IEEE Region 2

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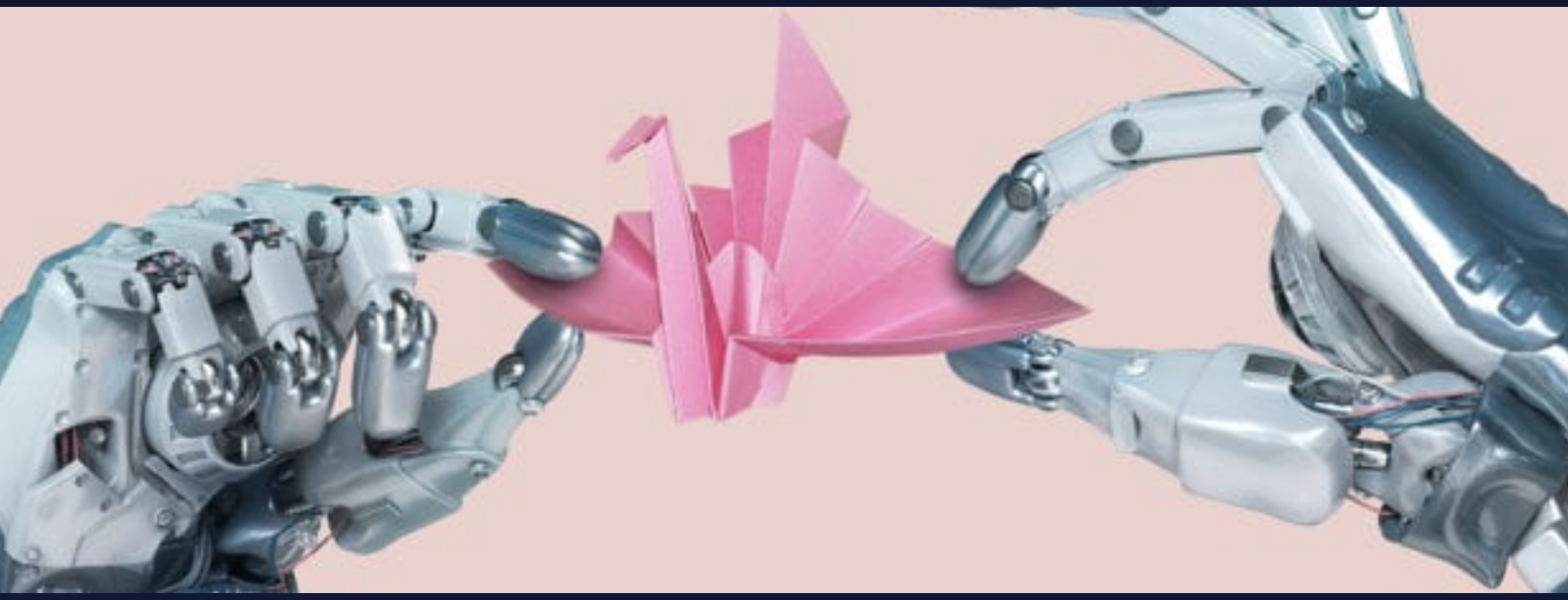

Robotics - Powering Industries Far and Wide

Robotics is the key to manufacturing phenomenal products and heightening operational excellence outcomes to deliver fantastic levels of service.

In this issue we examine how robotics is powering rapid response, bringing joy to house bound humans, supporting higher levels of human collaboration, and enabling widespread infrastructure, healthcare services, and surgical innovations. Society 5.0 focused initiatives are highly interconnected with robotics and other human-centered autonomous technologies, enabling high levels of convergence between our virtual and physical spaces, especially within the cybersecurity realms.

Additionally, these innovative technologies serve to enable reductions in medical and safety issues, help drive sustainable industrialization changes, and help remedy a plethora of social and mental health issues, while furthering economic development.

IEEE Transmitter Robotics Articles

With the advent of Society 5.0 in the Asia Pacific region a few years back, the IEEE/ACM joint conference of 2018 focusing on Human-Robot interactions and innovations was timely. This particular article explores the benefits of human touch to "healing, boosting immunity, reducing stress, and lowering blood pressure" and the focus on AI designers to "develop robots that can assimilate with humans, designing them to feel, understand and respond to tactile experiences."

