Industry Forum & Panel Sessions proposal submissions

IEEE 5GWF'20 will be hosting Industry Forum & Panel Sessions. Panel presentation materials will not be published in the conference proceedings but will be available on the conference web site. Industrial Forum Panel proposal should contain an abstract, scope, intended audience, objectives, prior history, an outline, the biographical sketch of presenters, and any other information that may assist in making decisions. Industry Forum & Panel Proposals must be in single PDF file not exceeding Four Pages and submitted electronically to IEEE WF-5G 2020 Industry Forum & Panel Track using the [EDAS Link](#).

Important dates for Industry Forum and Panel Sessions proposal submissions

Proposal submissions: ~~June 1, 2020~~ June 17, 2020

Acceptance Notification: ~~June 30, 2020~~ July 15, 2020

Final manuscript: July 31, 2020

Contacts for Industry Forum & Panel Sessions:

Wale Akinpelu, Wale.Akinpelu@jhuapl.edu

Ajay Rajkumar, rajkumar.ajay@gmail.com

Meng Lu, wklm@xs4all.nl

Sobodh Gajare, sugajare@gmail.com

G. Entrepreneurship and Innovations Forum (EIF) 2020

This initiative is meant to actively promote the engagement of start-ups and new businesses in pioneering innovation in 5G. The 5G challenges are pretty much known by now such as latency and reliability, something of a holy grail. Shaving latency down to 1ms for a host of applications from virtual reality games to tele-medicine will be another one of the toughest challenges of 5G. Start-ups are invited to showcase their innovation in this track, sending e-mail to the contact persons

Contact:

Ravikiran Annaswamy, ravikiran.a@ieee.org

Sudhir Dixit, sudhir.dixit@gmail.com

Titus Lo, titus.lo@ieee.org

H. Demonstrations

The demonstrations are aimed at the researchers from academia and industry, practicing engineers, and technical managers who need to understand both technical and practical aspects of new and emerging topics within the scope of communications, networking, industrial practices/standards and so on. Demonstrations should also emphasize training for current topics and demonstrate some practical works of interest to the industry targeting near-term implementations and development in those areas.

All demonstrators must register for the conference in the appropriate category. Each tabletop is equipped with a power supply. Any furniture or additional equipment is subject to additional fees and needs to be notified to the organizers well in advance; no additional equipment can be arranged without prior notice. Placement of the tabletop is determined by conference organizers.

All submitted proposals will be peer reviewed.

Demonstrations Proposal Format

Demo proposals can be up to 2 pages long (including and references) and should be written either in MS Word format or in Latex format using the templates available at <https://www.ieee.org/conferences/publishing/templates.html>.

The proposal must include:

1. Title of the demonstration.
2. Author name and affiliation.
3. A description of the motivation, background, objective, and novelty of the

demonstration.

4. What exactly will be demonstrated and what will be the setup, including any additional equipment that needs to be arranged (for a fee).
5. Mention whether this demonstration has been done earlier at a different venue.

Accepted demo proposals will be considered for publication in the IEEE 5G World Forum 2020 Conference Proceedings and in IEEE Xplore.

Demonstrations Proposal Submission

EDAS: <https://edas.info/newPaper.php?c=26958&track=102302>

Demonstration Co-Chairs

Alok De, alokde@ieee.org

Y V S Lakshmi, lakshmi@cdot.in

Amit Saha, amisaha@cisco.com

General Paper Submission Guidelines

Full papers submissions for Technical Paper, Workshop, and Special Session should be written in English with a maximum paper length of SIX (6) printed pages (10-point font) including figures, tables, without incurring additional page charges (maximum of ONE additional page with over length page charge if paper is accepted).

When preparing your manuscript, please pay also attention to the following:

- If your paper has been prepared using Microsoft Word or LaTeX, please ensure that you have used the most current version which will help reduce pdf conversion issues such as embedded fonts, bookmarks, etc.
- No page numbers and no headers/footers
- Use non-zero PDF top and bottom margins (typically at least 0.5 inches/12.7 mm) to help indicate if there are any page numbers

Papers Format

Standard IEEE conference templates for Microsoft Word and LaTeX formats can be found here:

http://www.ieee.org/conferences_events/conferences/publishing/templates.html

Papers to be submitted using EDAS System.

Papers are reviewed on the basis that they do not contain plagiarized material and have not been submitted to any other conference at the same time (double submission). These matters are taken very seriously, and the IEEE 5G Initiative will take action against any author who has engaged in either practice.

IEEE Web Page on Plagiarism:

http://www.ieee.org/web/publications/rights/Plagiarism_Guidelines_Intro.html

IEEE Web Page on Double Submission:

http://www.ieee.org/web/publications/rights/Multi_Sub_Guidelines_Intro.html

Please note: To be published in the IEEE 5G World Forum 2020 Conference Proceedings and to be eligible for publication in IEEE Xplore®, an author of an accepted paper is required to register for the conference and the paper must be presented by an author of that paper at the conference unless the TPC Chair grants permission for a substitute presenter arranged in advance the event and who is qualified both to present and answer questions. Non-refundable registration fees must be paid prior to uploading the final IEEE formatted, publication-ready version of the paper. Accepted papers will be submitted for inclusion into IEEE Xplore®.

CALL FOR PAPERS AND PROPOSALS

2020 IEEE 3rd 5G World Forum (5GWF'20)

10-12 September 2020 — Virtual Event

<http://www.ieee-wf-5g.org>