IEEE: Open Access and Open Science

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Philip L. and Marsha Dowd University Professor, Carnegie Mellon University
IEEE President and CEO
EPFL, Lausanne, Switzerland, October 18, 2019
The IEEE - Global Organization

- **422,460 Members**
- **123,000 Student Members**
- **160+ Countries**
- **10 Regions, 339 Sections, 2430 Chapters, 5550 Student Branches**

Data as of 31 December 2018
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

Technical Breadth

- 46 Technical Societies & Councils, span EECS tech fields
- 200 Top-Cited Periodicals
- 1,900+ Annual Conferences, 560K participants, 103 countries
- Xplore: 5M+Documents, 5M/y distinct users, ~150M/y downloads

Data as of 31 December 2018
## The IEEE - Standards

<table>
<thead>
<tr>
<th>Membership Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual membership</td>
<td>7,000+ individual members in 90+ countries</td>
</tr>
<tr>
<td>Corporate Memberships</td>
<td>280 corporate members in 20+ countries</td>
</tr>
<tr>
<td>Standards Developers</td>
<td>~20,000 participants; all interested parties are welcome</td>
</tr>
</tbody>
</table>

### Standards

- 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 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.
Open Science: IEEE DataPort™

Cloud Service Provider (AWS and/or others)

IEEE Web Interface

Cloud Storage & Cloud Services

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

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

IEEE Societies, Authors and Conference Attendees

Universe and Research Institutions
Government Agencies
Industry

IEEE DataPort

Data Science

Slide 9 of 24
Open Science: IEEE DataPort™

132,202 Users, 806 Datasets as of 10/3/19
Open Sc.: TechRxiv

Open, moderated preprint server for unpublished EE, CS, related tech research

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

3 OA Publishing Options

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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

- IEEE Journal of the Electron Devices Society
- IEEE Photonics Journal
- IEEE Journal of Transl. Eng. in Health and Medicine
- IEEE J. on Expl. Solid-State Comp. Devices and Circuits
- IEEE Power and Energy Technology Systems Journal
- 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

All new journals will:
- Same production pr., pricing model
- Common titling model to maximize researcher awareness
- Minimize expenses where possible

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
IEEE’s New 2020 Fully OA Titles

New Society OA Journals starting publ in 2020:
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- 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

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Announcing the Editor-in-Chief of the New IEEE Open Journal of Signal Processing: Prof. Mari Ostendorf

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.
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<th>Status</th>
</tr>
</thead>
<tbody>
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<td>✓</td>
</tr>
<tr>
<td>When Open Access publication fees are applied, they must be commensurate with the publication services delivered</td>
<td>✓</td>
</tr>
<tr>
<td>The journal/platform must provide, on its website, a detailed description of its editorial policies and decision-making processes.</td>
<td>✓</td>
</tr>
<tr>
<td>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)</td>
<td>✓</td>
</tr>
<tr>
<td>Use of persistent identifiers (PIDs) for scholarly publications, such as DOI</td>
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</tr>
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<td>Deposition of content with a long-term digital preservation or archiving program</td>
<td>✓</td>
</tr>
<tr>
<td>High-quality article level metadata in standard interoperable non-proprietary format</td>
<td>✓</td>
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</table>
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IEEE Society/Council/Geographic

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

2019 Conf. Activity is current forecast estimates, subject to change
For 2020, additional 17 pubs added, 13 OA
IEEE Quality Makes an Impact

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* Based on the Clarivate Analytics Journal Citation Report study released June 2019
** Source: 1790 Analytics
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IEEE Research Powers Patents
IEEE most-cited publisher in new patents from top patenting org.

- 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

<table>
<thead>
<tr>
<th>PUBLISHER</th>
<th># of U.S. Patents</th>
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<td>IEEE</td>
<td>390,314</td>
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<tr>
<td>ACM</td>
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<tr>
<td>3GPP</td>
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<td>RELX Group (Elsevier)</td>
<td>81,983</td>
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<td>American Institute of Physics</td>
<td>35,714</td>
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<tr>
<td>John Wiley &amp; Sons</td>
<td>29,940</td>
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<tr>
<td>Springer</td>
<td>29,034</td>
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IEEE is cited 3X more than any other publisher!