BUILDING CAREERS
SHAPING PUBLIC POLICY

The IEEE-USA 2015 Annual Report
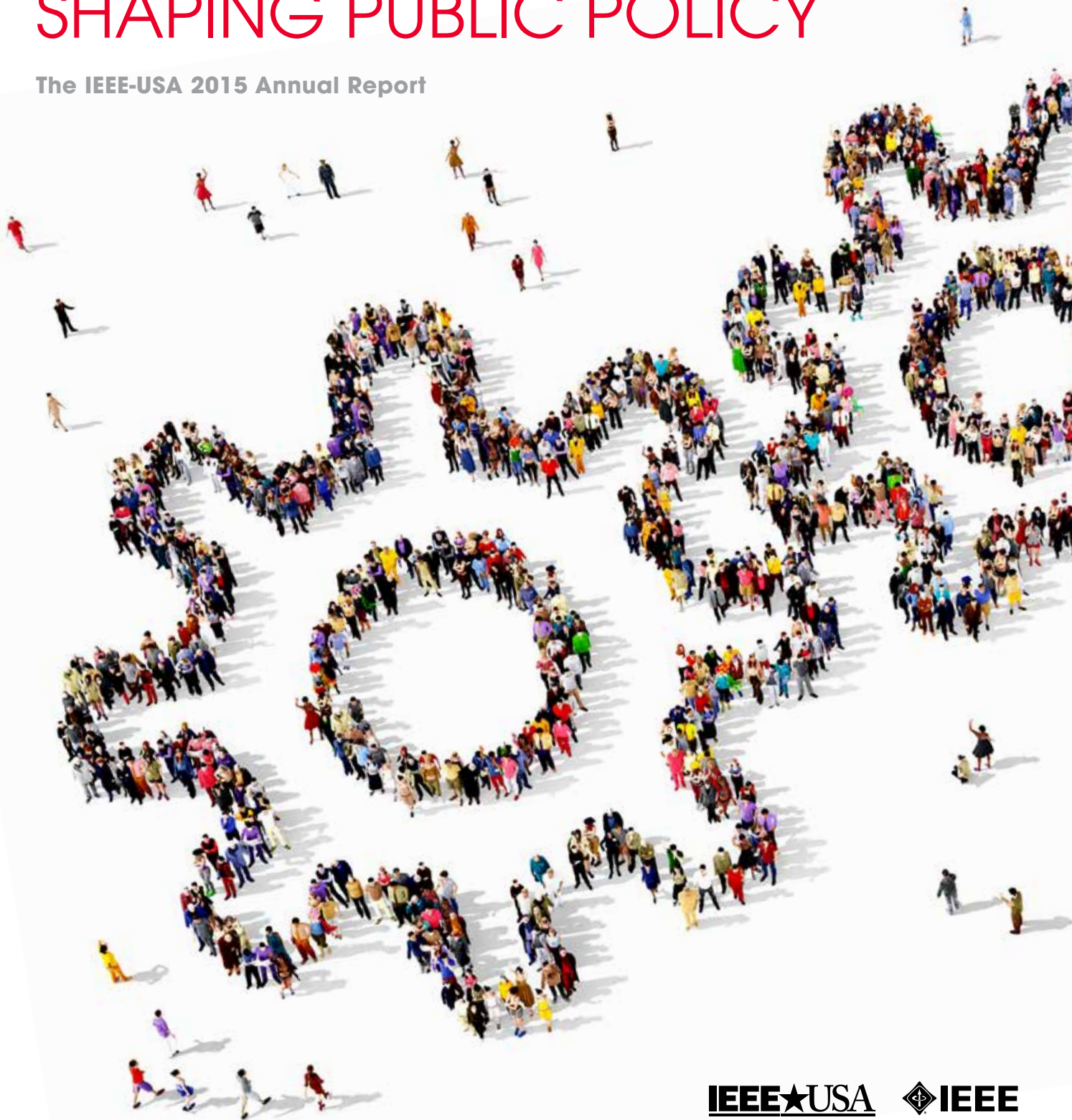
IEEE★USA ◆**IEEE**

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LETTER FROM THE PRESIDENT

2015 was a year of change and new direction for IEEE-USA. As 2015 IEEE-USA President, I emphasized four general priorities for the year:

1 Increasing member engagement through enhanced communication (including use of alternative channels of delivery)

2 Expand our emphasis on reaching and serving students and young professionals

3 Focusing our resources on areas where we can have maximum impact ("Keep the best, streamline the rest.")

4 Embracing the "One IEEE" concept, by being a model and a partner to other IEEE entities, in such areas as global public policy and careers.

I'm pleased to report we made significant progress in each of these areas, as highlighted in this annual report.

▶ We enhanced our communications outreach through launch of *IEEE-USA INSIGHT* online, which serves as our flagship publication, and began the process of revamping the IEEE-USA website.

▶ We launched a major new public visibility initiative—the IEEE-USA MOVE Community Outreach, a partnership with the Red Cross to provide communications and power to people in areas impacted by natural disaster, while providing a new tool for promoting K-12 STEM literacy and public visibility.

▶ We put plans in motion for an innovative new Future Leaders Forum, targeted at students and young professionals, to be held in 2016. We focused our resources to cut expenses, eliminating inactive committees and programs, and streamlining our operations.

▶ IEEE-USA also proactively partnered with other IEEE organizational units to support new IEEE initiatives, such as the IEEE Career Resources Initiative, the IEEE Internet Initiative, and the creation of an IEEE Global Public Policy Committee. As the rest of IEEE seeks to emulate the career services and public policy activities generated by IEEE-USA, we are offering advice and assistance, while leveraging these initiatives to better serve IEEE's U.S. members.

My calendar of engagements was full (*see Appendix II*), the achievements of 2015 were significant, and I am confident that we laid a strong foundation for continued IEEE-USA success in the future. I'm proud of what we collectively accomplished, and I hope that you find value and inspiration in what IEEE-USA is doing to help you, and other U.S. IEEE members, build their careers—and provide the profession an influential voice in public policy.

Sincerely,

Jim Jefferies

JAMES A. JEFFERIES
2015 IEEE-USA President

INTRODUCTION

The Institute of Electrical and Electronics Engineers—United States of America (IEEE-USA) is a major organizational unit of the IEEE that traces its origins to the 1973 formation of the IEEE U.S. Activities Committee. IEEE-USA was created to **advance the public good**, and it **promotes the careers and public policy interests** of the approximately 200,000 engineers, scientists and allied professionals, who are U.S. members of the IEEE. IEEE-USA is led by a volunteer board of directors, chaired by the member-elected IEEE-USA President. IEEE-USA's operations are supported by its professional staff, based in the IEEE-USA Office, in Washington, D.C.