Enabling Disaster Relief

Disasters arise from natural, as well as man-made sources. This nascent work in the humanoid robotics area allows for robots to use lasers and specialized cameras to more readily locate survivors and their flexible manuevering design to reach areas that are typically not accessible to human responders. You can review the 30 years of Intelligent Robots and Sytems (IROC) here.

Robot enabled healthcare is flourishing across the world and so is the body of IEEE works capturing these society and human-benefiting technologies. IEEE member Anthony Padilha, in his video examines medical and rehabilitation robotic methods, while Ming Liu's video looks at how robotics are advancing the state of Wheelchair Navigation and Jayakrishnan T depicts the medical home care robotics advances in his segment.

Last Mile Delivery

Robotics, in the shape of drones, are being used in many industries, especially in the time of COVID-19 for contactless delivery and rural area reach. This article highlights their autonomous pilot capabilities, flexible navigation features which allow them to take off and land vertically (perfect for city obstacles), and the sheer amount of R&D being put into supporting longer battery life, higher payload weights, as well as combating current airspace legislation constricting drone usage in certain areas.

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Fighting Pandemic Loneliness

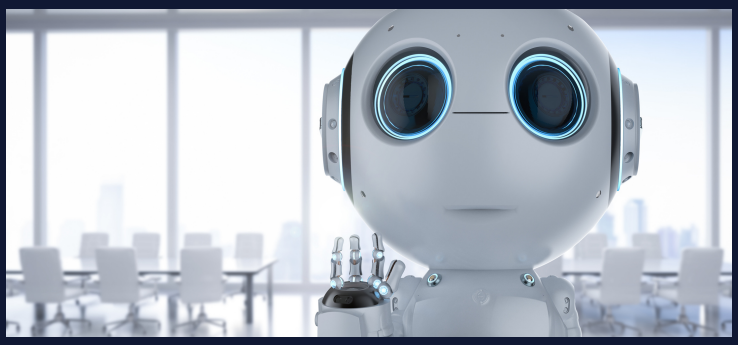
COVID-19 has really brought home the problems that isolation can cause to our society as a whole. IEEE highlights how robotics, paired with virtual reality (VR), artifical intelligence, and machine learning are used to create "robot friends" which combat depression and other mental health issues associated with the pandemic. In this day and age of virtual overload, the article concludes with a telling quote --- "The pandemic has shown us that humans value contact, and that contact needs to move beyond the traditional screen boundary."

Surgical Imaging

Robotics are now allowing for safer surgeries thanks in part to miniature robotics equipment, paired with enhanced optical automation which allows surgeons to manuever deftly through smaller, rapidly healing insertion points in a patient's body.

Medical facilities globally are also pairing robotics within the surgical centers themselves, enabling more efficient surgery routes and optimizing schedules.

Symbiotic Autonomous Systems



IEEE's Symbiotic Autonomous Systems (SAS) initiative looks at the Digital Age, seamlessly integrating technologies with human-beings across wide swaths of our society to research and innovate in areas such as Internet of Things (IoT) sensors, associated smart devices, as well as other autonomous and intelligent systems which work to minimize risk and maximize outcomes in multiple areas. You will not want to miss their 12-part blog Series, Looking Ahead to 2050.

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Connecting the Unconnected

The **IEEE Connecting the Unconnected Challenge** is a new, global competition that solicits applications from early-stage projects and concepts that offer innovative ways to bridge the digital divide and connect unconnected (or under-connected) populations and regions. Internet access is critical to education, industry, and healthy living. Unconnected populations lack access to sell goods and services online, and students lack access to schooling, which can force a decision between learning or earning a living. This digital divide is particularly impactful on women. According to UNESCO, across 10 countries in Africa, Asia, and South America, women are 30-50% less likely than men to make use of the internet, and at a global level, women are 23% less likely than men to use mobile internet.

In light of this dire and increasing need, **IEEE's Future Networks Initiative (FNI)** has developed a competition that will reward projects and concepts that increase access and connectivity in less developed countries, or in areas of developed nations where connectivity is lacking. Open to start-ups, grassroots organizations, university projects, and others, the competition has two tracks that innovative solutions may fall under: a **Proof-of-Concept Track** and a **Concept-Only Track**.

