IEEE: Open Access and Open Science

José M. F. Moura

Philip L. and Marsha Dowd University Professor, Carnegie Mellon University

IEEE President and CEO

EPFL, Lausanne, Switzerland, October 18, 2019

The IEEE - Global Organization

Global Reach

422,460 Members

123,000 Student Members

160+ Countries

10 Regions, 339 Sections, 2430 Chapters, 5550 Student Branches

Data as of 31 December 2018

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Acknowledgments

- **Thanks to the IEEE Board Ad-Hoc Committee on Future of Publications and Open Access. Special thanks for the discussions and help with this presentation to Sergio Benedetto, Karen Hawkins, Mary Ward-Callan, Michael Forster, and Steve Welby.**

The IEEE - Technical Activities

46 Technical Societies & Councils, span EECS tech fields

200 Top-Cited Periodicals

Technical Breadth

1,900+ Annual Conferences, 560K participants, 103 countries

Xplore: 5M+Documents, 5M/y distinct users, ~150M/y downloads

Data as of 31 December 2018

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The IEEE - Standards

Individual membership

7,000+ individual members in 90+ countries

Corporate Memberships

280 corporate members in 20+ countries

Standards Developers

~20,000 participants;
all interested parties are welcome

IEEE 802.11

IEEE 1800

IEEE 2030

IEEE 7000

Data as of 31 December 2018

IEEE Publications Strategy and Goals

- Support authors/ readers globally: offer publication venues regardless of funding status, publishing mandates, or where in the world they may work.

- Open access and open science to make scientific research and data accessible to all.

- Enable change by creating better tools, services, and publication opportunities for authors and researchers.
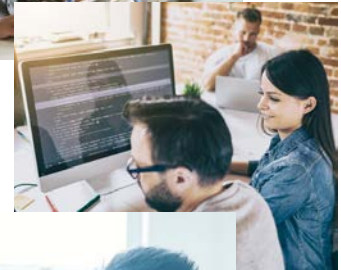
IEEE

IEEE Open Science & Reproducible Res.

- **Code Ocean** – codes/ alg. in computable environment (IEEE *Xplore)*, free of charge, users access code without subscription.

- **IEEE DataPort** – users upload OA Dataset at no cost.(limited time promo)

- **TechRxiv Beta**– Soon to launch Preprint Server for Engineering and Technology.26
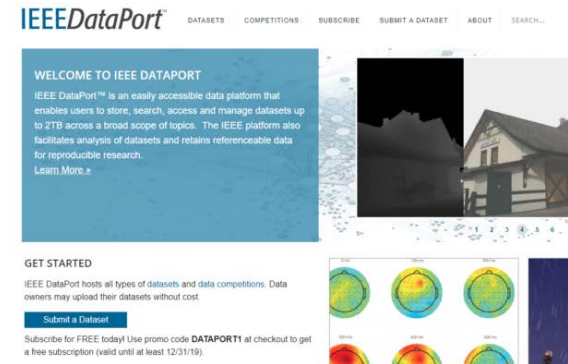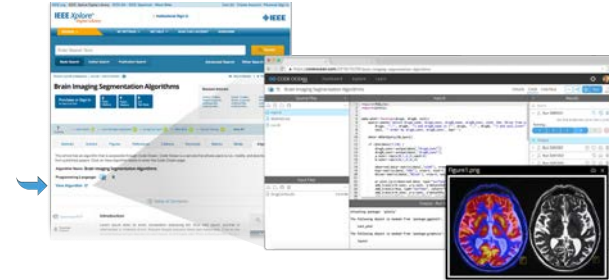
IEEE

Open Science: IEEE DataPort™

**Cloud Service Provider (AWS and/or others)**

IEEE Web Interface

Cloud Storage & Cloud Services

IEEE DataPort™

Data Object Identifier	S1 & Xplore Integration	Data Assessment Tools	Metadata Cataloger
Store data analyses	2 TB Capability	Web Interface	Data Challenge Manager

Data Science

Data Analytics Community

Universities and Research Institutions

Government Agencies

Industry

IEEE Societies, Authors and Conference Attendees

Store, Share, Access and Manage Research Data

Datasets:
Video Files
Images/Photos
csv
Audio
Bio-Data
Sensor Data
….