IEEE-USA MISSION AND PURPOSE

As provided in our By-Laws, IEEE-USA's mission is to "recommend policies and implement programs specifically intended to serve and benefit the members, engineering professionals, and the general public in the United States. IEEE-USA shall be the organizational unit that represents the professional interests of the IEEE before U.S. governmental bodies. It shall also be responsible for coordinating and reporting, under federal disclosure laws, all official communications with government."

This mission is further described by IEEE-USA Policy 1.2, which defines as our organizational purposes the responsibility to:

▶ **PROMOTE** the professional, social, economic and ethical status of electrical, electronics, communications and computer engineering, as well as computer science and allied branches of engineering, and the related arts, sciences and technologies, and related technical professionals in the United States, with a special emphasis on U.S. IEEE members

▶ **PROVIDE** technical advice and policy perspectives to U.S. policymakers at all levels, in the areas of electrotechnology and information technology, to improve the quality of life, and for the benefit of the public

▶ **WORK** with U.S. policymakers and regulators to enhance the careers and improve the working conditions of U.S. engineers, and other technical professionals

▶ **DEVELOP** products and services that support the lifelong professional development and career vitality needs of U.S. IEEE members, and other technical professionals

▶ **SUPPORT** communication with and among U.S. IEEE members, potential members, their employers, and the public about IEEE-USA, and the professional issues that affect its members and their professions

▶ **ENHANCE** public awareness and understanding of electrical, electronics and computer engineering, and related technical fields

IEEE-USA FINANCES

IEEE-USA operates on an annual budget, approved by the IEEE Board of Directors. IEEE-USA's 2015 operations budget was $5.62 million. This budget supported the programs, volunteer activities and staff highlighted in this annual report.

IEEE-USA's budget is primarily funded through a mandatory assessment of all U.S. IEEE Higher Grade members, indexed to inflation. The 2015 assessment was $44. This assessment generates approximately 94 percent of IEEE-USA's operating revenues.

In 2015, IEEE-USA was able to offset a shortfall in assessment income, due to a decline in IEEE U.S. higher grade membership, by successfully controlling expenses; expanding its non-dues revenues from conference registrations and proceedings; and from the sales of products and services, ending the year with a small surplus.

In addition to IEEE-USA's operating budget, tax-deductible member contributions to the IEEE-USA Fund, the IEEE-USA E-Week Fund, and/or the IEEE-USA Awards Fund provide seed money for new career and professional programs and services. For information on how you can support IEEE-USA through a voluntary contribution, see: **www.ieeeusa.org/about/development.asp**.

IEEE-USA's 2015 Treasurer was John Twitchell.

IEEE-USA IN ACTION
BUILDING OUR MEMBERS' CAREERS

▶ In February, IEEE-USA launched a new and improved online nomination and review process for its **Awards and Recognitions program** using FluidReview.

▶ Working in partnership with the IEEE Computer Society, the National Society of Professional Engineers, the Texas State Board of Licensure and the National Council of Examiners, IEEE-USA continues to support the new **P.E. software licensure examination**. Administered annually, 18 individuals took the 2015 exam in April.

▶ In May, IEEE-USA was awarded three Silver Awards of Distinction for its Women in Engineering e-book series by The Academy of Interactive and Visual Arts, in categories related to writing, editing and interactive media. The **Women in Engineering ebook series** received its fourth award in May, an APEX Award of Excellence in the Electronic Media-Electronic Publications category.

▶ On 1 May, IEEE-USA launched a new **monthly podcast** featuring news, information and updates for U.S. IEEE members, now available through iTunes, and other podcast media sources.

▶ On 8 May, IEEE-USA launched **"CareersConnect USA,"** an IEEE Collabratec community designed to provide IEEE members with a place to network, share job leads and information, and obtain advice on employment and career matters.

▶ Highlights of IEEE-USA's successful **2015 Annual Meeting** (14-17 May) included a STEM "Hands on Engineering" workshop for Milwaukee area high school students—using wireless technology to illustrate how the brain works, a Young Professionals session on disrupting the future of technology, and an Intellectual Property Protection and Innovation workshop for entrepreneurs and inventors recorded by IEEEtv. The Annual Meeting ran in conjunction with the Great Lakes Biomedical Conference, focused this year on biomedical applications of additive manufacturing.

▶ IEEE-USA presented professional achievement and technical awards at its annual **Awards Ceremony**, held on 16 May in Milwaukee, Wisconsin, in conjunction with the IEEE-USA Annual Meeting (*see Appendix III*).

- On 25 Aug., IEEE-USA released the 2015 edition of the **IEEE-USA Salary Service**, including two updated, online salary calculators; and the 64-page *Salary and Benefits Report*, summarizing data collected from more than 10,000 U.S. IEEE members.

- In September, IEEE-USA released its ***2015 Consultants Fee Survey Report***, which collects data on demographics and compensation from U.S. IEEE members who devote 50 percent or more of their time to consulting. Among the highlights, the median hourly rate charged by U.S. IEEE consultants jumped 11 percent, to $150 an hour, after remaining flat in 2014.

- As a follow-up to the August release of the 2015 edition of the IEEE-USA Salary Service, IEEE-USA released four **industry special reports** on salary trends for power engineering, computing, telecommunications and circuits, in September.

- IEEE-USA's **IP Professionals Program** delivered expert talks to the IEEE Pittsburgh (13 Oct.) and Richland (23 Oct.) Sections on "New Challenges to Patentable Subject Matter and Software Patentability." The Pittsburgh talk was co-marketed with the Allegheny Bar Association—Judge Conti, Chief Judge of the U.S. District Court for the Western District of Pennsylvania, and her clerks, attended.

- In October, IEEE-USA learned that its **Beer & Business Entrepreneurs' Meet Up** proposal had been selected as a featured event at the South By Southwest (SXSW) Interactive Festival in 2016. The informal session will showcase entrepreneurs talking about how small high-tech start-ups grapple with important funding, trade/export and tax issues.

IEEE-USA is on the MOVE, partnering with the Red Cross to supply communications and power to people in areas affected by natural disasters; and providing a new tool for promoting K-12 STEM literacy and public visibility.

- IEEE-USA President Jim Jefferies presented a special **Presidential Citation**, in memorium, to Gaetano Borriello, a professor and humanitarian technology advocate, whose open-source mobile data collection tools, Open Data Kit, are widely used in public health, documentation of human rights violations, and environmental monitoring around the globe. The award was presented as part of the Dr. Borriello "Feet on the Ground" Memorial Symposium, held in conjunction with the IEEE Global Humanitarian Technology Conference, in Seattle on 10 Oct.

