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Speaker

Ranbir S Sedhey

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AUG 10, 2022

Welcome and thank you for being here today!

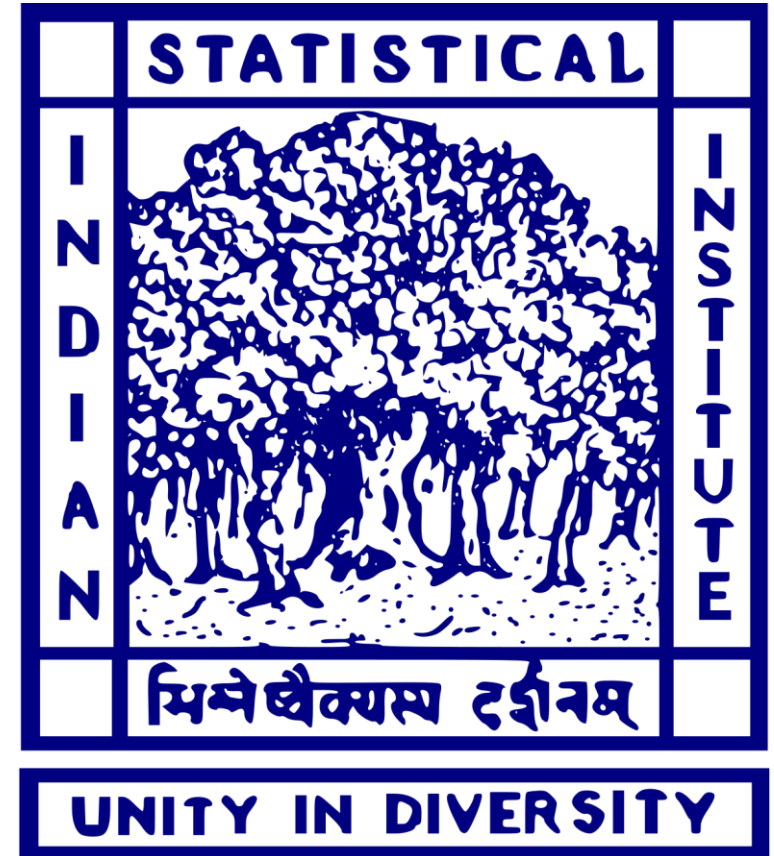
Brief overview of IEEE & 2021 JCR

Know your institution subscription & research

IEEE & Open Science

**How to Publish Quality Technical Paper
with IEEE**

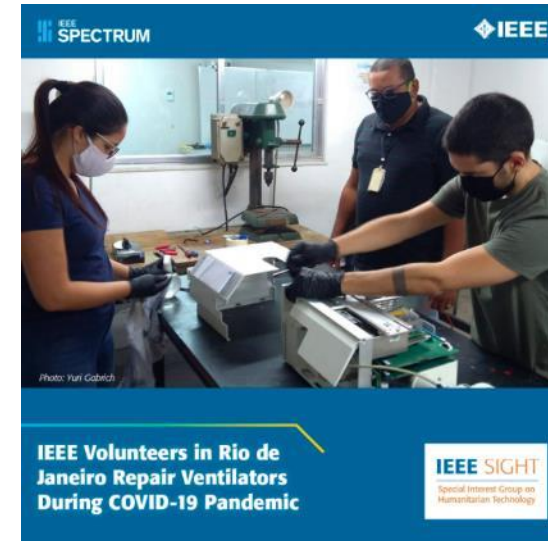
Q n A



About the IEEE

- IEEE is the world's largest technical professional organization with over 400,000 members all over the world
- Not for profit mission “advancing technology for humanity”
- Core area of activity:
 - Membership organization
 - Conferences organizer
 - Standards developer
 - Quality publishing program that consistently produces the top-cited information in Electrical Engineering, Computing, Telecom, AI, Robotics and many other fields*
 - Publisher of journals, conferences, standards, eBooks, and eLearning via the IEEE *Xplore* Digital Library
- IEEE *Xplore* by the numbers:
 - Over 5 million total documents
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 - Over 5 million unique users

*Source: Journal Citation Reports® (JCR) from Clarivate



A team of IEEE volunteers from the IEEE Rio de Janeiro Section repairing broken mechanical ventilators used in public hospitals to help fight the Covid-19 outbreak



A team of 150 IEEE volunteers from Nigeria developed a robot that uses vital signals to detect, prevent and mitigate the spread of Covid-19 in hospitals.

Spotlighting two Projects from IEEE SIGHT- the Special Interest Group on Humanitarian Technology



Technology Leaders and Innovators Rely on Trusted Research from IEEE

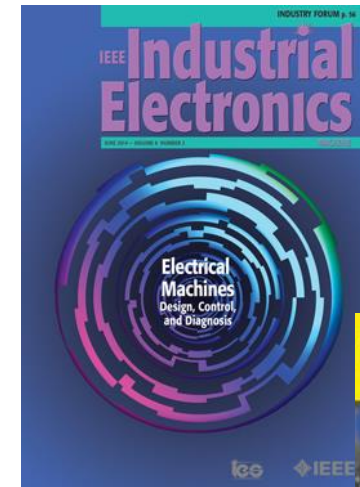
- Latest studies reinforce that the top cited publications in the world are from IEEE*
 - 20 of the top 25 journals in EE
 - 9 of the top 10 journals in Telecommunications
 - 3 of the top 5 journals in Computer Science—Artificial Intelligence
 - 2 of the top 5 journals in Computer Science—Information Systems
 - 2 of the top 5 journals in Computer Science—Interdisciplinary Applications
 - 2 of the top 5 journals in Computer Science—Cybernetics
 - 2 of the top 5 journals in Automation and Control System

1 in Automation and Control Systems
1 in Computer Science—Artificial Intelligence
1 in Computer Science—Cybernetics
1 in Computer Science—Hardware & Architecture
1 in Computer Science—Information Systems
1 in Computer Science—Theory & Methods
1 in Robotics
1 in Telecommunications
1 in Transportation Science & Technology

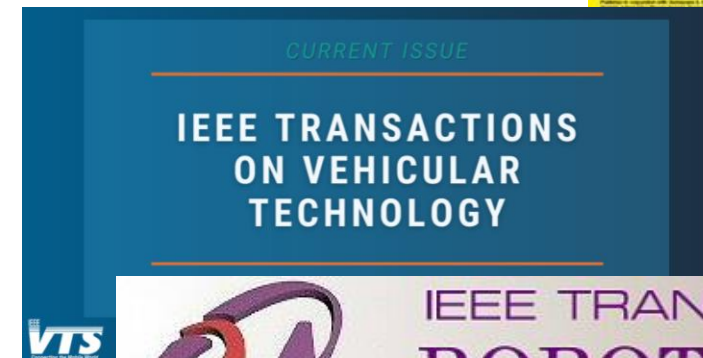
* Source: 2020 Journal Citation Reports (Clarivate Analytics, 2021)