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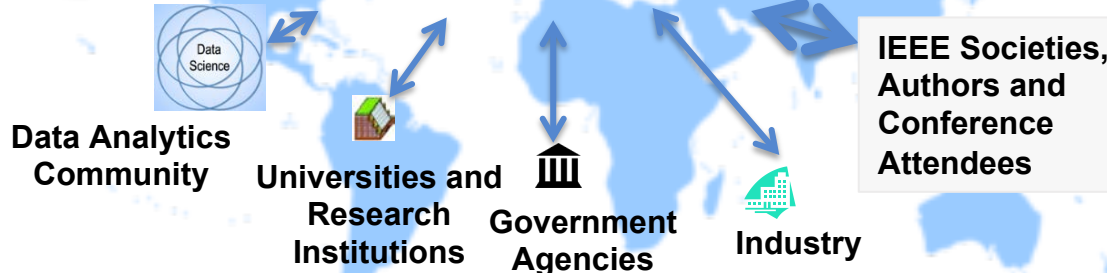
Open Science: IEEE DataPort™

132,202 Users, 806 Datasets as of 10/3/19
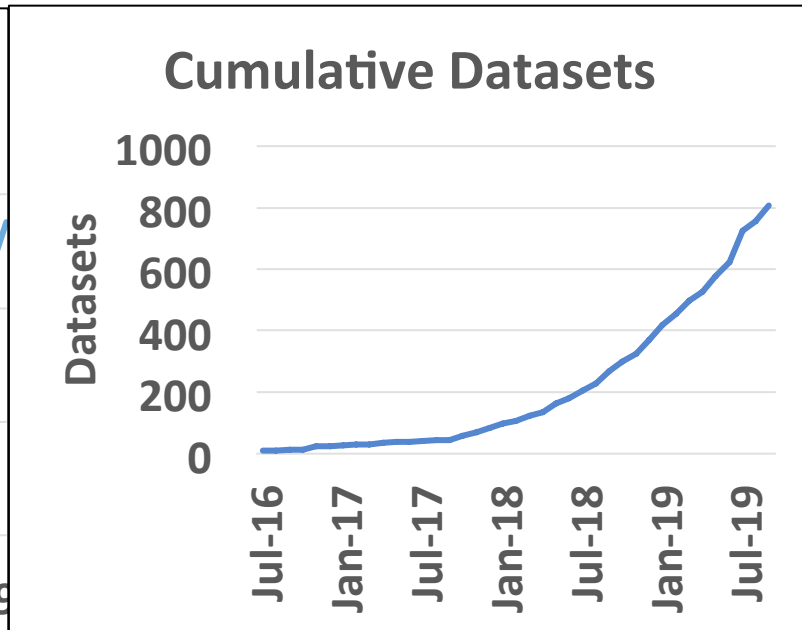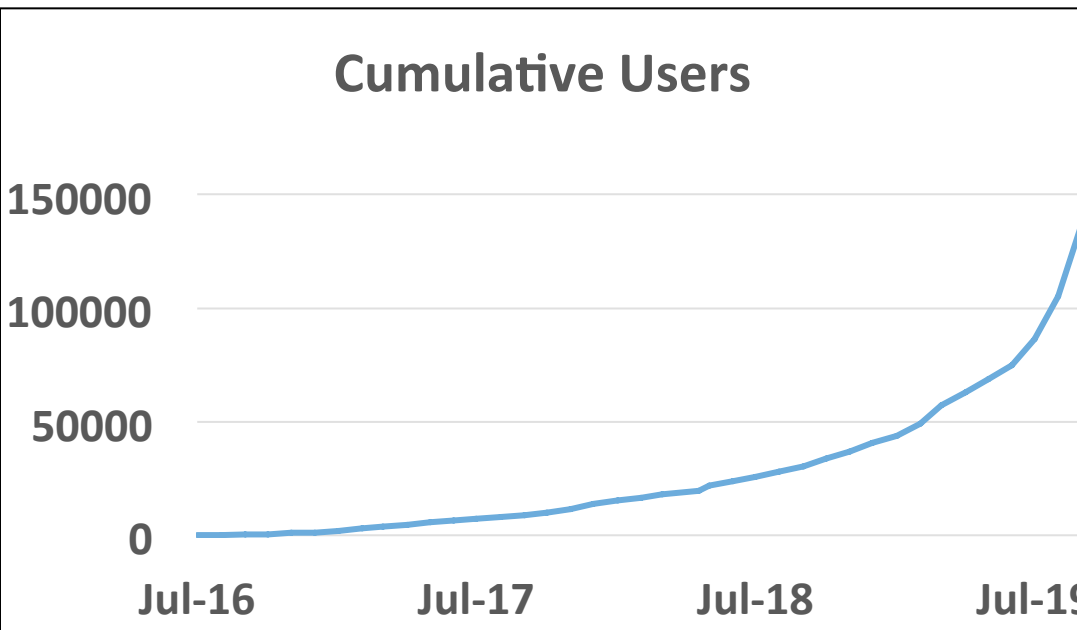
Cumulative Users