- IEEE-USA organized an **Entrepreneurs/Angel Roundtable Discussion** in Denver, Colorado, on 19 October, designed to collect input for a forthcoming Small Technology Business Symposium, to be held for the Senate Small Business & Entrepreneurship Committee in December.

- By the 1 Nov. "hard launch" of **IEEE Collabratec, the CareersConnect: USA** community, managed by IEEE-USA, had enlisted 683 members.

- After an eighteen year hiatus, IEEE-USA's **Student Professional Activities (SPAx)** returned to MIT, offering a welcoming reception with networking and career-themed speakers on 6 Nov., in conjunction with the IEEE MIT Undergraduate Research Technology Conference (7-8 Nov.).

- IEEE-USA was a primary sponsor of the **IEEE Women In Engineering Summit East**, held 6-8 Nov., in Philadelphia. Attendees received complimentary copies of IEEE-USA's award-winning e-book, *Women in Engineering Compilation-Vol. 1 (Books 1-4)*.

- On 14 November, IEEE-USA offered a half-day workshop on "Managing Your Career as a Business," as part of the **IEEE Indianapolis Section's Metro Area Workshop**.

- IEEE-USA's e-book on *Launching Your Career: A Practitioners Guide to Leadership*, authored by IEEE President-Elect Barry Shoop, was used as a resource by the **IEEE Volunteer Leadership Training (VOLT) program**.

- IEEE-USA's **IP Professionals Initiative** organized a workshop session on *Recent Developments in Patent Law and Policie*s presented on 9 Dec., at IEEE GLOBECOM 2015, in San Diego.

- On 11 Dec., IEEE-USA and the U.S. Small Business Administration renewed our **joint Memorandum of Cooperation**, which calls on both parties to work together "in order to strengthen and expand small business development in technology sectors in local areas."

- IEEE-USA held its **4th Annual Small Technology Business Symposium** on 11 Dec., on Capitol Hill. Senator David Vitter, (R-La.), Chair of the Small Technology Business and Entrepreneurship Committee, sponsored the event. The Symposium drew top-ranking officials from the U.S. Departments of Commerce, Labor, and State; the U.S. Trade Representative; the U.S. Patent & Trademark Office; The Economic Development Administration; NIST; the White House Office of Science and Technology; and the Export/Import Bank.

- In December, IEEE-USA released the results of its first survey of **IEEE U.S. Small Technology Business Owners**. The survey focused on entrepreneurs' needs in funding, export assistance, intellectual property protection, marketing, legal issues, workforce issues, and government assistance.

- A PR media campaign, based on an infographic highlighting results of the *2016 IEEE-USA Salary Survey*, generated substantial trade press coverage of IEEE-USA and its survey, including placements in *EDACafe, Infoworld (19 and 25 Nov.), RCR Wireless, Evaluation Engineering, Embedded.Com, OSP Magazine,* and *TMCNet.*, and follow-up interviews with *Evaluation Engineering* and *RCR Wireless.*

- During 2015, the **IEEE Consultants Network**, administered by IEEE-USA, grew by 57 percent to 3,549 members. IEEE-USA also supported the launch of a Consultants Exchange community in IEEE Collabratec, as a focal point for members of the Consultants Network, and subscribers to the IEEE-USA Consultants Database—to use IEEE's new community platform for networking and project collaboration.

- By year-end, IEEE-USA had financially sponsored, or technically co-sponsored, **14 successful technical conferences** on topics ranging from technology for homeland security, humanitarian technology, and technology for sustainability to connected vehicles, carbon management, and wireless in space and extreme environments (*see Appendix X*).

- Working in partnership with the IEEE Computer Society, the National Society of Professional Engineers, the Texas State Board of Licensure and the National Council of Examiners, IEEE-USA continues to support the new **P.E. software licensure examination**. Administered annually, 18 individuals took the national exam in April.

- By year-end, IEEE-USA had offered **28 career/professional webinars**, on such topics as situational leadership, managing international virtual teams, engineering your career, and more. (*See sample selections from chart at right*)

- By year-end, IEEE-USA provided support for **76 Student Professional Awareness (SPAx)** events, in partnership with U.S. IEEE student branches, reaching nearly 5,000 students. (*see Appendix V*).

- IEEE-USA's PACE Network supported 135 professional activities, including K-12 STEM, YP, WIE, professional development, and more, at the Section or Region level in 2015, engaging over 10,000 U.S. IEEE members.

WEBINAR	MODERATOR(S)
Engineer Your Career	Leslie Martinich
Government Relations Update	Russ Harrison
Moving From Individual Contributor To Leader	Elizabeth Lions
SBIC Program	Samuel J Boyd Scott Schaefer Nareg Sagherian
Resume Development	Dr. Tarek Lahdhiri
Job Interview	Dr. Tarek Lahdhiri
Leadership Foundations	Elizabeth Lions
LinkedIn	Susan Tabor-Kleiman
Negotiating Your Career: The Ability to Stay & the Confidence to Shift	Tad Mayer
International Virtual Teams: Engineering Global Success	Dr. Pam Estes Brewer
Leadership Visionary Process	Elizabeth Lions
IEEE Member Group Insurance Plans—Protecting Your Greatest Asset...You!	Graham Fuller
The IEEE Professional Liability Insurance Program—Introducing Our New Program Option; and Why Good Business Contracts Benefit You!	Jeff Ambrose
How to Be Fire Proof!	Elizabeth Lions
Engineer Your Own Success: 7 Key Elements to Creating an Extraordinary Engineering Career	Anthony Fasano, P.E.
Leadership Ethics	Elizabeth Lions
Situational Leadership	Elizabeth Lions
Taking Research from a Paper and Putting it into a Presentation or Poster	Julia Williams

IEEE-USA IN ACTION
SHAPING PUBLIC POLICY

▶ Many IEEE members in government service have found it difficult to attend science and technical conferences, due to changes in federal travel policies. On 15 Jan., the White House Office of Management and Budget's Controller's Office released updated guidance to federal departments and agencies on compliance with the **OMB Directive on travel/conference related policy**. It contains a key provision that IEEE-USA and other science and engineering groups championed, benefitting IEEE conference organizers by authorizing federal agencies to pre-approve participation in reoccurring conferences sponsored by non-governmental entities.

▶ On 15 Jan., an IEEE-USA delegation met with Reynold Schweickhardt, chief technology officer for the U.S. House of Representatives, to discuss **cybersecurity challenges** facing Congress and its Office of Administration.

▶ During January, IEEE-USA staff met with the congressional sponsors of the Cybersecurity and Internet of Things Caucuses to identify opportunities for interaction with **IEEE's Cybersecurity and L.O.T. Initiatives**.