** Source: 1790 Analytics

More info: www.ieee.org/citations and www.ieee.org/patentcitations



IEEE TRANSACTIONS ON
**NEURAL NETWORKS AND
LEARNING SYSTEMS**

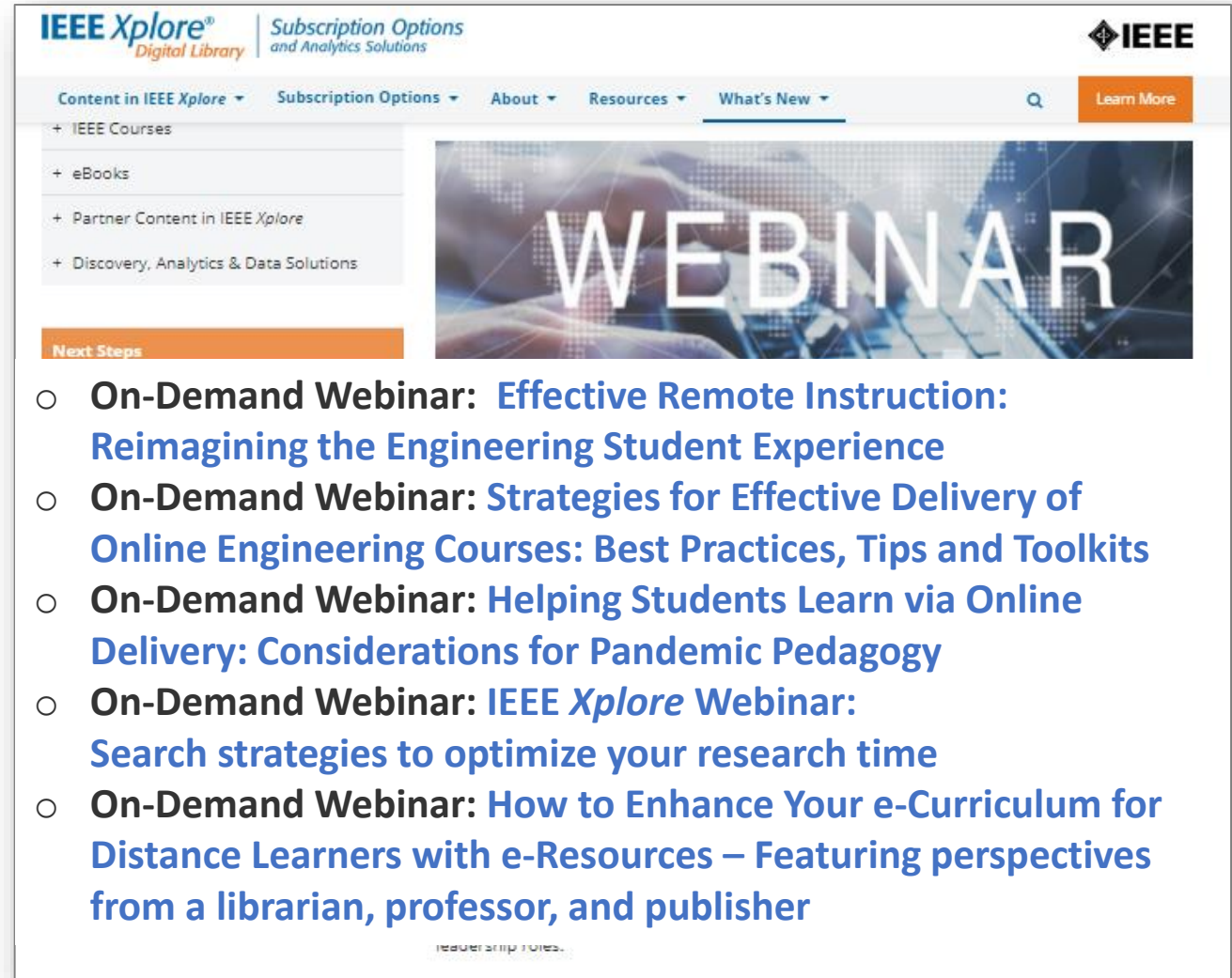


RESPONDING TO TODAY'S PANDEMIC:

Free Resources from IEEE

- IEEE has a variety of live and on-demand webinars available to help universities and technology organizations adapt their curriculums and research strategies to support distance learning and remote work environments.
- Other available webinars provide tips and best practices to help researchers stay up to date by using intuitive new tools delivered by IEEE *Xplore*. We also offer resources to help authors get published and share their research with the technical community.
- Below is a link to register for upcoming and recorded sessions. All are free to attend and we encourage you to share this information with your colleagues.

<https://innovate.ieee.org/free-webinars-from-ieee/>



The screenshot displays the IEEE Xplore Digital Library website. The top navigation bar includes the IEEE Xplore logo, 'Subscription Options and Analytics Solutions', and the IEEE logo. Below the navigation bar, there are links for 'Content in IEEE Xplore', 'Subscription Options', 'About', 'Resources', and 'What's New'. A search bar and a 'Learn More' button are also present. The main content area features a large banner with the word 'WEBINAR' in white text over a background image of hands typing on a keyboard. Below the banner, there is a section titled 'Next Steps' with a list of upcoming webinars:

- **On-Demand Webinar: Effective Remote Instruction: Reimagining the Engineering Student Experience**
- **On-Demand Webinar: Strategies for Effective Delivery of Online Engineering Courses: Best Practices, Tips and Toolkits**
- **On-Demand Webinar: Helping Students Learn via Online Delivery: Considerations for Pandemic Pedagogy**
- **On-Demand Webinar: IEEE Xplore Webinar: Search strategies to optimize your research time**
- **On-Demand Webinar: How to Enhance Your e-Curriculum for Distance Learners with e-Resources – Featuring perspectives from a librarian, professor, and publisher**

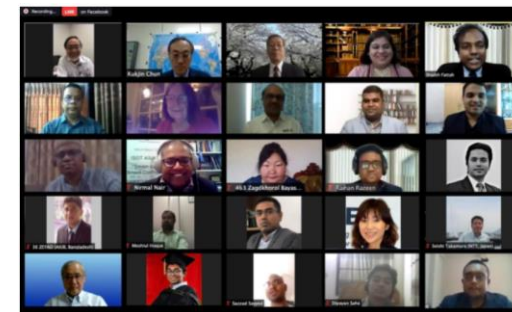
IEEE Conferences Continue to Address Growing Areas of Research in New and Emerging Technologies

Below are some examples of conferences published in 2021 covering many new innovative technologies that can transform our world:

- 2021 IEEE Int'l Conf on Acoustics, Speech and **Signal Processing** (ICASSP)
- 2021 IEEE Int'l **Solid-State Circuits** Conference (ISSCC)
- 2021 4th Int'l Conf on **Artificial Intelligence** and Big Data
- 2021 32nd Annual SEMI Advanced **Semiconductor Manufacturing** Conf
- 2021 7th Int'l Conf on Automation, **Robotics** and Applications (ICARA)
- 2021 IEEE 93rd **Vehicular Technology** Conf (VTC2021-Spring)
- 2021 IEEE 2nd Int'l Conf on Big Data, AI, and **Internet of Things** Engineering
- 2021 8th IEEE Int'l Conf on **Cyber Security** and Cloud Computing (CSCloud)
- 2021 16th Int'l Conf on Ecological Vehicles and **Renewable Energies** (EVER)
- 2021 IEEE PES Innovative **Smart Grid** Technologies Conference (ISGT)
- 2021 5th Int'l Conf on **Internet of Things** and Applications (IoT)
- 2021 Joint European Conf on Networks and Communications & **6G** Summit
- 2021 12th International **Renewable Engineering** Conference (IREC)



IEEE PES T&D Conf 2022 in New Orleans



IEEE Asia Pacific Conf, TENSYP in Bangladesh

Over 200k new papers posted in 2021!