Cumulative Datasets

Open Sc.: TechRxiv

Open, moderated preprint server for unpublished EE, CS, related tech research

TechRxiv authors quickly disseminate their work to wide audience, gain fdback on "preprint" draft of article (published articles not to be submitted).

IEEE OA Evolving Program

3 OA Publishing Options

1. **Hybrid Journals - 100+ journals**
2. **Multidisciplinary OA journal - IEEE *Access*®**
3. **Fully OA Topical Journals**

- **6 available now (including Access)**
- **14 new journals accepting papers, publication Jan 2020**
- **Thousands OA articles in IEEE *Xplore***
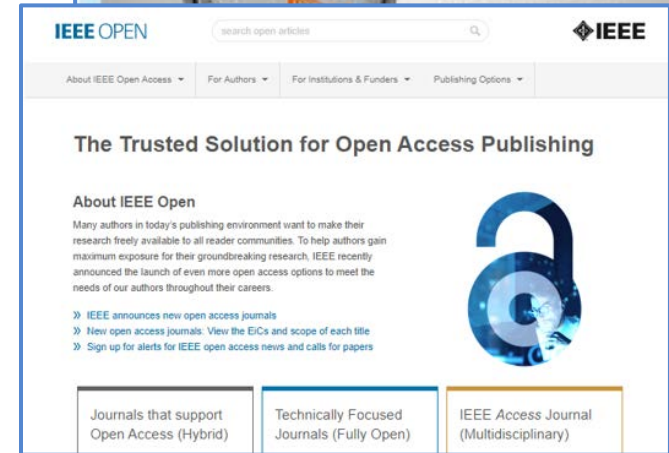
IEEE's Current Fully OA Titles