▶ On 15 March, the U.S. Government Accountability Office (GAO) released its congressionally-mandated study of the impact of **federal travel policy** on defense S&T capabilities. The study concluded that declining participation by federal scientists and engineers in S&T meetings poses a risk to agency missions, but that agencies have failed to analyze and document the impacts. The study also recommended that agency officials streamline processes for review/approval of conference participation. GAO officials interviewed IEEE-USA representatives, as background for the report.

▶ In March, IEEE-USA arranged for U.S. Rep. Bill Foster (D-Ill.) to introduce the **House Companion (H.R. 1398)** to the *American Innovation Act* (S. 747). Sen. Dick Durbin (D-Ill.), sponsored legislation authorizing R&D appropriations for the National Science Foundation, the Department of Energy Office of Science, the Department of Defense Science and Technology Programs, the National Institute of Standards and Technology Scientific and Technical Research, and the National Aeronautics and Space Administration, through FY 2021. In August, the bill was referred to the House Science Subcommittee on Research and Technology, and the House Armed Services Subcommittee on Emerging Threats and Capabilities, where it is still pending.

On the Hill (L-R): Sen. Cory Gardner (R-Colo.); IEEE-USA government relations staffer, Aline McNaull; 2015 IEEE-USA President Jim Jefferies; and 2015 IEEE-USA President-Elect Pete Eckstein.

▶ Forty-eight IEEE members from twenty states, including 13 students, participated in the **2015 STEM Congressional Visits Day** (17-18 March), visiting 76 congressional offices to raise visibility and support for science, engineering and technology. They joined several hundred scientists and engineers, from more than 20 other organizations who participated in CVD. As one outcome of CVD, 136 U.S. Representatives agreed to sign a "Dear Colleague" letter, calling on House appropriators to support a $7.7 billion budget request for the National Science Foundation.

▶ In March, IEEE-USA received an invitation from the newly formed **Congressional Inventions Caucus** to serve on their advisory/steering committee. This congressional caucus is the fifth IEEE-USA has provided support to—the others have been focused on research, robotics, The Internet of Things, and cybersecurity. IEEE-USA also co-hosted a 30 April caucus kick-off event on Capitol Hill, celebrating the launch of the Congressional Inventions Caucus, which will provide a forum for legislators to educate themselves about inventors, inventions, and related legal, financial, busi-

ness and strategic aspects of moving ideas from R&D to commercialization.

▶ IEEE-USA helped organize a briefing on "Robotics in Infrastructure" for the **Congressional Robotics Caucus**. The briefing, which featured robotics experts from Carnegie-Mellon, Georgia Tech and the University of Illinois, was held on 29 April.

▶ In April, former IEEE-USA and IEEE President **Gordon Day** began serving as IEEE-USA's representative to the U.S. Advisory Committee to UNESCO, which advises the State Department on U.S. participation in UNESCO and its development programs.

▶ Working through the STEM Education Coalition, IEEE-USA supported a successful amendment during mark-up of the *Elementary and Secondary Education Act Reauthorization bill*, which would authorize the Department of Education to provide states with formula-based funding—to support partnerships between local schools, businesses, universities, and non-profit organizations—and to improve precollege student learning in STEM subjects, including engineering.

▶ With support from IEEE-USA and other concerned societies, Rep. Dan Lipinski (R-Ill.). offered an amendment during the 22 April mark-up of the *America COMPETES Reauthorization Act*, stating congressional findings confirming the importance of participation by federal scientists and engineers in professional conferences to their agencies, and missions. The amendment was later withdrawn, to avoid triggering a joint referral on jurisdictional grounds to the House Government Affairs Committee.

- The White House and the Energy Department released the first **Quadrennial Energy Review (QER)** on 21 April. The report cites the need for significant changes to the nation's electric power infrastructure, to address the growth of distributed energy and renewable energy sources, and other challenges. IEEE-USA and the IEEE Power and Energy Society collaborated to provide extensive input and recommendations to the QER. The report calls upon DOE to "work with industry, the Institute of Electrical and Electronics Engineers, state officials, and other interested parties to identify additional efforts the federal government can take to better promote open standards that enhance connectivity and interoperability on the electric grid."

- In response to urging from a coalition of interested groups, including IEEE (with support from IEEE-USA), the White House issued an executive order in May removing references to EPEAT, a rating system for green electronics administered by the Green Electronics Council, from Federal Acquisition Regulations. Federal agencies are still encouraged to buy products that meet environmental standards, including IEEE's P1680 family of standards for Environmental Assessment of Electronic Products, but are no longer mandated to use a particular organization's list in making those procurement decisions. The ruling enables IEEE to explore alternatives to the **EPEAT rating system**.

- IEEE-USA has selected Benjamin L. Schmitt (Philadelphia, Pa.) as its 2015-16 **Engineering and Diplomacy Fellow**. Dr. Schmitt accepted a placement in the State Department's Energy Bureau in November. Our 2014-15 Congressional

Fellows Robert Bartolo and Shawn Kimmel completed their Fellowships in June. Bartolo served as an S&T advisor to Senator Robert P. Casey (D-Pa.). Kimmel supported Rep. Dan Lipinski (D-Ill.).

- IEEE-USA joined Rep. Sheila Jackson Lee (D-Texas) and Carnegie Mellon University (CMU) in hosting a congressional briefing on **"What Can Be Done Today To Dramatically Improve Cybersecurity,"** held 8 June, on Capitol Hill. Experts participating included IEEE members Jeremy Epstein (program director of Computer and Network Systems, at the National Science Foundation); and Rob Seacord (CMU's Secure Coding Team Lead, and past chair of IEEE P1201.3 Working Group).

- IEEE-USA Government Relations Director Russ Harrison was an invited panelist at the National Journal "Live" Conference on **"Pathways to Reform: A Discussion on High-Skilled Immigration Policy,"** held on 2 June in Washington, D.C. The conference was live-streamed on the Internet to prominent Washington opinion leaders, including members of Congress, House and Senate staff, C-suite executives, and administration officials.

- IEEE-USA worked with the **IEEE Hawaii Section** to successfully advocate adoption of state legislation, signed into law on 26 June, that bans the use of non-compete agreements for employees in technology businesses.

- IEEE-USA President Jim Jefferies joined four S&T society presidents in an op-ed column published in *Science Magazine* ("Meeting of the Minds," 10 July), encouraging readers to share stories of important collaborations and innovations that resulted from the participation of U.S. federal scientists and engineers in S&T conferences.

- Legislation to reauthorize ***The Elementary and Secondary Education Act*** passed in both the House and Senate in July, with IEEE-USA-backed provisions incorporating computing into K-12 STEM education; and funding the Robert Noyce Scholarship program, which assists STEM degree holders to pursue careers in K-12 education.

