

IEEE ISTAS 2019, 15 - 16 November 2019
School of Engineering, Tufts University, Medford Campus, Boston, MA
<https://attend.ieee.org/istas-2019/program/>

IEEE ISTAS 2019 report was compiled by IEEE ISTAS 2019 Organisers - Miriam Cunningham (Program and Publications Chair), Paul Cunningham (Conference Chair) and Michael Cardinale (Treasurer).

IEEE ISTAS 2019

IEEE ISTAS 2019 – the flagship event of IEEE Society on Social Implications of Technology (SSIT – www.TechnologyandSociety.org) took place in Boston from 15 - 16 November 2019. It is kindly hosted by the School of Engineering, Tufts University on its Medford Campus, MA.

IEEE ISTAS 2019 brought together engineers and policy makers, social scientists and technologists, graduate students and IEEE leadership including Society Presidents to share experiences and discuss the social, cultural, ethical and economic implications of technology.

IEEE ISTAS 2019 was Technical Co-sponsored by IEEE USA, IEEE Region 1, IEEE Boston Section, IEEE Standards, IEEE Product/Safety Engineering Society, IEEE Reliability Society, IEEE Education Society, IEEE Industrial Electronics Society, IEEE Professional Communication Society and IEEE Technology and Engineering Management Society and supported by IEEE Humanitarian Activities Committee.

IEEE ISTAS 2019 attracted over 118 delegates from USA, Canada, Europe and Latin America. The feedback provided by delegates and presenters was very positive acknowledging the high-quality program and proceedings, opportunities to engage with IEEE leadership in a friendly collegiate atmosphere as well as interactive knowledge sharing.

Links to Videos

[Keynote Address - Engineering Workforce of the 21st Century](#), Dr Babak Beheshti, Director, IEEE Region 1, 16 Nov '19

[Plenary 3 - Impact of IEEE Division VI Societies Panel](#), 16 Nov 19

[Plenary 4 - Brave New Brain-Tech: IEEE Neuroethics Program Development of Guidelines for Use of Neurotechnologies in Practice](#), 16 Nov 19

Outcomes from IEEE ISTAS 2019

The outcomes include:

- **Lessons learnt** from practitioners, researchers and policy makers shared during [plenary and paper sessions](#) that can be applied in ongoing and new projects undertaken by participants
- **High quality networking** facilitated between policy makers, practitioners, researchers, social scientists, engineers and technologists leading to new collaborations
- **Better understanding of the issues** related to Sustainable Development / Societal Implications of technology / Humanitarian activities from a range of different perspectives
- Access to [high quality proceedings in IEEE Xplore](#) facilitate those who attended and those who were not able to attend to benefit from the knowledge and lessons learnt shared

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- Opportunities for delegates to engage with **IEEE USA President, IEEE Region 1 Director and Presidents of all Division VI Societies** provided significant networking and collaboration opportunities for the future

Program

The [conference program](#) was very well aligned with IEEE SSIT goals, bringing together a mix of keynote presentations, plenary panels, paper and workshop sessions with a strong focus around Sustainable Development and Societal Implications of Technology. There was also a strong emphasis on showcasing issues related to Ethically informed standards, Societal Implications of Technology, Ethics and Human Values, Autonomous Systems and Protecting the Planet.

Plenary Speakers and panellists included:

- Tom Coughlin, President IEEE-USA
- Dr. Babak Dastgheib-Beheshti, Director, IEEE Region 1
- Prof. Karen Panetta, School of Engineering, Tufts University
- Gil Cooke, Chair, IEEE Boston Section
- Robert Dent, IEEE SSIT President
- Dr. Özge Karadag Caman, Center for Sustainable Development, Earth Institute, Columbia University
- Dr. Amy Pickering, Tiampo Family Assistant Professor in Civil and Environmental Engineering at Tufts University
- Prof. Paul M Cunningham, IST-Africa Institute / Past Chair, HAC
- Dr. Beth-Anne Schuelke-Leech, Chair, IEEE SSSIT Standards Committee
- John Allen, President, IEEE Product/Safety Engineering Society
- Prof. Manuel Castro, Director, IEEE Division VI
- Prof. Paul M Cunningham, Past President, SSIT / Director-Elect Division VI (Moderator)
- Robert Dent, President, IEEE Society on Social Implications of Technology
- Dr Jeff Voas, Past President, IEEE Reliability Society
- Dr. Russ Meier, President, IEEE Education Society
- Prof. Necia Werner, President, IEEE Professional Communication Society
- Xinghuo Yu, President, IEEE Industrial Electronics Society
- Dr Michael Condry, President, IEEE Technology and Engineering Management Society
- Dr. James Giordano, Georgetown University, USA
- Dr. Laura Specker-Sullivan, College of Charleston, USA
- Dr Francis X. Shen, Executive Director of the Harvard MGH Center for Law, Brain, and Behavior, USA

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- Prof. William (Jamie) Tyler, School of Biological and Health Systems Engineering, Arizona State University, USA
- Mark A. Vasquez, IEEE TechEthics (Moderator)



During the **Opening Session** Prof. Karen Panetta, School of Engineering, Tufts University and Robert Dent, President (SSIT) welcomed the participants to IEEE ISTAS 2019.

Prof. Karen Panetta presented Welcome Remarks on behalf of Gil Cooke, Chair, IEEE Boston Section. Gil highlighted a number of electrical heroes from the Boston area including: Dr.

William Channing (1820-1901) who invented the 1st fire alarm system; Dr. Fred Stark Pearson (1861-1915), who led the electrification of the first commercial electric traction mass transit system for Boston; Alexander Bell - first transmission of intelligible speech over electrical wire in 1876; Samuel Finley Morse - inventor of the telegraph and Benjamin Franklin - the first electrician. Gil hoped that delegates enjoyed their time in Boston and fruitful discussions during IEEE ISTAS 2019.