o **IEEE Journal of the Electron Devices Society**

o **IEEE Photonics Journal**

o **IEEE Journal of Transl. Eng. in Health and Medicine**

o **IEEE J. on Expl. Solid-State Comp. Devices and Circuits**

o **IEEE Power and Energy Technology Systems Journal**

o **IEEE Access**

More information on these titles available on open.ieee.org
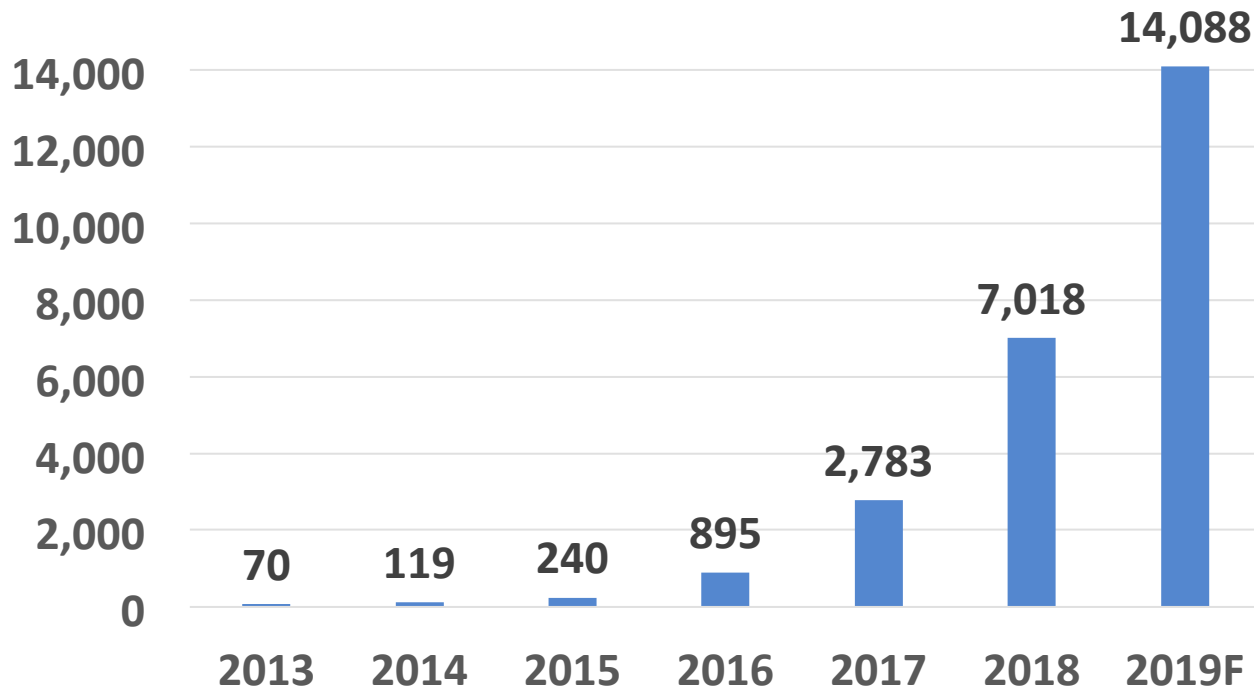
Articles Published 2013-2019*

*2019 Forecast

IEEE's Response to Plan S

Goal: provide compliant OA outlet for every topic by the Jan. 1, 2020

Options for each Society/Council

- New full-scope 100% Gold OA Journal
- Build a full-scope section in IEEE Access
- Flip existing hybrid to 100% Gold OA

All new journals will:

▸ Same production pr., pricing model
▸ Common titling model to maximize researcher awareness
▸ Minimize expenses where possible

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IEEE's New 2020 Fully OA Titles

New Society OA Journals starting publ in 2020:

- IEEE Open Journal of Antennas and Propagation*
- IEEE Open Journal of Circuits and Systems*
- IEEE Open Journal of the Communications Society*
- IEEE Open Journal of the Computer Society
- IEEE Open Journal of Eng. in Medicine and Biology*
- IEEE Open Journal of Industry Applications*
- IEEE Open Journal of the Ind. Electronics Society*
- IEEE Open Journal of Intelligent Transp. Systems*
- IEEE Open Journal of Nanotechnology*
- IEEE Open Journal of Power Electronics*
- IEEE Open Journal of Signal Processing*
- IEEE Open Journal of Solid-State Circuits*
- IEEE Open Journal of Vehicular Technology*
- IEEE J. Selected Topics in Applied Earth Obs. & Remote Sensing to transition to OA in 2020

IEEE Access new Society Subsections:

- IEEE Broadcast Tech. Society*
- IEEE Electronics Packaging Soc.*
- IEEE Eng. in Med. and Biology Soc.*
- IEEE Photonics Society*
- IEEE Power & Energy Society*
- IEEE Reliability Society*

*Now accepting submissions. More information on these new titles now available on open.ieee.org

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IEEE's Accelerated OA Program

IEEE Open Journal of Solid-State Circuits — Volume 1, IOJSSC, (ISSN 2644-1349), 2020

IEEE Open Journal of Antennas and Propagation — 2020, Volume 1, IJSTK4, (ISSN 2637-6431)

IEEE Open Journal of Power Electronics — 2020, Volume 1, IOJPW6, (ISSN 2644-1314)

IEEE Open Journal of the Communications Society — 2020, Volume 1, IOJCAZ, (ISSN 2644-125X)

