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# IEEE Future Directions Newsletter



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## Welcome

Welcome to our latest IEEE Future Directions Community newsletter.

You may already be a member of one or more IEEE Technical Communities. This newsletter highlights activities across all IEEE Technical Communities and initiatives, so you always know what's going on.

Visit each featured portal at the right for access to upcoming conferences, news articles, technical papers, related standards, professional organizations, and academic programs.

We invite you to join any of these communities at no cost. To learn more, contact [Future Directions](#), or visit our [website](#).

## Future Directions Launches New 5G Initiative

5G is not only evolutionary, providing higher bandwidth and lower latency than current-generation technology; more importantly, 5G is revolutionary, in that it is expected to enable fundamentally new applications with much more stringent requirements in latency and bandwidth. Future Directions is advancing that revolution through the creation of the IEEE 5G Initiative, a global collaborative effort between industry, academia, and government to address the challenges and realize the opportunities of future 5G deployments. To be a part of the IEEE 5G Initiative, visit the [web portal](#), join the [IEEE 5G Technical Community](#), and follow on social media via [Twitter](#), [LinkedIn](#), [IEEE Collabratec™](#), and [Facebook](#).

## Technology Policy and Ethics

## IEEE Future Directions Communities





IEEE Future Directions considers the reflection of technology through the lens of social implications a key tenet of our work as we incubate and promote technologies. We are seeking submissions of original content, short articles of 800-1200 words on the social implications of technology, including but not limited to policy and ethics topics. If interested please email [FDPolicyEthics@ieee.org](mailto:FDPolicyEthics@ieee.org).

### **Internet of Threats and the Context Aware Security: Part One**

by *Ali Kashif Bashir, Junaid Chaudhry, and Ahmed Ibrahim*

"Internet of Things" (IoT): The assignment of Internet Protocol (IP) addresses to a plethora of devices, which lets them perform mundane tasks, has left information security engineers with extensive grounds to cover. This causes concerns in technology acquisition. The volume of investment is estimated to be more than 1.7 trillion dollars by 2019 among end users, and 3.7 billion dollars among investors.

[Read more.](#)

### **Privacy in the Internet of Things: Regulation vs. Innovation**

by *Cigdem Sengul*

Every investor, innovator, and potential consumer of an IoT-based application asks the same set of questions: Is it useful? Does it work? Can I trust it? Among the three, the trust question is critical, as IoT extends to everyday items not normally considered computers, allowing them to generate, exchange and consume data with minimal human intervention.

[Read more](#) in the IEEE IoT Initiative Newsletter.

## **IEEE Podcast Series: An IEEE Future Directions Digital Studio Production**

Through our Q&A podcast series, IEEE Future Directions interviews some of the top subject matter experts in the emerging technologies field. Covering everything from privacy and IoT to biomedical and analytics, IEEE Future Directions Podcasts provide you with access to the industry's best of the best.

### **IEEE Big Data**

- [Q&A with Dr. Atilla Elci](#), Professor and Chairman of the Electrical and Electronics Engineering Department at Ahksaray University in Turkey on Big Data, IoT, infrastructure and computing.
- [Q&A with Dr. May Wang](#), Associate Professor at the Georgia Institute of Technology and Director of the Biocomputing and Bioinformatics Core in the Emory-Georgia Tech Center of Cancer Nanotechnology Excellence on Big Data, biomedical, analytics and bio-computing. Co-Chair of 2017 International Conference on Biomedical and Health Informatics (BHI-2017).

For access to the full list of IEEE Big Data podcasts, visit the IEEE Big Data [website](#).

### **IEEE Rebooting Computing**

- [Q&A with Elie Track](#), CEO of nVizix, computing industry knowledge expert and

thought leader on IEEE Rebooting Computing mission and vision, types of computing and future outlook.

- [Q&A with Tom Conte](#), IEEE Rebooting Computing co-chair and professor for the Georgia Tech schools of Computer Science and Electrical & Computer Engineering on IEEE Rebooting Computing mission and vision, types of computing, and future outlook.

For access to the full list of IEEE Rebooting Computing podcasts, visit the IEEE Rebooting Computing [website](#).

### **IEEE 5G**

- [IEEE 5G Transmissions](#): Podcasts with the Experts poses the question "What challenges do you foresee that could affect deployment of 5G?" to six different experts in the 5G field.

For access to the full list of IEEE 5G Transmissions podcasts, visit the IEEE 5G [website](#).

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## **Future Directions Feature Article**

### **Choices Regarding Designs Today Will Impact Our Shared Future Tomorrow**

by *Dr. David A Bray*

In early December 2016 the Institute of Electrical and Electronics Engineers (IEEE) [released version one](#) of its document entitled [Ethically Aligned Design](#) focused on artificial intelligence and autonomous systems.

Produced by an impressive group of positive #ChangeAgents all working under the larger umbrella of The [IEEE Global Initiative for Ethical Considerations in Artificial Intelligence and Autonomous Systems](#), this living document provides initial recommendations for considering how the designs of artificial intelligence and autonomous systems (AI/AS) may impact the lives of humans in ways both intended and unintended. Additional updates to the document are expected in 2017 and beyond. [Read More](#).