Prof. Paul Cunningham, in his role as Past Chair, IEEE HAC provided a brief insight into the types of activities that IEEE Humanitarian Activities Committee (HAC) supports and acknowledged the support IEEE HAC provided to IEEE ISTAS 2019.



Robert Dent, President (SSIT) presented an Award to Prof Paul Cunningham for Outstanding Service to SSIT during his term as President of SSIT (2017 - 2018).

The first **Keynote presentation** provided by **Tom Coughlin, President IEEE-USA** focused on the **importance of engaging engineers on Societal Implications and Technology-related Policy.**

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Plenary Panel 1 focused on **Sustainable Development** addressing Societal Challenges moderated by Prof. Paul Cunningham (Past Chair, IEEE Humanitarian Activities Committee). Dr. Özge Karadag Caman, Center for Sustainable Development, Earth Institute, Columbia University provided insights into the Refugees Act and Communicate for Health (REACH) project which is focused on using technology to increase health literacy and health care access for refugees in Turkey and Lebanon using a Community based participatory action research framework. Dr. Amy Pickering, Tiampo Family Assistant Professor in Civil and Environmental Engineering at Tufts University focused on sharing insights into sustainable strategies to improve access to safe water in low-income countries from a project ongoing in Kenya. Prof. Paul M Cunningham, in his role as Director, IST-Africa Institute provided insights into results from mHealth4Afrika which has co-designed and validated a standards-based, comprehensive patient-centric health platform for use in resource constrained environments with Ministries of Health and healthcare professionals in Ethiopia, Kenya, Malawi and South Africa. Following a short presentation by each panellists, they then discussed challenges and opportunities associated with co-design and multi-stakeholder collaboration in resource constrained environments and in particular, the strategic importance of collaboration with local community stakeholders to support sustainable outcome; issues to be considered when establishing strategic partnerships and the role of ethical issues and informed consent when dealing with community based projects. This was followed by interactive discussion including questions posed by conference delegates.



Plenary 2 focused on **Creating Ethically Informed Standards**. Prof. Beth-Anne Schuelke-Leech, Chair, IEEE SSIT Standards Committee provided insights into the importance of standards, the critical contribution of IEEE to Ethical Standards and the contribution the SSIT Standards Committee is making to Ethical Standards (P7000 Series). Ben Bland, Sensum Co, Northern Ireland provided insights into the P7014 standard and Prof. Ali Hessami, Vega Systems UK into P7000 and Ethics Certification. This again was followed by an interactive discussion with audience members.

Dr Babak Beheshti, Director, IEEE Region 1 provided a **keynote presentation** focused on **[Engineering Workforce of the 21st Century](#)**. It provided insights into consequences of the 4th Industrial Revolution, and the leadership, communication and problem solving skills most in demand in the labour force. **Link to [video recording](#)**



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Plenary 3 focused on the **Impact of Division VI Societies**. Prof. Manuel Castro, Director, IEEE Division VI focused on discussing the horizontal competences and activities as well as potential synergies between Division VI Societies. When covering areas as broad as Education Engineering, Learning Technologies,

Industrial Electronics, Electronic Applications, Smart Energy, Safety and compliance engineering in systems, communications in the engineering profession, sustaining system reliability, professional and social responsibility in engineering and interaction between technology, science and society, there are numerous opportunities for collaboration.

Each Division VI President provided insights into the focus, achievements to date and future direction of each of their Societies: IEEE Product/Safety Engineering Society; IEEE Technology and Engineering Management Society; IEEE Society on Social Implications of Technology; IEEE Education Society; IEEE Reliability Society; IEEE Professional Communication Society and IEEE Industrial Electronics Society. This was followed by a discussion on (1) What role should Division VI Societies play in leading the continuing professional education and development of IEEE members?; (2) How can Division VI Societies collaborate in working towards embedding a “social conscience” or ethical perspective into the development and evolution of technology, and what are some of the barriers and obstacles to this challenge?; and (3) how "soft skills" can be supported at a Society and Division VI level. **Link to [video recording](#)**



Plenary 4 focused on sharing insights into **Brave New Brain-Tech: IEEE Neuroethics Program Development of Guidelines for Use of Neurotechnologies in Practice**.

The panellists provided insight into the ongoing efforts of the IEEE Neuroethics Program of the IEEE Brain Initiative, including defining and categorizing current and

emerging neurotechnologies, elucidating ethical, legal and social issues generated by context-specific applications of these technologies, and proposing guidelines for these issues' address and resolution. **Link to [video recording](#)**

Parallel paper and panel sessions focused on Societal Implications of Technology, Protecting the Planet and Ethics and Human Values.

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The "AI: Pervasive, Invasive and Persuasive" panel provided insights into the privacy challenges that AI will raise and how this will influence personal action with insights provided from a practitioner, legal and research perspective.

The "Fair AI-Based Recruitment" workshop provided insights into: a) common recruitment practices and how AI has been used to enhance this and its impact; b) common sources of bias and fairness issues in AI-based recruitment processes; c) effects biased and unfair recruitment decisions can have on an organisation, its employees and candidate; d) metrics proposed for quantifying bias and methods for mitigating bias and e) a demonstration of tools on a sample dataset for recruitment.

IEEE ISTAS 2019 Proceedings

The IEEE ISTAS 2019 Proceedings is available in IEEE Xplore at <https://ieeexplore.ieee.org/xpl/conhome/8930368/proceeding>

IEEE ISTAS 2020

IEEE ISTAS is the flagship event of IEEE SSIT and takes place on an annual basis. Preparations for IEEE ISTAS 2020 are ongoing and the Call for Papers will be published during Q1.