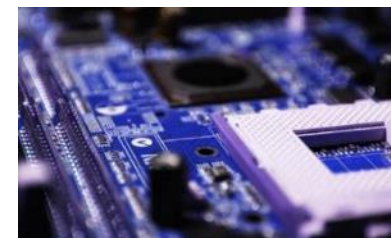
New IEEE Journal Titles Coming to IEEE Xplore

Launched in 2020-2021:

- IEEE Journal on Selected Areas in **Information Theory**
- IEEE Jrnl of Emerging & Selected Topics in **Industrial Electronics**
- IEEE Transactions on **Technology and Society**
- IEEE Transactions on **Artificial Intelligence**
- IEEE BITS the **Information Theory Magazine**

Coming in 2022:

- IEEE Transactions on **Signal and Power Integrity**
- IEEE Journal on **Flexible Electronics**



**Please note this is a tentative list and is subject to change.*



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IP

IEEE Electronic Library (IEL)

- Unlimited, full-text access to more than **5 million documents**
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- Over **3.8 million conference** papers from as far **back as 1936**, with up to 200,000 added each year
- Approximately **4,800 IEEE standards** documents in key technology fields
- Access to seminal articles from **Bell Labs Technical Journal archive**
- Access to articles from **IET's E&T Magazine** as well as proceedings from **IET conferences** and events
- Access to more than **14,000 papers** from select VDE conferences
- **Backfile to the late 1800s for select titles**



741 Technical Documents

IEEE Xplore®
Digital Library

Conferences (436)

Journals (288)

Early Access Articles (17)

Publication Title

Enter Title

- ☐ IEEE/ACM Transactions on Computational Biology and Bioinformatics (24)
- ☐ IEEE Transactions on Cybernetics (23)
- ☐ IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (17)
- ☐ IEEE Transactions on Fuzzy Systems (17)
- ☐ IEEE Transactions on Information Theory (17)
- ☐ IEEE Transactions on Knowledge and Data Engineering (12)
- ☐ IEEE Transactions on Circuits and Systems for Video Technology (11)
- ☐ IEEE Transactions on Computers (11)

Publication Topics

Enter Topics

- ☐ feature extraction (114)
- ☐ image segmentation (86)
- ☐ image classification (79)
- ☐ learning (artificial intelligence) (71)
- ☐ pattern clustering (64)
- ☐ support vector machines (60)
- ☐ fuzzy set theory (54)
- ☐ pattern classification (46)
- ☐ genetic algorithms (43)
- ☐ document image processing (39)
- ☐ genetics (36)
- ☐ evolutionary computation (34)

Author

Enter Author Name

- ☐ Umapada Pal (70)
- ☐ Sanghamitra Bandyopadhyay (64)
- ☐ Swagatam Das (63)
- ☐ Bhargab B. Bhattacharya (50)
- ☐ Ashish Ghosh (37)
- ☐ Pradipta Maji (35)
- ☐ Michael Blumenstein (33)
- ☐ Ujjwal Maulik (30)
- ☐ Ansuman Banerjee (26)
- ☐ Susmita Sur-Kolay (25)
- ☐ Sankar K. Pal (23)
- ☐ Bhabatosh Chanda (23)
- ☐ Anirban Mukhopadhyay (22)

Year

Single Year

Range

2005

2022

From

To

2005

2022

Author Detail Pages

- Helps authors promote their published works in IEEE Xplore
- Publically available summary of research activities
- Metrics on author's total publications & history
- Links to co-authors info pages
- Consolidated list of author's publications in IEEE Xplore



Roohie N. Mir  

Also published under: Roohie Naaz Mir, R. N. Mir, Roohie Naz Mir

Affiliation
Department of Computer Science and Engineering
National Institute of Technology (NIT)
Srinagar, India

Publication Topics
mobile ad hoc networks, telecommunication security, Internet of Things, service, routing protocols, telecommunication network routing, asynchronous circuits, cryptography, data handling, field programmable gate array

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Publications
21

Citations?
54

Publications by Year


Co-Authors:
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Asifa Baba
Mohammad Rafiq Gannie
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Sukhkirandeep Kaur

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Farhat Anwar 
Citations: 196
Documents Published: 46



Rashidah Funke Olanrewaju 
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Miss Laiha Binti Mat Kiah 
Citations: 62
Documents Published: 8



Najeeb-ud-din
Citations: 21
Documents Published: 7



IEEE Open Science Initiative

An FPGA-Based Phase Measurement System

Jubin Mitra ; Tapan K. Nayak

IEEE Transactions on Very Large Scale Integration (VLSI) Systems

Year: 2018 | Volume: 26, Issue: 1 | Journal Article | Publisher: IEEE

Cited by: Papers (4)

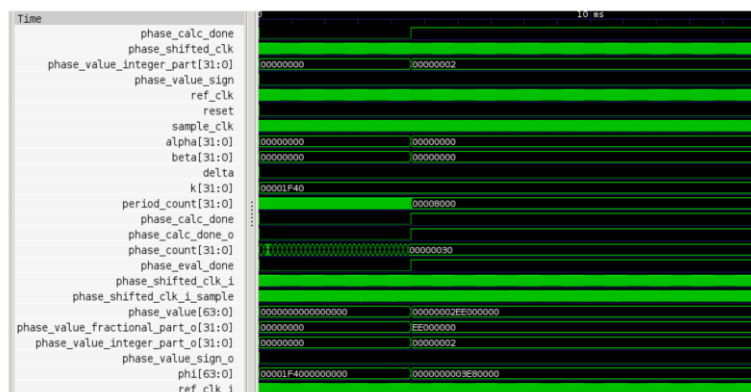
► Abstract

[\(html\)](#)

[PDF](#) (2628 Kb)

[C](#)

[Code](#)



Code: C/C++ An FPGA-Based Phase Measurement System

Files

Commands

Tabs

Core Files

metadata	1.81 KB	✓
environment	836 B	✓
code	3.06 MB	✓
code	20.02 KB	✓
phase_calc_tb...	6.76 KB	✓
phase_calc.vhd	8.79 KB	✓
rendergtkwave...	4.45 KB	✓
images	3.03 MB	✓
LICENSE	1.04 KB	✓
readme.md	3.79 KB	✓
run.sh	446 B	✓
data Manage Datasets	0 B	⊗
.gitignore	7 B	✓

Results

Your files will appear in the timeline

[View latest results](#)