Since solving connectivity issues is a multifaceted problem, each track also has different categories under which solutions may fall:

- **Technology Applications** that increase broadband access or otherwise enable connectivity in innovative ways
- **Business Models** that provide novel ways to make broadband connectivity more affordable
- **Community Enablement** programs that increase the likelihood that populations choose to adopt available broadband access when previously they did not. (In these cases, supply and affordability are not problems, but people still don't use the internet.)

Phase 1 of the competition will consist of a 500-word abstract, and the submission portal is scheduled to be open through 16 July. Those who advance to **Phase 2** of the competition will complete longer applications in August. Please visit the CTU site for more information and help spread the word about this new program.

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IEEE | Rutgers Online Mini-MBA

The **IEEE | Rutgers Online Mini-MBA for Engineers and Technical Professionals** helps corporate employees bridge the gap between business and engineering as they prepare for growth in their careers. It is the only online Mini-MBA program specifically designed for engineers and technical professionals, and has recently been ranked as one of the top three Mini-MBAs by Forbes.

Previously only available for teams at corporations, IEEE and Rutgers are now offering this program to individuals. As a valued IEEE member you may be interested in this exclusive program. The next session begins 14 September 2021. **The deadline to register is 31 July 2021**, so please contact mini-mba@ieee.org today if you would like to enroll or learn more about the program.

The program is 12 weeks long, 3.5 hours per week, offers credits for professional licenses, and tuition assistance is available.

DiscoverE and the **Congressional Women in STEM Caucus** celebrated International Women in Engineering Day (June 23, 2021) by hosting a webinar entitled **Imagining Tomorrow - A Conversation About the Importance of Women Persisting in Engineering.**

The event was hosted as a panel discussion exploring the factors that attract girls to engineering, why women persist in the field, and the role you can play in achieving gender and racial equity in engineering and technology. STEM advocates included:

- Rep. Chrissy Houlahan (D-PA)
- Rep. Jackie Walorski (R-IN)
- Rep. Haley Stevens (D-MI)
- Rep. Debbie Lesko (R-AZ)
- Kathy Renzetti, Executive Director, DiscoverE
- Annabel Flores, Vice President of Electronic Warfare Systems, Raytheon Intelligence & Space
- Kaylyn Hardy, Mechanical Engineer, Bechtel Nuclear, Security & Environmental
- Karen Horting, CAE, Executive Director & CEO, Society of Women Engineers (SWE)
- Dr. Ershela Sims, Executive Director, Women in Engineering Proactive Network (WEPAN)
- Aisha Lawrey, Senior Director, Programs and Scholarships, National Action Council for Minorities in Engineering (NACME)

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NIST RELATED NEWS & CONTRIBUTIONS WANTED

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

NIST welcomes public comment on a just-released draft report: **A Proposal for Identifying and Managing Bias in Artificial Intelligence** (Draft NIST Special Publication 1270). This report aims to advance understanding about ways to identify and manage harmful bias in Artificial Intelligence (AI), a key characteristic of trustworthy AI. NIST also issued a brief, complementary video on bias in AI. The public comment period for the Special Publication is now open until August 5, 2021. To submit your comments on the new draft report, see info here.

NIST Standards Services Curricula Development Cooperative Agreement Program News and Announcements

The **American National Standards Institute Committee on Education** (ANSI COE) has launched a brief survey to gauge the level of interest in ANSI hosting brief complimentary webinars on a variety of standardization topics. The target audience is educators and undergraduate and graduate students.

ANSI requests your feedback on whether or not you and/or your students would be interested in participating in such webinars, as well as your suggestions for webinar topics. Please submit your response to the survey by August 15, 2021.

NIST Issues Definition of Critical Software Called for by Cybersecurity Executive Order: Fulfilling one of its assignments to enhance the security of the software supply chain called for by a May 12, 2021, **Presidential Executive Order** on Improving the Nation's Cybersecurity (14028), the National Institute of Standards and Technology (NIST) today published a definition of "critical software." FAQs, the definition, as well as the Background & History can be found here.

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NIST RELATED NEWS & CONTRIBUTIONS WANTED

Digital Supply Chain Assessment Sets Stage for Optimizing Performance: The premise for the NIST MEP Digital Supply Chain Network project is familiar to MEP Centers — many small and medium-sized manufacturers (SMMs) are often not ready for Industry 4.0 and do not know how to implement it. Manufacturers with fewer than 50 employees often lag in digital supply chain areas such as setting cybersecurity policies and leveraging data and information analytics.