IEEE Open Journal of the Computer Society — 2020, Volume 1, IOJCB2, (ISSN 2644-1268)

IEEE Open Journal of Intelligent Transportation Systems — 2020, Volume 1, IOJICL, (ISSN 2687-7813)

IEEE Open Journal of Nanotechnology — 2020, Volume 1, IOJNAY, (ISSN 2644-1292)

IEEE Open Journal of Vehicular Technology — 2020, Volume 1, IOJNAO, (ISSN 2644-1330)

IEEE Open Journal of Industry Applications — 2020, Volume 1, IOJIBK, (ISSN ...)
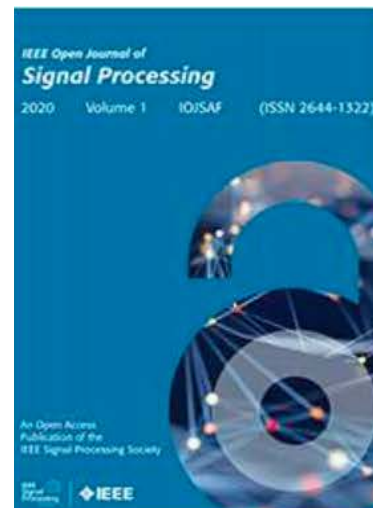
Announcing the Editor-in-Chief of the New IEEE Open Journal of Signal Processing: Prof. Mari Ostendorf

OJSP Featured Articles

Mari Ostendorf

The IEEE Signal Processing Society (SPS) is proud to announce that Prof. Mari Ostendorf has accepted the position of Editor-in-Chief (EIC) of the new IEEE Open Journal of Signal Processing (OJ-SP) - a gold, fully open access journal dedicated to publishing peer-reviewed articles on the latest topics and trends in Signal Processing (SP). IEEE OJ-SP covers the enabling technology for the generation, transformation, extraction, and interpretation of information. It comprises the theory, algorithms with associated architectures and implementations, and applications related to processing information contained in many different formats broadly designated as signals. Signal Processing uses mathematical, statistical, computational, heuristic, and/or linguistic representations, formalisms, modeling techniques and algorithms for generating, transforming, transmitting, and learning from signals.

IEEE Open Journal of Signal Processing — 2020, Volume 1, IOJSAF, (ISSN 2644-1322)

An Open Access Publication of the IEEE Signal Processing Society

Plan S compliance

All of IEEE's new fully Gold OA journals, existing OA journals, and IEEE Access

| Plan S Requirements	
All publications must be published under an open license, preferably the Creative Commons Attribution license (CC BY)	☑
When Open Access publication fees are applied, they must be commensurate with the publication services delivered	☑
The journal/platform must provide, on its website, a detailed description of its editorial policies and decision-making processes.	☑
No reliance on hybrid journals (subscription journals with a Gold OA option) or mirror journals (OA journals using essentially the same or similar Editorial Boards as the subscription journal)	☑
Use of persistent identifiers (PIDs) for scholarly publications, such as DOI	☑
Deposition of content with a long-term digital preservation or archiving program	☑
High-quality article level metadata in standard interoperable non-proprietary format	☑

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- Test if article will display properly in IEEE *Xplore*® Digital Library with **IEEE PDF Checker**
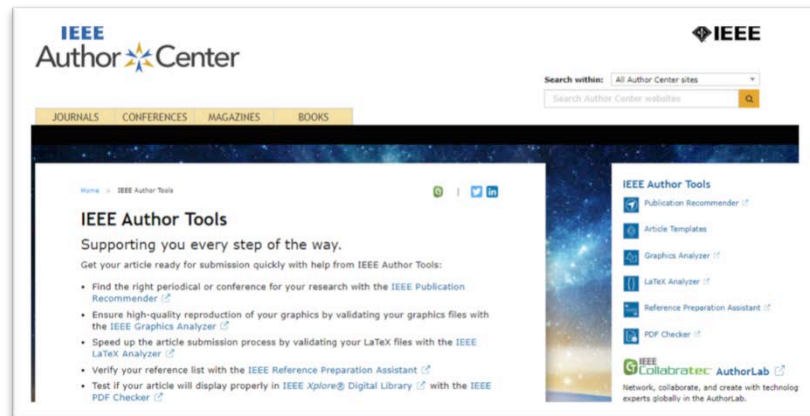
Visit the IEEE Author Toolkit: ieeeauthorcenter.ieee.org