Other Files

phase_calc_tb: X

Lock Generation

```

118
119
120
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Reproducibility

Supplemental Items

☐ Media (34,396)

☐ Video (897)

☐ Datasets (402)

☐ Code (323)

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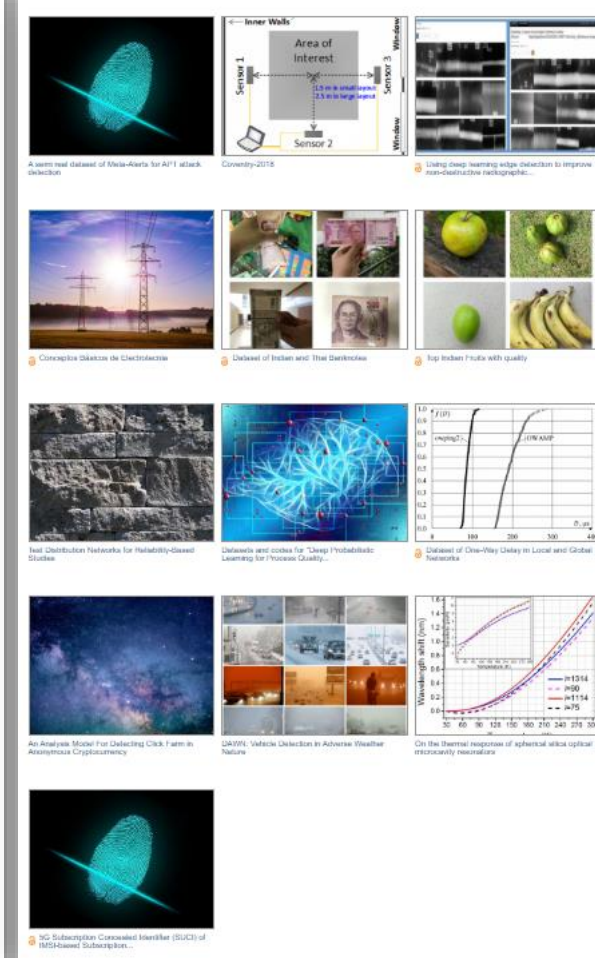
What is IEEE DataPort?

A web-based, cloud services platform supporting the data-related needs of the global technical community

- Stores datasets up to 2TB each and enable deposits of multiple data files (indefinitely data storage)
- Datasets can be linked to IEEE *Xplore* articles
- Datasets are minted with a DOI
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- Integrated with ORCID; users can optionally have the IEEE *DataPort* dataset asset automatically added to their ORCID asset list
- Can support and facilitate Data Challenges
- Can store and link related documentation – scripts, visualizations, related documentation
- Fully integrated with Amazon Web Services (AWS) to facilitate data analytics

DATASET CATEGORIES

- Artificial Intelligence (146)
- Astronomy (6)
- Biomedical and Health Sciences (111)
- Biophysiological Signals (55)
- Cloud Computing (12)
- Communications (145)
- Computational Intelligence (109)
- Computer Vision (106)
- COVID-19 (17)
- Demographic (6)
- Ecology (4)
- Environmental (22)
- Financial (9)
- Geoscience and Remote Sensing (58)
- Image Fusion (20)
- Image Processing (166)
- IoT (57)
- Machine Learning (215)
- Other (192)
- Power and Energy (134)
- Reliability (29)
- Security (59)
- Sensors (59)
- Signal Processing (134)
- Social Sciences (29)
- Standards Research Data (146)
- Transportation (43)



<https://ieee-dataport.org>

IEEE DataPort™

DATASETS

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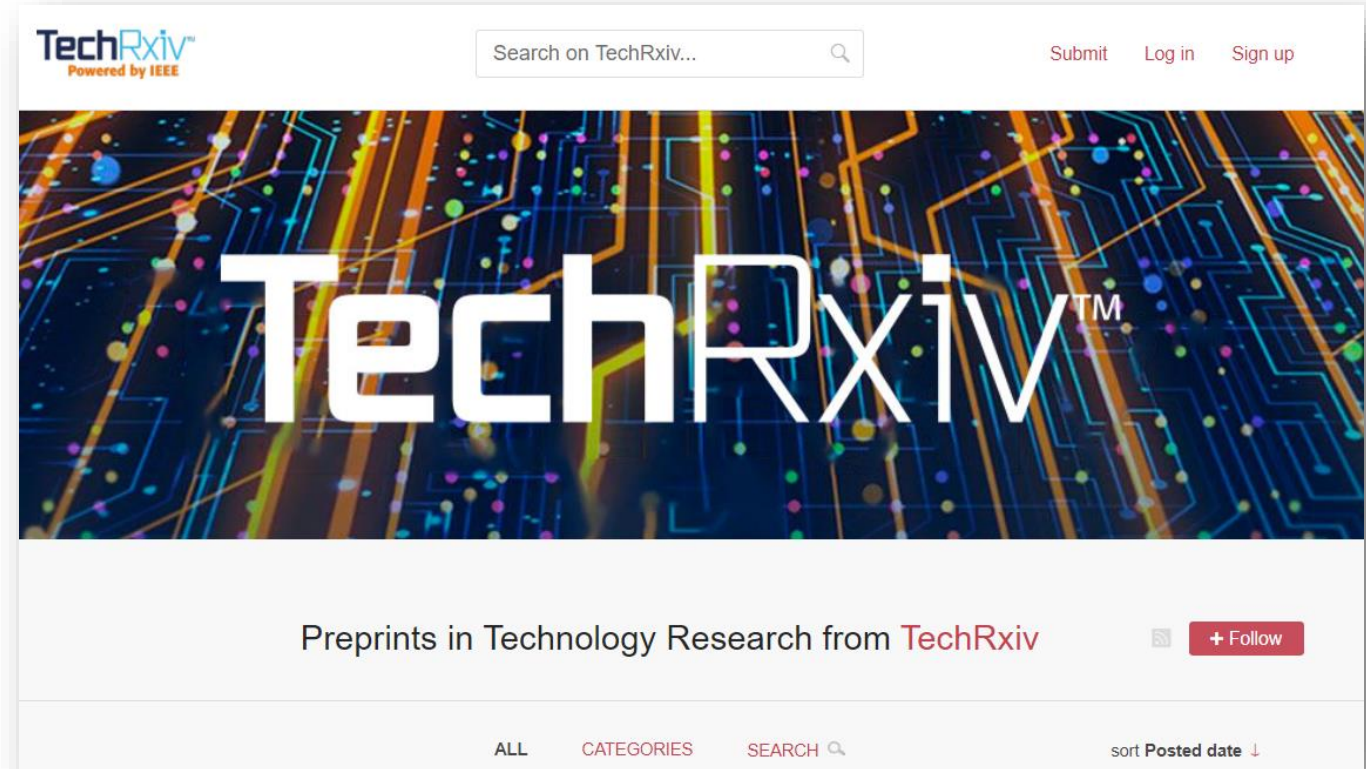
IEEE DataPort™ is an easily accessible data platform that enables users to store, search, access and manage standard or Open Access datasets up to 2TB across a broad scope of topics. The IEEE platform also facilitates analysis of datasets, supports Open Data initiatives, and retains referenceable data for reproducible research.



TechRxiv™ Preprint Server

<https://www.techrxiv.org>

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In the last week, TechRxiv had...

... **17,456** views, **7,229** downloads in total

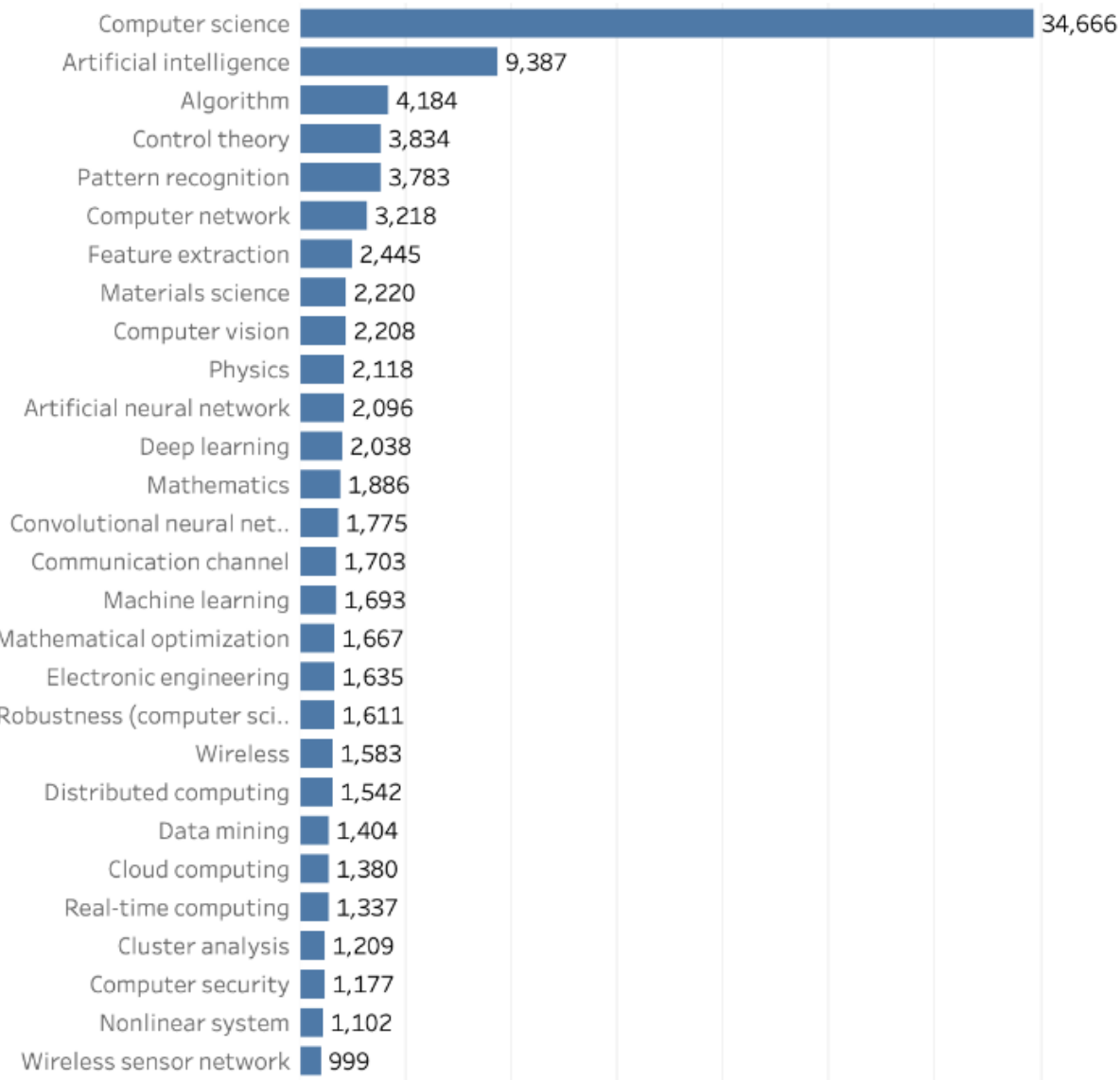


In all, IEEE publishes 26 fully Open Access journals

In the last 18 months, we have launched 17 new journals and flipped 2 existing journals to Open Access

- ▶ IEEE Access
- ▶ IEEE Journal of Electron Devices Society
- ▶ IEEE Journal of Exploratory Solid-State Computational Devices and Circuits
- ▶ *IEEE Journal of Microwaves – NEW!*
- ▶ *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing – FLIPPED!*
- ▶ IEEE Journal of Translational Engineering in Health and Medicine
- ▶ *IEEE Open Access Journal of Power and Energy – RETITLED!*