The Massachusetts Manufacturing Extension Partnership (MassMEP) and the North Carolina Manufacturing Extension Partnership (NCMEP) have worked together to develop **The Digital Supply Chain Maturity Level 1 Assessment**, tools and curriculum to help SMMs address organizational issues and provide tactical approaches to the digital supply chain.

NICE Symposium, Tuesday, November 16th, 1 - 5 p.m. EST: Join NIST on November 16th for the **NICE Symposium: A Coordinated Approach to Supply Chain Risks**, a half-day virtual symposium that serves as a precursor to the annual NICE Conference in June 2022. In light of dramatic events and emerging risks, experts will discuss the role of the cybersecurity workforce and the need for a coordinated response to strengthen the security of the supply chain. The NICE Symposium is free and open to the public. **Register** here.

NIST Method Uses Radio Signals to Image Hidden and Speeding Objects: Researchers at the National Institute of Standards and Technology (NIST) and Wavsens LLC have developed a method for using radio signals to create real-time images and videos of hidden and moving objects, which could help firefighters find escape routes or victims inside buildings filled with fire and smoke. The technique could also help track hypersonic objects such as missiles and space debris. The new method, described June 25 in Nature Communications, could provide critical information to help reduce deaths and injuries.

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NIST Cybersecurity and Privacy International Engagement Updates

Participation in international standards development organizations continues to be an important focus area for us. We're thrilled that the International Standards Organization (ISO), in conjunction with the International Electrotechnical Commission (IEC) recently published **ISO/IEC 27110: Information technology, cybersecurity and privacy protection** — Cybersecurity framework development guidelines. This technical specification provides guidelines for developing a cybersecurity framework. It specifies that all cybersecurity frameworks should include concepts that align with the CSF's five functions: Identify, Protect, Detect, Respond, Recover. Right from the start of the CSF's development, many of our stakeholders stressed to use the importance of ensuring that the Framework be consistent with approaches used outside the U.S., and this specification goes a long way to meeting those needs.

Meanwhile, please check out the new NIST Cybersecurity & Privacy stakeholder engagement web page, which highlights the many ways in which you can keep track of, participate in, and offer us your views about our priorities and efforts.

EVO Pro & EVOnCampus 2.0

EVOPro is a FREE virtual event, will feature impactful keynote speakers and sessions that embrace innovation and fuel creativity. This professional-level event will expand your skill set and knowledge, while supplying useful insights from "Big Thinkers" in industry, to take your career to the next level.

SUPPORT YOUR IEEE STUDENTS!

Your IEEE students need your support!

- Consider volunteering to be a speaker via the **Virtual Speaker Bureau Site**
- Consider becoming a corporate partner or sponsor
- Support your local Student Activity Chairs, Regional Representatives, Industry Representatives and IEEE HQ liaisons
- Engage, fund, and integrate with your Student Branches

https://students.ieee.org/student-members/

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MEET YOUR LATEST NEW IEEE R2 LEADER

IEEE Region 2 Humanitarian Coordinator

Dr. Bhanu Sood

Dr. Bhanu Sood is the *Chief Engineer* for the Quality and Reliability Division at NASA's Goddard Space Flight Center at Greenbelt, Maryland. He is the *chief technical adviser* to Center leadership on technical matters related to mission support and the development of assurance disciplines. Dr. Sood's areas of expertise include supply chain risk management, risk assessment, and reliability analysis. He volunteers for several causes including adult literacy, food security and in opportunities that leverage technology for an improved educational impact. In his role as the **IEEE Region 2 Humanitarian Coordinator** and as a participant in the HAC Regional Participation Working Group he expects to raise awareness towards supporting critical technology and technology infrastructure development needs as well as serving as a conduit for sharing HAC related information within R2.

Robots to Combat Pandemics

The proposed project is to conduct an activity to pursue the development of technology-based solutions for combat against pandemics, especially for the issues related to COVID-19.

The proposed project will use the multidisciplinary field of robotics to conduct a motivational activity across several IEEE Regions. The project aims to (1) highlight the benefits of IEEE membership for members and non-members (b) promote STEM education among younger generation and (c) encourage entrepreneurship to student and young professional IEEE members. The project also aims to enhance the visibility of IEEE in the communities through the publicity at all stages of the project, which may include local events to engage industry and local authorities responsible for science & technology development and education. Coverage in local news media and social channels will be pursued.