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IEEE *Xplore* Continues to Evolve

IEEE *Xplore*: upgrades, new features to enrich user experience, save valuable res. time

Recent Enhancements

New and improved search engine

MyXplore App enhancements

New API enhancements

PDF Bulk Download & Full Issue Download

Responsive design applied to more IEEE *Xplore* pages

Author information pages

Google Scholar links program

COP5 usage reports

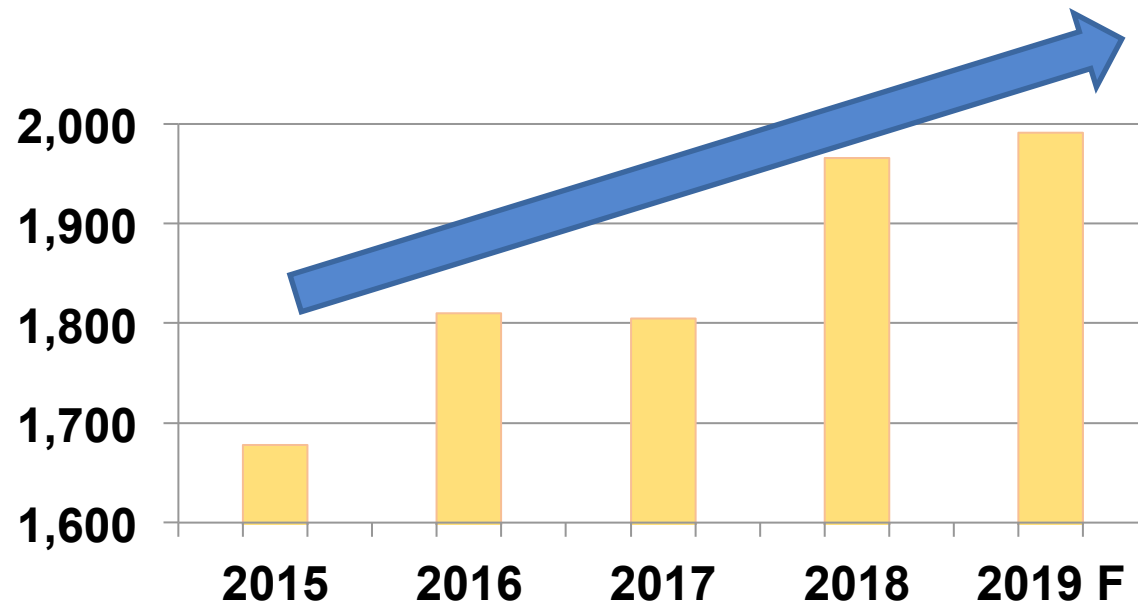KBART title lists enhanced

Coming Soon!