- ▶ *IEEE Open Journal of Antennas and Propagation – NEW!*
- ▶ *IEEE Open Journal of Circuits and Systems – NEW!*
- ▶ *IEEE Open Journal of Engineering in Medicine and Biology – NEW!*
- ▶ *IEEE Open Journal of Industry Applications – NEW!*
- ▶ *IEEE Open Journal of Intelligent Transportation Systems – NEW!*
- ▶ *IEEE Open Journal of Nanotechnology – NEW!*
- ▶ *IEEE Open Journal of Power Electronics – NEW!*
- ▶ *IEEE Open Journal of Signal Processing – NEW!*
- ▶ *IEEE Open Journal of the Communications Society – NEW!*
- ▶ *IEEE Open Journal of the Computer Society – NEW!*
- ▶ *IEEE Open Journal of the Industrial Electronics Society – NEW!*
- ▶ *IEEE Open Journal of the Solid-State Circuits Society – NEW!*
- ▶ *IEEE Open Journal of Ultrasonics, Ferroelectrics, and Frequency Control – NEW!*
- ▶ *IEEE Open Journal of Vehicular Technology – NEW!*
- ▶ IEEE Photonics Journal (flipped in 2012)
- ▶ *IEEE Transactions on Neural Systems and Rehabilitation Engineering – FLIPPED!*
- ▶ *IEEE Transactions on Quantum Engineering – NEW!*
- ▶ *IEEE Open Journal of Control Systems – COMING in 2022!*
- ▶ *IEEE Open Journal of Instrumentation and Measurement – COMING in 2022!*

IEEE Access Papers by Field of Study



Measure Names
■ # of Papers in Field of Study



Papers by Topic

Source: IEEE Publications Department, all IEEE Access articles by topic, articles may be counted more than once. IEEE Access articles published 2013 to 2020.

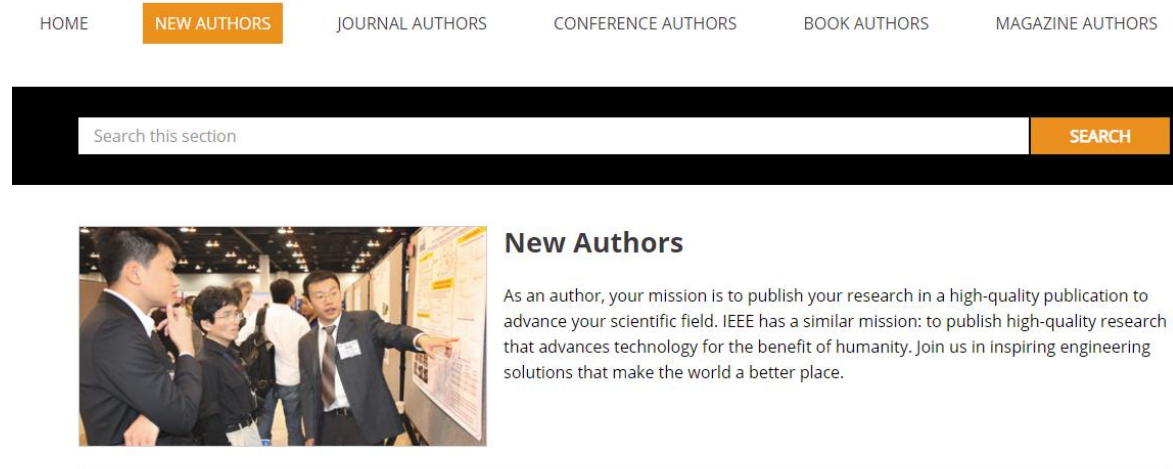


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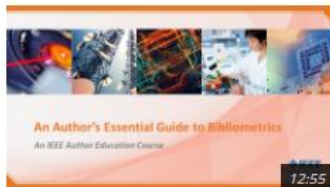
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Author Collaboration Tools in IEEE Collabratec



Citing Sources Appropriately



An Author's Essential Guide to Bibliometrics



Reviewing an Article



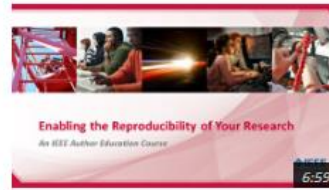
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Best Practices for Writing Your Article's Title and Abstract



Bibliometric Indicators: What is Important to Know as an Author and How It is Correct to Use Them



Choosing the Right Publication



Tips for Responding to Reviewers' Comments

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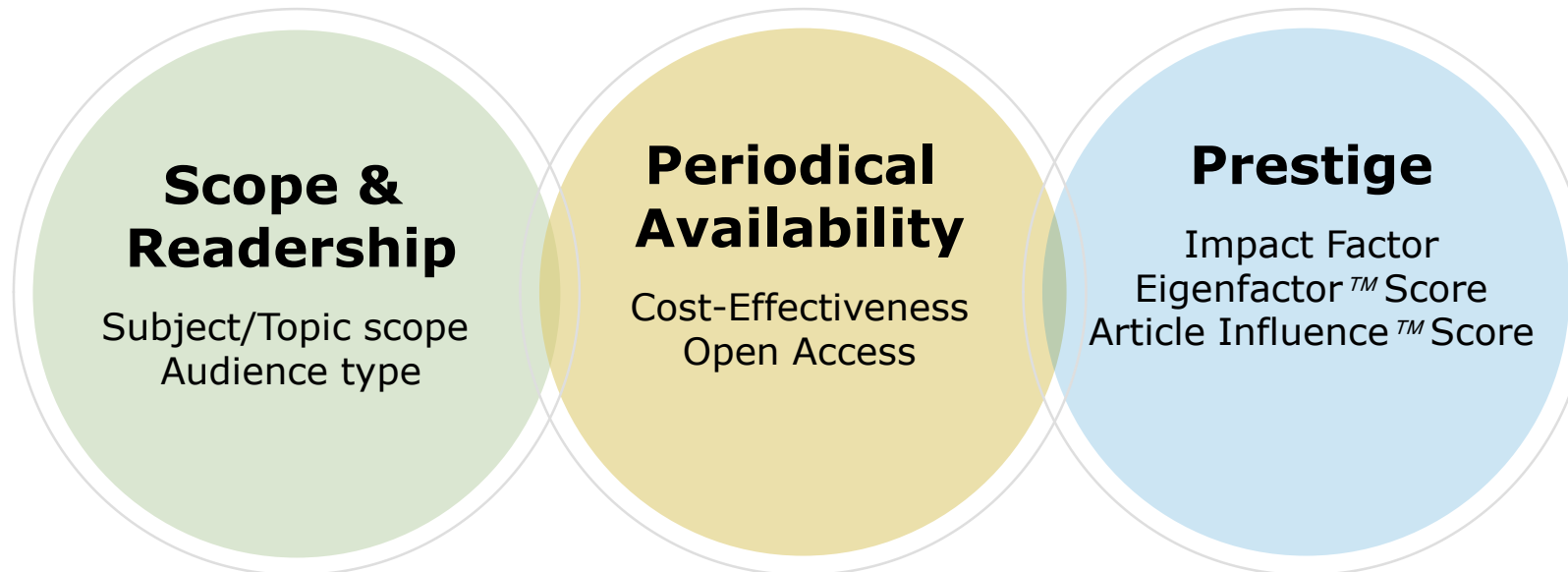
Final Steps

Main Steps to Consider When Writing a Technical Paper

Publishing Choices

Choices

Publish your research where it will have the most impact



Publish

IEEE Journal or IEEE Conference?

A **journal article** is a fully developed presentation of your work and its final findings

- Original research results presented
- Clear conclusions are made and supported by the data

A **conference article** can be written while research is ongoing

- Can present preliminary results or highlight recent work
- Gain informal feedback to use in your research
- Typically shorter than journal articles, with less detail and fewer references

Publish

IEEE Journal or IEEE Conference?

IEEE Journals