The project is deemed a worthwhile activity by many IEEE regions which have expressed readiness to collaborate. The proposed project is envisaged for the first time to create an opportunity for IEEE members across Regions to interact and network with each other for the development of technical solutions for the benefit of humanity.

Contact Director-Elect Drew Lowery for additional information: dlowery@ieee.org

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Call for Nominations MGA 2022 Committee & Organizational Boards

Nominations are being accepted until August 1, 2021 for a plethora of opporunities

Each IEEE Region is encouraged to submit nominations to help ensure that MGA is globally balanced. Self-nominations are encouraged. The deadline to submit nominations is **1 August 2021**. Process and position data can be found here.

Use this link to access the nominations portal. Sign in with your IEEE account username and password. If you are on IEEE Awards page, go to "My Nominations" page located under the "Login" tab. Send questions to mga-noms@ieee.org.

MGA Committee Positions:

- IEEE Admission and Advancement Committee
- MGA Awards and Recognition Committee
- MGA Geographic Unit Operations Support Committee
- MGA IEEE.tv Advisory Committee
- MGA IT Coordination and Oversight Committee
- IEEE Life Members Committee
- MGA Member Benefits Portfolio Advisory Committee
- MGA Nominations and Appointments Committee
- MGA Potentials Editorial Board
- MGA Sections Congress Committee
- MGA Strategic Planning Committee
- MGA Student Activities Committee
- MGA Training Committee
- MGA vTools Committee
- IEEE Women in Engineering Committee
- IEEE Young Professionals Committee

IEEE Region 2 Authors Wanted

IEEE Region 2 has the opportunity to contribute to an IEEE-USA e-Book series on the topic of Diversity.

The first book in the Series will examine **Diversity** and the positive impacts on **Innovation**. Additional topics will explore Diversity and Organizational Performance, Culture, Process Excellence, and Sustainability.

If you are interested in being a contributing author in the first book or within the broader series, please respond to **ieeer2rvc@gmail.com.**

- First drafts of chapters due 01 SEPT 2021 (2 pages in length double column)
- Final drafts of chapters due 15 OCT 2021

IEEE REGION 2 CONFERENCES

IEEE Region 2 has a plethora of conferences to satisfy your interests! Join us at one of the events below!

- 7-10 July (DC): 2021 IEEE 41st International Conference on Distributed Computing Systems Workshops (**ICDCSW**)
- 19 - 22 July (VA): 2021 International Symposium on Performance Evaluation of Computer and Telecommunication Systems (**SPECTS**)

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IEEE - USA Special Resources

Free IEEE-USA Webinar: Critical Thinking for Engineers

Register today to join speaker Sridhar Ramanathan live on 8 July at 2:00pm as he dives into the key aspects of critical thinking: analytical skills, data analysis, interpretation, judgment, questioning evidence, and healthy skepticism. These skills will help you build better solutions to real-world challenges. Sridhar is a published author of an IEEE-USA ebook series on **Critical Thinking for Engineers**.

IEEE-USA DIGITAL COMIC BOOK: THE TESLA TWINS VOL. 2 RESCUE AT THE SPEED OF LIGHT

The Tesla Twins (fictional descendants of Nicola Tesla) return to continue their fight against evildoers, in the second installment of the original IEEE-USA e-comic series. Free download for all IEEE members! If you missed Volume 1's origin story, you can download it here.

IEEE-USA INSIGHT: HOW CAN COMPANIES TRANSITION TO HYBRID WORKPLACES?

As more and more companies survey the post-COVID-19 landscape, what can they do to transition to a hybrid workplace properly? Read on as author Jacquelyn Adams shares some key tips.

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Central Area

The Central Area covers the following IEEE R2 Sections:

- Central Pennsylvania
- Erie
- Johnstown
- Pittsburgh
- West Virginia
- Susquehanna

Chair: James A. Beck

East Area

The East Area covers the following IEEE R2 Sections

- Philadelphia
- Southern New Jersey
- Lehigh Valley
- Delaware Bay

Chair : Joseph Burns

South Area

The South Area covers the following IEEE R2 Sections

- Baltimore
- Northern Virginia
- Washington D.C.

Chair: Don Herres

West Area

The West Area covers the following IEEE R2 Sections

- Akron
- Cincinnati
- Cleveland
- Columbus
- Dayton
- Lima
- Youngstown

Chair: Chang Liu

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