- Redesign of Xplore homepage, journal and conference landing pages, and ToCs

- Mobile responsive design across all Xplore pages

- Multi-PDF capability extended to journal/conference/book ToCs

- Institutional profiles

- Semantic search capability

- Download all eBook chapters as single PDF

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IEEE Conf. Collection Growth
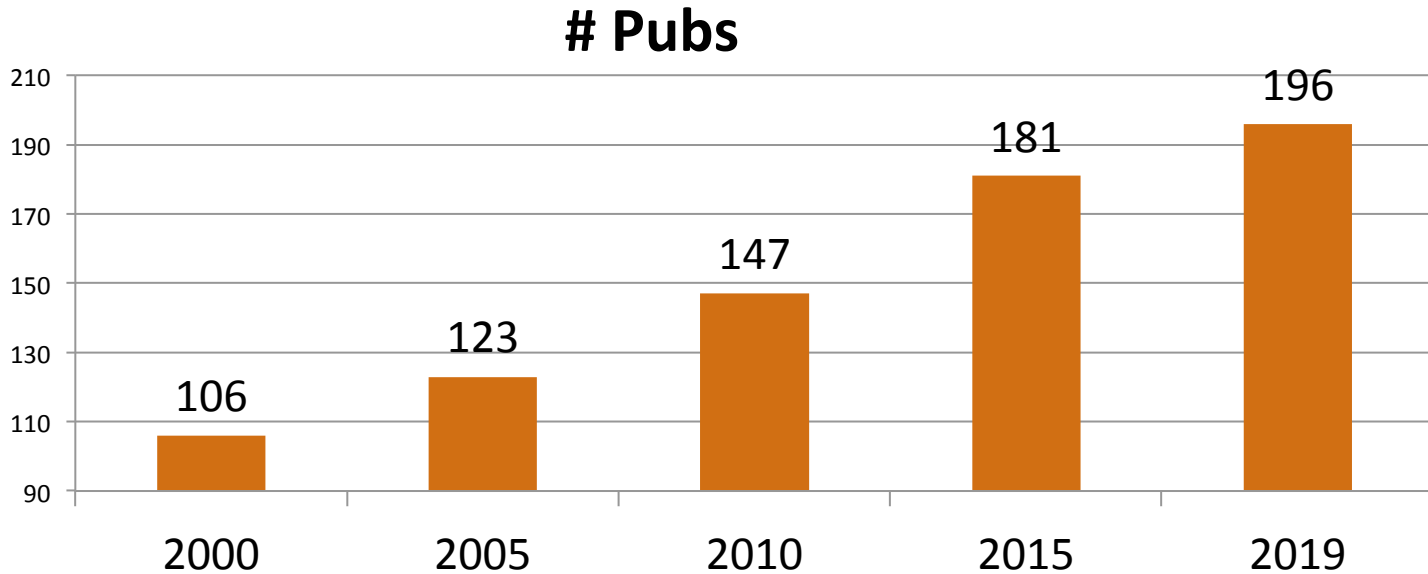
IEEE Society/Council/Geographic

**+4% Annually &
+19% Total, 2015-'19**

Chart showing IEEE Conference Collection Growth:
- 2015: ~1,680
- 2016: ~1,810
- 2017: ~1,805
- 2018: ~1,965
- 2019 F: ~1,990

**2019Conf. Activity is current forecast estimates, subject to change**

IEEE Society/Council Journals

 # Pubs

For 2020, additional 17 pubs.added, 13 OA

IEEE Quality Makes an Impact

- **Top cited pub. in IEEE's fields of interest***
  - **All of the top 20 journals in EE**
  - **18 of the top 20 journals in Telecomm.**
  - **3 of the top 5 journals in Artificial Intelligence**
- **Cited in patents 3x more than any other publisher****
- **Studies show users rely on IEEE Xplore to:**
  - **Increase productivity**
  - **Save time by not reinventing the wheel**
  - **Keep up-to-date on emerging technologies**
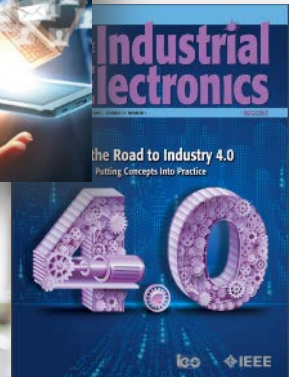
* Based on the Clarivate Analytics Journal Citation Report study released June 2019
** Source: 1790 Analytics
More info: www.ieee.org/citations and www.ieee.org/patentcitations

IEEE Research Powers Patents

- Patent referencing to IEEE increased over 800% since 1997.

- inventions that build upon IEEE publications are more likely to be cited in the future.

- The importance of sci-tech literature in patents is rising.

- IEEE dominates in Autonomous Vehicles and IoT patents.

U.S. Patent Ref. from Top 30 Companies to Top 20 Publishers

PUBLISHER	# of U.S. Patents
IEEE	390,314
ACM	127,692
3GPP	85,359
RELX Group (Elsevier)	81,983
American Institute of Physics	35,714
John Wiley & Sons	29,940
Springer	29,034

0   100,000   200,000   300,000   400,000

IEEE is cited 3X more than any other publisher!

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