IEEE journals are cited 3 times more often in patent applications than other leading publisher's journals



A high percentage of articles submitted to any professional publication are rejected

IEEE Conferences

IEEE Conference proceedings are recognized worldwide as the most vital collection of consolidated published articles in EE, computer science, and related fields

Per IEEE Policy, if you do not present your article at a conference, it may be suppressed in IEEE *Xplore* and not indexed in other databases

Publish

Performing a Literature Search and Picking the Right Publication

- Make sure your article reports original work
- Use databases such as IEEE *Xplore*
- Sign up for Content Alerts
- Read leading journals in the field of your article
- Try the IEEE Publication Recommender
- Run a keyword search
- Look at the publications cited in your references
- Ask colleagues and co-authors for suggestions

Tip: Read the Aim & Scope of your target publication

IEEE.org | IEEE Xplore Digital Library | IEEE Author Center | IEEE-SA | IEEE Spectrum | More Sites

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IEEE
Advancing Technology
for Humanity

<https://publication-recommender.ieee.org/home>

Audience

What IEEE Editors and Reviewers are Looking For

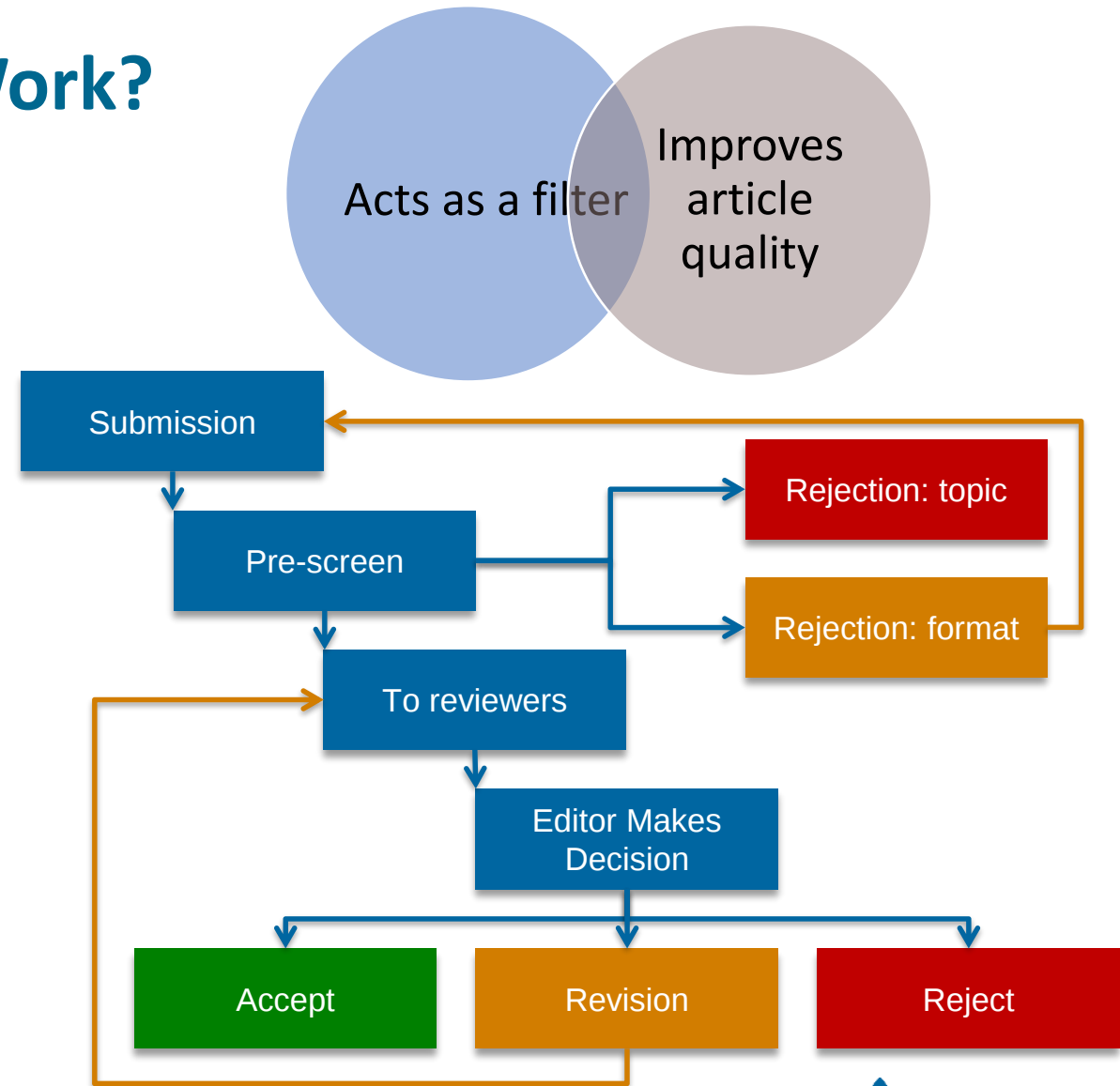
- Content that is appropriate, in scope and level
- Clearly written original material that addresses a new and important problem
- Extension of previously published work
- Valid methods and rationale
- Illustrations, tables and graphs that support the text
- References that are current and relevant to the subject



Audience

How Does the Review Process Work?

- Editor-in-Chief gets the paper after it goes through content match check (Similarity Check) and “IEEE Prohibited Authors List” check
- If the paper is in scope for the journal, it is assigned to an editor (associate editor)
- Editor assigns the paper to at least two reviewers (sometimes more)
- Reviewers send their comments back to the editor
- Editor makes a recommendation to the EIC as follows
 - Accept
 - Revise & Resubmit
 - Reject
- The EIC makes the final decision and informs the corresponding author



Audience

Why IEEE Editors and Reviewers Reject Papers

- The content is not a good fit for the publication
- There are serious scientific flaws:
 - Inconclusive results or incorrect interpretation
 - Fraudulent research
- It is poorly written
- It does not address a big enough problem or advance the scientific field
- The work was previously published
- The quality is not good enough for the journal
- The paper does not make a strong enough case to convince reviewers

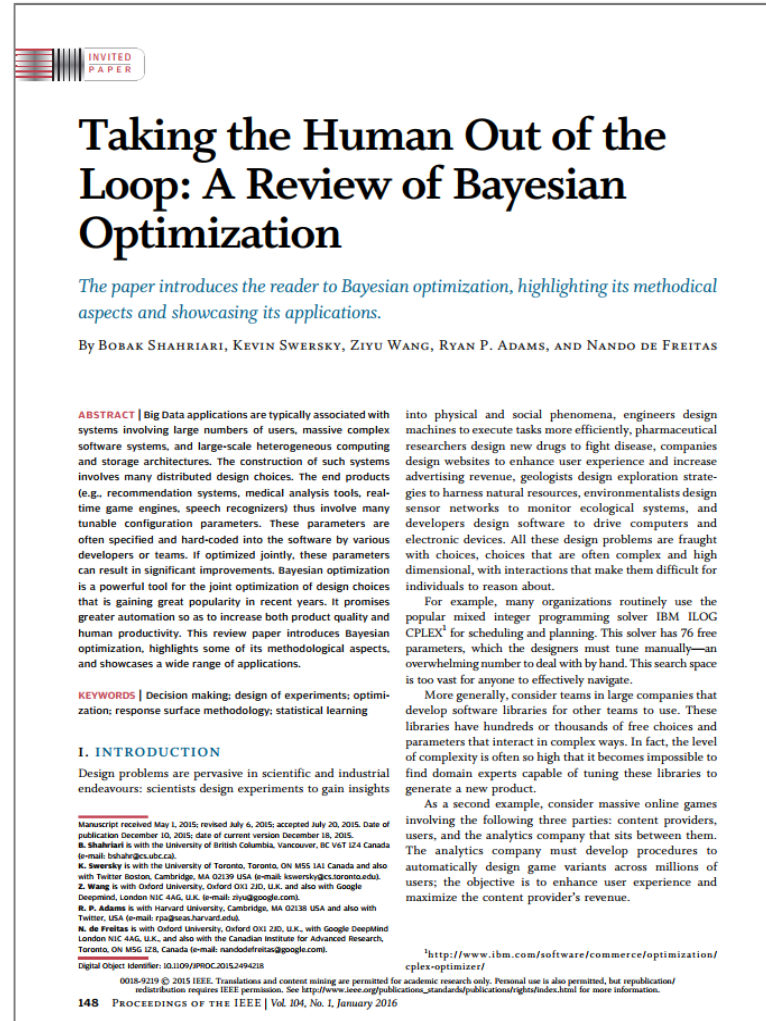


Paper Structure

Paper Structure

Elements of a manuscript

- ▶ Title
- ▶ Author(s)
- ▶ Abstract
- ▶ Introduction
- ▶ Approach
- ▶ Results
- ▶ Discussion
- ▶ Conclusions
- ▶ Acknowledgements
- ▶ References



Paper Structure

Title

An effective title should...

