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EDITORIAL

A DECADE OF IEEE ACCESS

Ten years ago, the electrical and electronic engineering and computer science landscape was profoundly different than it is today. The Internet of Things was just emerging, wireless power transfer was in its infancy, and artificial intelligence tools were not yet able to write coherent essays or create convincing deep fake images, but the seeds of transformation were taking place. Scientific publishing was also undergoing an immense transformation with an acceleration toward open access (OA).

In 2006, the OA journal *PLOS ONE* launched and was the first so-called ''mega journal'' that spanned the full range of science and technology. Given the success of *PLOS ONE* in its first five years, IEEE introduced a ''hybrid OA'' model in its journal program in 2011, retaining the traditional subscription model while giving individual authors the option to pay a charge to make their articles freely available to any visitor to the IEEE *Xplore* platform.

Two years later, in May 2013, IEEE *Access* was launched as the first and only IEEE-wide, multidisciplinary, open-access journal of the IEEE. The journal would further the IEEE mission and vision by contributing to the development of new, open, and sustainable models of scholarly communication.

As a testament to the quality of published articles, the journal was recognized within the first two years after it launched with the receipt of a few prestigious awards. A research team at New York University, led by Theodore Rappaport, was given the 2015 IEEE Donald G. Fink Prize Paper award for their IEEE *Access* article on new-generation wireless technology [A1]. Notably, IEEE *Access* was also awarded the 2015 PROSE Award for ''Best New Journal in STM.'' The PROSE Awards celebrate ''authors, editors, and publishers whose landmark works have made significant advancements in their respective fields of study each year'' (proseawards.com).

A journal's inclusion in major indexing databases, such as Web of Science and Scopus, is an important factor for authors when considering where to publish their work. In the 2016 release of Clarivate's Journal Citation Reports (JCR), IEEE *Access* received its first impact factor, which led to a rapid increase in article submissions. This growth was fueled even further by a rise in OA funder mandates and cOAlition S, a consortium of national research funding organizations, built around Plan S, which ''requires that, from 2021, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms'' (https://www.coalition-s.org/). Note that IEEE *Access* is fully compliant with Plan S requirements.

The journal grew from publishing 70 articles in its launch year to over 68,000 total published articles in IEEE *Xplore* as of March 2023. IEEE *Access* has consistently been the most popular journal in IEEE *Xplore* based on monthly downloads. It also has the #1 Eigenfactor in the telecommunications category, computer science information systems category, and electrical and electronics engineering category in the 2021 JCR. In terms of Google Metrics, IEEE *Access* is ranked #32 out of all >10,000 journals in the world. In the engineering and computer science (general) category, IEEE *Access* is ranked #1 by Google Metrics.

Over the past ten years, the journal has published some of the most groundbreaking research in electrical and electronics engineering and computer science.

Notably, 5G cellular technology took a huge leap forward when it was demonstrated that the millimeter wave frequency spectrum could be used, addressing the global need for more bandwidth. This trailblazing article by Rappaport et al. [A1], paved the way for the next decade of mobile communications for 5G and beyond.

The advent of reconfigurable intelligent surfaces (RISs) in wireless communications enabled network operators to control the scattering, reflection, and refraction characteristics of radio waves by overcoming the negative effects of natural wireless propagation, including the interaction of radio waves with surrounding objects. In [A2], Basar et al. highlights the potential of RISs in wireless networks.

Electronic devices and products go through several iterations and transformations before they make it to market and into the hands of consumers. In [A3], Macdonald et al. showcased an enhanced 3-D printing technology capable of printing multifunctional prototypes, integrating electronics functionality into the structure. This innovative process significantly reduced the total time of the design cycle of an example electronic device: a novelty six-sided gaming die with a microprocessor and accelerometer.

Malicious software threatens internet stability. Herd immunity indirectly protects network nodes from virus infections and occurs when a large percentage of devices become immune, protecting those who are not. Rufino et al. [A4] proposed an analytical model to capture the impact of countermeasures against attackers when both endogenous and exogenous infections coexist.

Deep-learning methods can provide a high level of accuracy for indoor localization systems. However, to train these deep neural networks (DNNs), a large amount of collected labeled data is required, which can be expensive. Njima et al. [A5] proposed a weighted, semi-supervised DNN-based indoor localization approach, as well as a solution based on generative adversarial networks (GANs), to deal with the problem of collected labeled data insufficiency to optimally train a localization model.

We are once again at the threshold of a new era in electrical engineering and computer science, where artificial intelligence research is accelerating, and technology is connecting the world more quickly and efficiently than ever before. IEEE *Access* will continue to welcome boundary-pushing, interdisciplinary articles, making important research widely available via open access, and advancing the IEEE mission to foster technological innovation and excellence for the benefit of humanity.

DEREK ABBOTT, *Editor-in-Chief*
School of Electrical and
Electronic Engineering
University of Adelaide
Adelaide, SA 5005, Australia

JENNY MAHONEY, *Managing Editor*
IEEE
Piscataway, NJ 08854, USA

APPENDIX: RELATED ARTICLES

[A1] T. S. Rappaport, S. Sun, R. Mayzus, H. Zhao, Y. Azar, K. Wang, G. N. Wong, J. K. Schulz, M. Samimi, and F. Gutierrez, "Millimeter wave mobile communications for 5G cellular: It will work!," *IEEE Access*, vol. 1, pp. 335–349, 2013, doi: 10.1109/ACCESS.2013.2260813.

[A2] E. Basar, M. Di Renzo, J. De Rosny, M. Debbah, M.-S. Alouini, and R. Zhang, "Wireless communications through reconfigurable intelligent surfaces," *IEEE Access*, vol. 7, pp. 116753–116773, 2019, doi: 10.1109/ACCESS.2019.2935192.

[A3] E. Macdonald, R. Salas, D. Espalin, M. Perez, E. Aguilera, D. Muse, and R. B. Wicker, "3D printing for the rapid prototyping of structural electronics," *IEEE Access*, vol. 2, pp. 234–242, 2014, doi: 10.1109/ACCESS.2014.2311810.

[A4] V. Q. Rufino, L. P. De Aguiar, D. Sadoc Menasché, C. Lima, Ì. Cunha, E. Altman, R. El-Azouzi, F. De Pellegrini, A. Avritzer, and M. Grottke, "Beyond herd immunity against strategic attackers," *IEEE Access*, vol. 8, pp. 66365–66399, 2020, doi: 10.1109/ACCESS.2020.2983652.

[A5] W. Njima, A. Bazzi, and M. Chafii, "DNN-based indoor localization under limited dataset using GANs and semi-supervised learning," *IEEE Access*, vol. 10, pp. 69896–69909, 2022, doi: 10.1109/ACCESS.2022.3187837.