- In July, IEEE-USA partnered with the **IEEE Standards Association** to provide comments, in response to a request for public comment by the National Institute for Standards and Technology, on proposed guidelines for "Privacy Risk Management for Federal Information Systems."

- IEEE-USA joined with Carnegie Mellon University and the U.S. Department of Homeland Security to establish a **Cybersecurity Fellow in the White House Office of Science and Technology Policy**, who would be responsible for coordinating a federal cross-agency effort to update the national cybersecurity R&D plan. In August, the Fellowship was awarded to Dr. Greg Shannon, chief scientist for the CERT Division at CMU's Software Engineering Institute, who recently chaired IEEE's Cybersecurity Initiative.

- In August, the U.S. Secretary of Commerce appointed **Mark Wingate**, chair of IEEE-USA's Entrepreneurship and Innovation Policy Committee, as an IEEE-USA representative to the U.S. Industry Trade Advisory Committee (ITAC) on Small and Minority Business—which advises the U.S. Trade Representative on how to promote U.S. small and start-up business interests in global trade.

- The **2015 Washington Internships for Students of Engineering** (WISE) program came to a close in early August, with the presentation of research papers by IEEE's 2015 Interns Devin Cornell (Missouri U of S&T), Cara DeCoste (U. of NC-Charlotte), and Nikhil Garg (U. of Texas). Their WISE papers appear in the open-access WISE Journal of Engineering and Public Policy. Cornell explored how to enhance U.S. Agency for International Development programs. DeCoste looked at the policy aspects of space weather, and its potential impacts on the electrical power grid. Garg examined fair use and innovation in the unlicensed wireless spectrum.

- IEEE-USA provided logistical support for the IEEE Internet Initiative's Congressional Briefing, 25 Sept., on **"What Happens When Net Neutrality and the Internet of Things Collides?"**—available for viewing on IEEEtv.

- On 29 Sept., IEEE-USA organized a congressional briefing featuring presentations by the former heads of the Office of Special Council in the Department of Justice, from both the Clinton and Bush administrations, on H-1B visa misuse—and the resulting disadvantages to foreign and American workers. The briefing was

IEEE-USA President Jim Jefferies sits in on volunteer training for the IEEE-USA Immigration Fly-In on Capitol Hill.

associated with an **IEEE-USA Congressional Fly-In**, during which 20 U.S. IEEE volunteers visited more than 50 congressional offices, to share IEEE-USA's green card position.

- IEEE-USA, in partnership with ASME, OSA and the National Science Foundation, hosted a **30th Anniversary Celebration**, held 28 Oct. on Capitol Hill, commemorating the role of the NSF's Engineering Research Centers in creating and applying technology. In addition to remarks by IEEE-USA President Jim Jefferies, NSF Director France Cordova, and Representative Randy Hultgren (R-Ill.), the event also featured hands on technology exhibits/demonstrations by 16 NSF ERCs.

- In response to a request for assistance, **IEEE-USA's Energy Policy Committee** provided expert input, in support of an October briefing by the State Department's Bureau of Energy Resources on private sector energy policy in the European Union.

- In October, IEEE-USA held a series of meetings with staff of the Senate Commerce Committee and committee members to discuss regulatory burdens on research; opportunities to enhance technology transfer; and related policies at the U.S. national laboratories. Along with contacts with the White House Office of Science and Technology Policy, the National Academies, the National Science Board and other interested organizations, the meetings garnered input that is helping shape a forthcoming **IEEE-USA legislative proposal**.

- IEEE-USA was the primary organizer of a widely attended event on 4 November for the **Congressional Robotics and Inventions Caucuses** on the theme "Robots and Inventors: Ingredients for a Successful, Innovative Economy." The event featured four congressional hosts, speakers from NASA and Carnegie Mellon University, and a dozen exhibitors displaying robotic innovations. *U.S. Inventor* highlighted the event in a video, and Voice of America featured the Caucus in a media segment.

- IEEE-USA and ASME joined forces to arrange a 5 Nov. briefing for the **Congressional Research Caucus**, featuring a talk by Dr. Piotr Grodzinski, director of the NIH Nanotechnology for Cancer Program, on the use of nanotechnology to cure disease at the cellular level.

- During November, IEEE-USA supported inclusion of computer science education, as part of the *Elementary and Secondary Education Act* (ESEA) reauthorization; reauthorization of the Export/Import Bank to promote U.S. high-tech exports; enhanced R&D funding appropriations enabled by the recent passage of the *Bipartisan Budget Act of 2015;* and endorsement of an H-1B/L-1 Visa reform bill, introduced by Senators Grassley and Durbin.

- *The Consolidated Appropriations Act of 2016* (Public Law 114-101), passed by Congress and signed into law by the president on 18 Dec., contains an IEEE-USA-supported provision that would allow the White House Office of Management and Budget to update its guidance to federal agencies on travel support (OMB M-12-12), making it easier for federal scientists and engineers to attend technical conferences and meetings.

- At year-end, IEEE-USA collaborated with the IEEE Internet Initiative, in drafting an IEEE public statement commending the U.S. State Department on its launch of the **"Global Connect"**

effort to promote universal access to Internet; and was participating in an effort to nominate qualified IEEE members for service on the Digital Economy Board of Advisors to the U.S. National Telecommunications and Information Administration.

▶ During 2015, IEEE-USA issued **40 letters to Congress**, hearing statements, regulatory comments, and other policy communications in support of our legislative agenda; and released 13 new or updated position statements on the following topics:

- Achieving Greater Value from the Federal Laboratory Enterprise

- An Overall Approach to Intellectual Property Protection

- Engineering Licensure

- Ensuring a Strong High-Tech Workforce through Educational and Employment-Based Immigration Reforms

- Federal Support for Fundamental Research

- New Forms of Intellectual Property Protection

- Participation in Professional Conferences by Government Scientists and Engineers

- Small Business Innovative Research

- Space-Based Remote Sensing Technologies

- The Use of Neutral Experts in Intellectual Property Litigation

- Unmanned Aircraft Systems and Related Technology

- User Rights in Digital Copyright

- U.S. High-Value Job Growth through Manufacturing Innovation

IEEE-USA IN ACTION
PROMOTING STEM LITERACY AND ENHANCING PUBLIC AWARENESS OF ENGINEERING

▶ IEEE-USA President Jim Jefferies presented the **IEEE-USA's Best Communications Systems Award** at the 2015 Future City Competition Finals, held 14-18 Feb., in Washington, D.C. The Future Cities Competition engages more than 40,000 students in regional competitions, with 37 teams competing in the competition finals. Winning teams were invited to participate in the White House Science Fair.