- Be specific, concise, and descriptive
- Answer the reader's question: *Is this article relevant to me?*
- Think about what you would search for if you were looking for articles related to your research. Be sure to incorporate those keywords into your title.
- Grab the reader's attention
- Describe the content of a paper using the fewest possible words
 - Use important keywords—put as much time into your keywords as your paper, as that is how it will usually be found
 - Avoid jargon

Good
Title

VS.

Bad
Title

Paper Structure

Title – Best Practices



A Human Expert-based Approach to Electrical Peak Demand Management

VS



A better approach of managing environmental and energy sustainability via a study of different methods of electric load forecasting

Paper Structure

Abstract

- Concise summary of research conducted: results obtained and conclusions reached
- A “stand-alone” condensed version of the article
- 250 words or less
- Written in the past tense although general factual statements can be written in present tense
- Uses keywords and index terms

ABSTRACT | Big Data applications are typically systems involving large numbers of users, massive software systems, and large-scale heterogeneous computing and storage architectures. The construction of such systems involves many distributed design choices. The end products (recommendation systems, medical analysis tools, real-time engines, speech recognizers) thus involve many configuration parameters. These parameters are often specified and hard-coded into the software by various developers or teams. If optimized jointly, these parameters can result in significant improvements. Bayesian optimization is a powerful tool for the joint optimization that is gaining great popularity in recent years. This review paper, Bayesian optimization, highlights some of its many applications and showcases a wide range of applications.

What you did

Why you did it

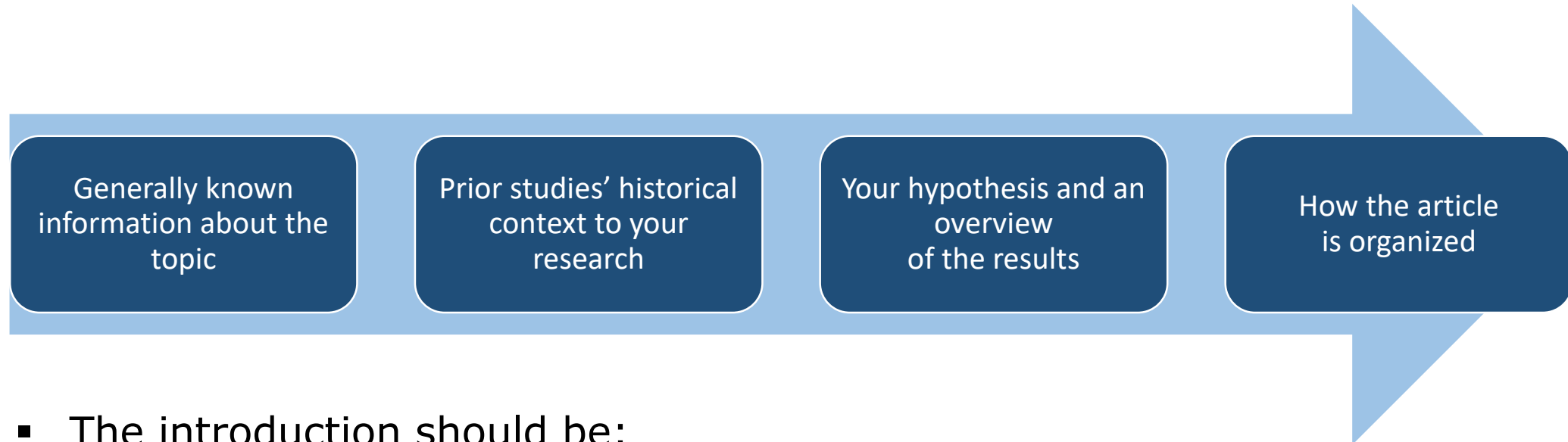
How the results were useful, important and move the field forward

Why they're useful and important and move the field forward

Paper Structure

Introduction

- A description of the problem you researched
- It should move step by step through the following:



- The introduction should be:
 - Specific, not too broad or vague
 - About 2 pages
 - Written in the present tense

Paper Structure

Methodology

- Problem formulation and the processes used to solve the problem, prove or disprove the hypothesis
- Use illustrations to clarify ideas and support conclusions

Tables

Present representative data or used when exact values are important to show



Figures

Quickly show ideas/conclusions that would require detailed explanations



Graphs

Show relationships between data points or trends in data



Paper Structure

Results/Discussion

Demonstrate that you solved the problem or made significant advances

Results: Summarizes the Data

- Should be clear and concise