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## **Big Data Analytics Competition**

Data Science is all about the processes and methods to access and analyze data to gain insights for informed decision making. To promote the awareness and analytic technology of Big Data, IEEE EMBS and the IEEE Big Data Initiative are organizing a Data Analytics Competition. The competition will be held during the 2017 IEEE International Conference on Biomedical Health and Informatics (BHI2017) and is open to all participants of the conference. [Read more](#).

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## **Current Activities in our Technical Communities**

### **IEEE 5G:**

Read the latest edition of [IEEE Talks 5G](#), a series of Q&A articles with 5G experts, particularly the IEEE 5G Initiative Co-Chairs, Ashutosh Dutta and Gerhard Fettweis. Visit the IEEE 5G [web portal](#).

### **IEEE Big Data:**

Be sure to check out IEEE DataPort™, an easily accessible repository of datasets, including Big Data datasets, and data analysis tools. [Find out more.](#)

Visit the IEEE Big Data [web portal](#).

### **IEEE Brain:**

[BrainInsight](#) is a quarterly online publication featuring practical and timely information and forward-looking commentary on neurotechnologies and neuroengineering.

Visit the IEEE Brain [web portal](#).

### **IEEE Cloud Computing:**

To Docker or Not to Docker: A Security Perspective

Among all container solutions, Docker currently leads the market. This IEEE Cloud Computing article gives an overview of the container ecosystem and discusses the Docker environment's security implications. [Read the article.](#)

Visit the IEEE Cloud Computing [web portal](#).

### **IEEE Cybersecurity:**

Farinaz Koushanfar talks to IEEE Cybersecurity on securing hardware in the emerging physical/logical world. Koushanfar is a professor and Henry Booker Faculty Scholar in the University of California, San Diego's Electrical and Computer Engineering Department, where she directs the Adaptive Computing and Embedded Systems Lab. [Read the article.](#)

Visit the IEEE Cybersecurity [web portal](#).

### **IEEE Digital Senses:**

[Sign up](#) for this new IEEE Community to receive the latest information on Digital Senses.

Visit the IEEE Digital Senses [web portal](#).

### **IEEE Green ICT:**

Several IEEE Green ICT volunteers have just published in the *Journal of Industrial Ecology* an analysis on the "Consequences of Future Data Center Deployment in Canada on Electricity Generation and Environmental Impacts: A 2015-2030 Prospective Study." The environmental impacts of data centers that provide information and communication technologies (ICTs) services are strongly related to electricity generation. [Read the article.](#)

Visit the IEEE Green ICT [web portal](#).

### **IEEE Internet of Things (IoT):**

New IEEE IoT Courses Available! Meet your CEU and PDH requirements with these new introductory-level courses from IEEE IoT in areas such as Social Impacts, Challenges, and more. [Access them online.](#)

Visit the IEEE Internet of Things [web portal](#).

### **IEEE Life Sciences:**

The IEEE Life Sciences Conference will focus on multi-society perspectives on personalized healthcare and wearables. It will take place in Sydney, Australia, 13-15 December 2017. [Learn more.](#)

Visit the IEEE Life Sciences [web portal](#).

### **IEEE Rebooting Computing (RC):**

Members of the RC Steering Committee contributed an article to a special issue of *Mondo Digitale*, a trade magazine sponsored by the Italian Association for Informatics and Automatic Computation. The article reviewed how both the RC

Initiative and the new IRDS Roadmap are working to reinvent the field of computing to maintain exponential enhancement in performance beyond the end of Moore's Law scaling. [Read the article.](#)

Visit the IEEE Rebooting Computing [web portal.](#)

#### IEEE Smart Cities:

Readings on Smart Cities is a free online publication of the IEEE Smart Cities Initiative that provides insight into important concepts and technologies in smart cities. Each month, IEEE Smart Cities will make a selection of IEEE *Xplore* articles available to members of the IEEE Smart Cities Technical Community on a complimentary basis. [Subscribe](#) to our technical community today for free to receive access to our selected articles each month via email.

Visit the IEEE Smart Cities [web portal.](#)

#### IEEE Smart Grid:

Check out the new [IEEE Smart Grid Resource Center.](#)

Visit the IEEE Smart Grid [web portal.](#)

#### IEEE Software Defined Networks (SDN):

*The Institute's* article, "The 'Softwarization' of Telecommunications Systems", which summarizes IEEE SDN's white paper "Towards 5G Software-Defined Ecosystems" has ranked #5 on *The Institute's* most popular articles of 2016! [Read the article.](#)

Visit the IEEE Software Defined Networks [web portal.](#)

#### IEEE Transportation Electrification:

Check out the [December issue](#) of the IEEE Transportation Electrification Newsletter.

Visit the IEEE Transportation Electrification [web portal.](#)

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## IEEE Future Directions Upcoming Events

### [IEEE International 5G Summit](#)

Dates and locations vary throughout the year.

### [IEEE International Conference on Biomedical and Health Informatics \(BHI-2017\)](#)

16-19 February 2017, Orlando, FL, USA

### [IFIP/IEEE International Symposium on Integrated Network Management](#)

8-12 May 2017, Lisbon, Portugal

### [IEEE 3rd Conference on Network Softwarization \(NetSoft 2017\)](#)

3-7 July 2017, Bologna, Italy

### [IEEE Life Sciences Conference](#)

13-15 December 2017, Sydney, Australia

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