▶ IEEE-USA sponsored **Discover Engineering Family Day**, held 28 Feb., at the National Building Museum, in Washington, D.C. The event drew more than 6,500 parents, children, and others interested in learning more about science, engineering and technology. It also featured an appearance by former NASA Shuttle Astronaut, Dr. Roger Crouch.

▶ With assistance from the IEEE Computer Society, IEEE-USA hosted a booth highlighting careers in software/gaming at **AwesomeCon**,—a D.C.-based convention—held 3-5 June, for fans of gaming, comics, science fiction and fantasy, which drew over 50,000 attendees.

▶ In early June, pre-university teacher Jill Johnson was named a winner of the **2015 DiscoverE Educator Award**, which is an adjunct to the annual National Engineers Week celebration. Jonson is a former practicing electrical

engineer, and currently a teacher at Johnson Aerospace and Engineering High School in St. Paul, Minnesota. She established a STEM camp for middle school students; and teaches an innovative course that trains fellow educators, on how to introduce K-12 students to engineering.

▶ IEEE-USA was pleased to partner with the **National Science Foundation's Quality Education for Minorities (QEM) Network**, by providing externship projects to Navajo engineering students Eron Guy and Corwin Largo from the Navaho Technological University, who spent the summer in Washington, D.C., learning about STEM education policy.

- On 3 Aug., the IEEE-USA Board of Directors approved the **MOVE Community Outreach Project**, a multi-year partnership with IEEE Regions 3 and 5, to outfit and deploy a truck that can provide device charging, Internet and public wireless network support. Operating in conjunction with localized Red Cross operations in the event of a disaster, this joint effort will also support K-12 STEM education and public visibility missions. The program is scheduled to go live in March 2016.

- Also in August, IEEE-USA engaged with James Madison University (JMU), in a pilot project to reprint our award-winning *Women in Engineering* **e-book series**—as a compilation for use in the JMU engineering curricula, and in high school outreach programs throughout the Shenandoah Valley—run by JMU's Center for STEM Education and Outreach.
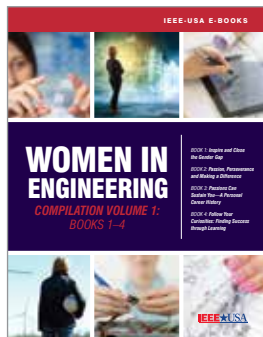
- IEEE-USA exhibited at the annual **World Maker-Faire**, held 26-27 Sept., at the New York Hall of Science in New York City). Described as "part science fair, part county fair, and part something entirely new," the Maker-Faire celebrates the "Maker Culture." And it allowed IEEE-USA to raise the visibility of IEEE—promoting engineering careers to an estimated audience of more than 130,000 attendees. IEEE-USA also exhibited at Maker-Faire–Silver Spring (Md.). The Washington, D.C.-area event, held 20 Sept., drew over 14,000 attendees, including local robotics teams, hobbyists, and makers of all stripes.

- In December, IEEE-USA released two short videos, developed in partnership with Counterpoint Films, aimed at getting pre-university students interested in Engineering. Entitled, **"The World You Want to See,"** the two videos feature virtual reality, and engineers who make movies.

IEEE-USA AND THE AMERICAN ASSOCIATION OF ENGINEERING SOCIETIES

IEEE-USA is a founding member of the American Association of Engineering Societies, a multidisciplinary organization of engineering societies dedicated to advancing the knowledge, understanding and practice of engineering. IEEE-USA supports AAES in its goals of advancing the engineering profession's impact on the public good, and providing a voice for the shared concerns of the broader U.S. engineering community. AAES highlights for 2015 include:

▶ IEEE-USA supported a successful AAES effort to develop an **Engineering Competency Model** for inclusion in the U.S. Department of Labor's Competency Model Clearinghouse. The model provides a general introduction to the basic knowledge, skills and abilities needed to successfully perform a work role, function, or task in the generic field of engineering. See: **www.careeronestop.org/competencymodel/competency-models/engineering.aspx**

▶ In June, IEEE-USA signed on to an **MOU** between AAES and its member societies, pledging an effort to address the needs of individuals seeking re-entry into the engineering profession after an absence, and/or alternative paths for technically-trained military vets seeking to enter engineering.

More information on AAES is available at **www.aaes.org**.

2015 IEEE-USA BOARD OF DIRECTORS

Seated (Left to Right): Thomas Tierney, Chris Brantley, Will Kassebaum, Gary Blank, James Jefferies, Peter Eckstein, Mary Ellen Randall, Scott Tamashiro, Devon Ryan. **Second Row (Left to Right):** Robert Parro, Thomas Coughlin, Vincent Socci, Guru Madhavan, Murty Polavarapu, Derald Morgan, Timothy Kurzweg, Thomas Habetler, John Twitchell. **Not Pictured:** Deborah Cooper.

2015 PRESIDENTIAL ENGAGEMENTS

In addition to supporting the activities described above, I participated in a full calendar of outreach activities and events, in my role as IEEE-USA President, to advance our member engagement and public visibility goals, including:

DATE	OUTREACH EVENT	LOCATION
3 January	Region 6 Rising Stars Conference	Las Vegas, Nev.
23 January	Presidential Citation - Peregrine Semiconductor	San Diego, Calif.
24 January	Region 4 and 6 Joint Meeting	San Diego, Calif.
24 February	National Academy of Engineering Awards	Washington, D.C.
12 March	Small Technology Business Symposium Agency visits	Washington, D.C.
28 March	Region 2 Meeting	Columbus, Ohio
21 May	Milestone Presentation - WAPA DC Converter Station	Denver, Colo.
18 July	National Society of Professional Engineers Annual Meeting	Seattle, Wash.
1 August	Region 1 Meeting	Philadelphia, Pa.
12 Sept	National Academy of Science – Int'l Year of Light Event	Washington, D.C.
6 October	IEEE Day Event	Colorado Springs, Colo.
10 October	Global Humanitarian Technology Conference	Seattle, Wash.
28 October	Celebration of NSF Engineering Research Centers	Washington, D.C.
4 November	East Carolina Section 50th Anniversary	Raleigh, N.C.
5 November	AAES Assembly	Reston, Va.
7 November	East Coast WIE Conference	Philadelphia, Pa.
4 December	Council on Competitiveness Annual Meeting	Washington, D.C.
11 December	Symposium on Small Technology Business	Washington, D.C.

2015 IEEE-USA AWARDS AND RECOGNITIONS

Robert S. Walleigh Distinguished Contributions to Engineering Professionalism Award

Arthur Winston (Region 1)

For leadership through innovation, mentoring and promoting engineering management, entrepreneurial practices, as well as the creation of new policies of national interest

Award for Distinguished Public Service

The Honorable Richard Durbin

In recognition of his commitment to promoting and protecting America's science and technology workforce

George F. McClure Citation of Honor

Dr. David Edward Flinchbaugh (Region 3)

In recognition of his passionate promotion of the engineering profession, and his sustained community outreach through science and technology programs

Ron D. Katznelson, Ph.D. (Region 6)

For his commitment to educate members and policymakers about the value of patents and Intellectual Property

K-12 STEM Literacy Educator-Engineer Partnership Award

Gary D. Bishop and Shannon Haas (Region 4)
For outstanding dedication to furthering teamwork, time management, critical thinking and interpersonal skills for middle school students, through the Future City program

Jim Watson Student Professional Awareness Achievement Award

Albert J. Rosa (Region 5)

For developing tomorrow's engineering leaders, by engaging them in activities directed at organizing and leading IEEE-USA Student Professional Awareness Conferences

Entrepreneur Achievement Award for Leadership in Entrepreneurial Spirit

Brett Glass (Region 5)

In recognition of excellence in entrepreneurship, and contributions as a writer, speaker and founder of LARIAT, a community wireless broadband Internet service provider

Nathalie Gosset receives her IEEE-USA Regional Professional Leadership Award from 2015 President-Elect Pete Eckstein

Professional Achievement for Individuals

Mike Davis (Region 6)

In recognition of professional and educational contributions in the field of cybersecurity

R. Joe Stanley (Region 5)

For sustained contributions to pre-university engineering education

Robert Adelson, Esq. (Region 1)

For extreme dedication and contributions to the IEEE entrepreneurial community

Regional Professional Leadership Award

Nathalie Gosset (Region 6)

For exemplary leadership of the Buenaventura Section, promoting innovative programs and member engagement

Greg Gdowski (Region 1)

For demonstrated leadership efforts in advancing the professional aims of IEEE in Region 1, specifically in revitalizing the Rochester Section and the photonics community

Christella Chavez (Region 5)

For outstanding leadership efforts in advancing the professional aims of IEEE in Region 5, specifically in revitalizing the Tulsa Section

Russ Meier (Region 4)

For his efforts in promoting educational and professional activities in Region 4, as well as his successful management of the 2015 IEEE-USA Annual Meeting / Great Lakes Biomedical Conference

Award for Distinguished Literary Contributions Furthering Public Understanding and the Advancement of the Engineering Profession

Amy Bix

For outstanding journalistic effort in returning prominence to the historical significance of the Smithsonian Institute's engineering collection

2015 IEEE-USA SPONSORED CONFERENCES

Working in partnership with IEEE technical societies, U.S. regions and sections, IEEE-USA sponsored, or technically co-sponsored, 14 technical/professional meetings in 2015:

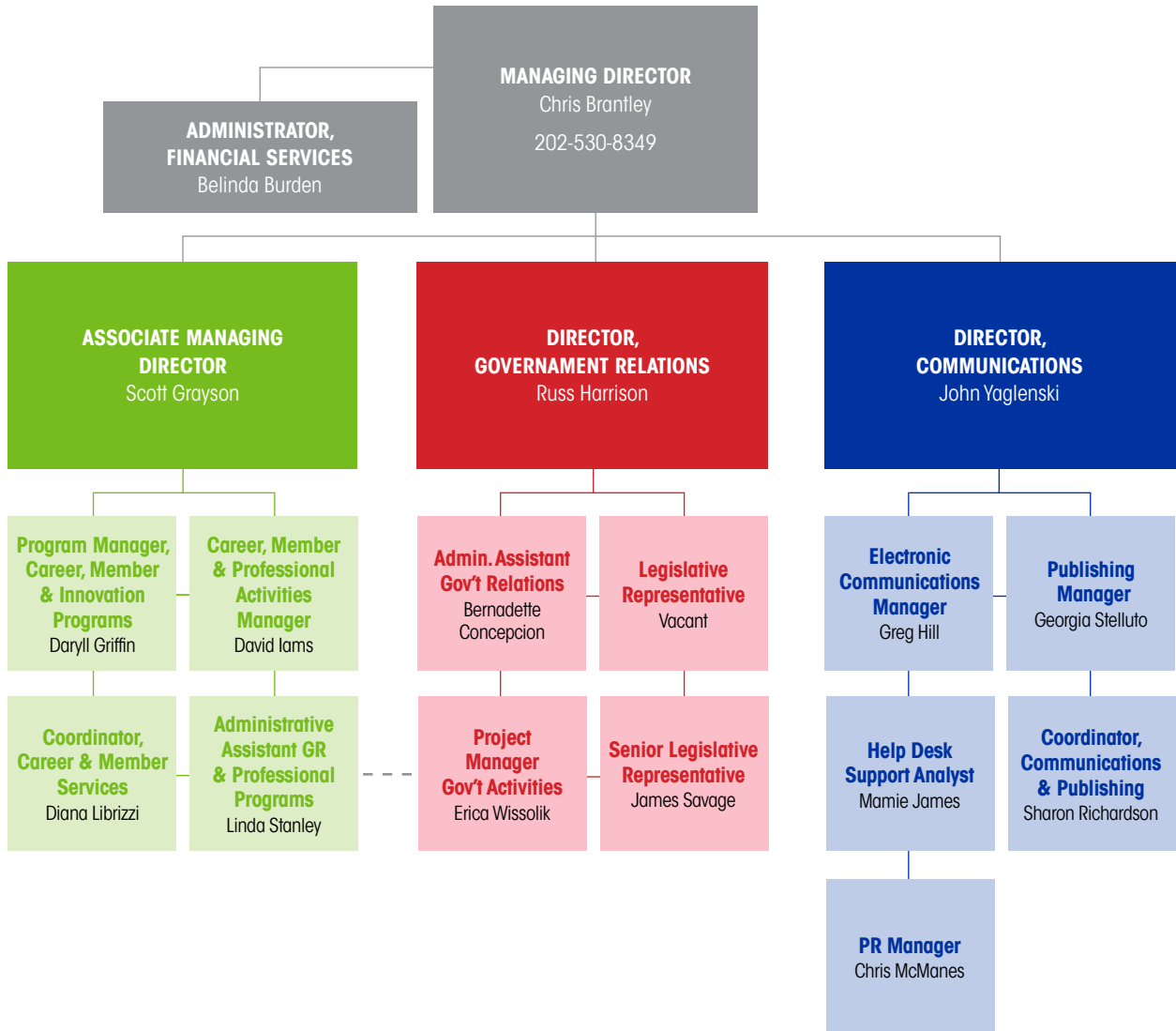| 2015	CONFERENCE
17-20 Feb.	IEEE PES Innovative Smart Grid Technologies Conference
14-16 April	IEEE International Symposium on Technologies for Homeland Security
15-16 April	IEEE Green Technologies Conference (GreenTech)
14-17 May	Great Lakes Biomedical Conference
14-19 June	IEEE Photovoltaic Specialists Conference
13-15 July	IEEE International Professional Communication Conference (ProComm)
26-30 July	IEEE Power & Energy Society General Meeting
30 – Aug 1 July	IEEE Conference on Technologies for Sustainability (SusTech)
8-11 Oct.	IEEE Global Humanitarian Technology Conference
19-23 Oct.	International Conference on Connected Vehicles and Expo
6-8 Nov.	IEEE Women in Engineering Summit USA East
17-19 Nov.	Carbon Management Technology Conference
12 Dec.	IEEE Signal Processing in Medicine and Biology Symposium
14-16 Dec.	IEEE International Conference on Wireless for Space & Extreme Environments

2015 IEEE-USA SPAx AND RELATED EVENTS

DATE	SCHOOL
1/3	Region 6 Meeting
1/21	DeVry University
1/24	University of San Diego-Alcala Park
1/28	Stanford University
1/31	Cleveland State University
2/2	University of Wisconsin-Madison
2/5	University of Cincinnati
2/5	University of Dayton
2/7	University of Illinois-Urbana Champaign
2/7	University of Southern California
2/17	DeVry University
2/20	University of Texas at Arlington
2/21	University of California-Los Angeles
2/24	Grove City College
2/25	DeVry University
3/3	University of Pittsburgh
3/6	Tufts University
3/23	Cleveland State University
3/26	DeVry University
3/28	Utah State University
3/30	Ohio University
4/1	Cleveland State University
4/2	University of Nebraska-Omaha
4/7	Pennsylvania State University
4/10	Boise State University
4/10	University of Vermont
4/11	California Polytechnic State Univ-Pomona
4/11	The Ohio State University
4/14	DeVry University
4/14	Embry-Riddle Aeronautical University
4/16	Utah Valley University
4/17	University of Washington Bothell
4/18	University of New Orleans
4/21	Cleveland State University
4/21	Youngstown State University
4/26	California State University-East Bay
5/1	University of Hawaii at Manoa
5/20	DeVry University

DATE	SCHOOL
6/6	DeVry University
6/23	DeVry University
7/30	DeVry University
8/18	DeVry University
8/24	Cleveland State University
9/8	Ohio Northern University
9/17	DeVry University
9/21	Shepherd University
9/22	Capitol Technology University
9/24	DeVry University
9/24	Grove City College
9/28	Texas Tech University
9/28	Youngstown State University
9/29	Miami University
9/30	University of Rhode Island
10/6	North Carolina State University
10/6	University of Dayton
10/13	DeVry University
10/14	DeVry University
10/15	Saginaw Valley State University
10/21	University of Houston-Clear Lake
10/22	Ohio University
10/23	WVU Institute of Technology
10/24	Rowan University, Temple and Villinova
10/25	Cleveland State University
10/28	Central Michigan University
11/1	University of South Florida
11/2	Rowan University
11/6	Massachusetts Institute of Technology
11/11	Norwich University
11/13	Florida University of Technology
11/14	California Polytechnic State Univ-Pomona
11/17	The Ohio State University
11/18	Cleveland State University
11/21	Drexel University
11/23	University of Texas at Arlington
11/24	Cleveland State University
12/8	DeVry University

2015 IEEE-USA VOLUNTEER ORGANIZATIONAL CHART

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President
James A. Jefferies

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PROFESSIONAL ACTIVITIES
Vice President
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Conferences
Charles Rubenstein

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Jim Howard

Finance
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Marc Apter

Alliance of IEEE Consultants Networks
Bill Grist

Employment & Career Services
Holly Cyrus

Licensure & Registration
Mike Behnke

K–12 STEM Literacy
Joe Burns

Awards & Recognitions
Bernard Sander

Communications
Gus Gaynor

Communications Policy
Terry Davis

Intellectual Property
Keith Grzelak
Chris Katopis

Energy Policy
Veronika Rabl

R&D Policy
Sherry Gillispie

Entrepreneurship & Innovation Policy
Mark Wingate

Transportation & Aerospace Tech Policy
Roger Oliva

Government Fellows
Steve Bank

WISE Task Force (ad hoc)
Tom Fagan

Annual Meeting Steering
Tom Habetler

IP Professionals
(inactive)

Professional Activities
Ed Kirchner

Student Professional Activities
Nicole Skarke

2016 Student/YP Conference (ad hoc)
Guru Madhavan

2015 IEEE-USA STAFF ORGANIZATION CHART

MANAGING DIRECTOR
Chris Brantley
202-530-8349

ADMINISTRATOR, FINANCIAL SERVICES
Belinda Burden

ASSOCIATE MANAGING DIRECTOR
Scott Grayson

DIRECTOR, GOVERNMENT RELATIONS
Russ Harrison

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John Yaglenski

Program Manager, Career, Member & Innovation Programs
Daryll Griffin

Career, Member & Professional Activities Manager
David Iams

Coordinator, Career & Member Services
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Administrative Assistant GR & Professional Programs
Linda Stanley

Admin. Assistant Gov't Relations
Bernadette Concepcion

Legislative Representative
Vacant

Project Manager Gov't Activities
Erica Wissolik

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Coordinator, Communications & Publishing
Sharon Richardson

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ABOUT THE ANNUAL REPORT

The *2015 IEEE-USA Annual Report* highlights the mission, goals and programs of IEEE-USA, and its activities and achievements in 2015. This Report was developed, produced and published as a benefit to members—to increase both member and non-member awareness of the programs and services IEEE-USA provides to advance the profession—and for the benefit of U.S. IEEE members. It also serves as a reference for members seeking information on specific programs or issues, or for those seeking opportunities to volunteer their time and expertise, in support of their profession.

Compiled by Chris. J. Brantley,
IEEE-USA Managing Director
Edited By Georgia C. Stelluto,
IEEE-USA Publishing Manager

ABOUT IEEE-USA

IEEE-USA advances the public good and promotes the careers and public policy interests of the 200,000 engineering, computing and technology professionals, who are U.S. members of IEEE. With more than 400,000 members, in over 160 countries, IEEE is dedicated to advancing technological innovation and excellence, for the benefit of humanity. More information about IEEE-USA can be found online at: **www.ieeeusa.org**.

IEEE-USA
2001 L Street, NW
Suite 700
Washington, D.C. 20036-4928
+1 202 785 0017
+1 202 785 0835 (fax)

IEEE★USA

2001 L St., NW, Suite 700
Washington, D.C. 20036-4928
www.ieeeusa.org