- Use figures or tables with narrative to illustrate findings

Discussion: Interprets the Results

- Why your research offers a new solution
- How can it benefit other researchers and professionals

the SC algorithm over the whole range of w values increase to 3–4 K, except for the TIGR₄₊₁₁ database, with an RMSE of 2 K. This last result is explained by the w distribution, which is biased toward low values of w in this database. When only atmospheric profiles with w values lower than $3 \text{ g} \cdot \text{cm}^{-2}$ are selected, the SC algorithm provides RMSEs around 1.5 K, with almost equal values of bias and standard deviation, around 1 K in both cases (with a negative bias, due to the SC underestimates the LST). In contrast, when only w values higher than $3 \text{ g} \cdot \text{cm}^{-2}$ are considered, the SC algorithm provides RMSEs higher than 5 K. In these cases, it is preferable to calculate the atmospheric functions of the SC algorithm directly from (3) rather than approximating them by a polynomial fit approach as given by (4).

V. DISCUSSION AND CONCLUSION

The two Landsat-8 TIR bands allow the intercomparison of two LST retrieval methods based on different physical assumptions, such as the SC (only one TIR band required) and SW algorithms (two TIR bands required). Direct inversion of the radiative transfer equation, which can be considered as a “ground-truth” algorithm, is assumed to be a “ground-truth” condition that the information about the surface emissivity and L_d is accurate enough. The SC algorithm presented in this letter is a continuation of the previous SC algorithm [18], but it is now adapted to the Landsat-8 TIR sensor. The ETM+ sensor on board the Landsat-7 platform [9], and it could be used to generate consistent LST products from the historical Landsat data using a single algorithm. An advantage of the SC algorithm is that, apart from surface emissivity, only water vapor content is required as input. However, it is expected that errors on LST become unacceptable for high water vapor contents (e.g., $> 3 \text{ g} \cdot \text{cm}^{-2}$). This problem can be partly solved by computing the atmospheric functions directly from τ , L_u , and L_d values (see (5)), or also by including air temperature as input [15]. A main advantage of the SW algorithm is that it performs well over global conditions and, thus, a wide range of water vapor values; and that it only requires water vapor as input (apart from surface emissivity at the two TIR bands). However, the SW algorithm can be only applied to the new Landsat-8 TIRS data, since previous TM/ETM sensors only had one TIR band.

The LST algorithms presented in this letter were tested with simulated data sets obtained for a variety of global atmospheric conditions and surface emissivities. The results showed RMSE values of typically less than 1.5 K, although for the SC algorithm, this accuracy is only achieved for w values below $3 \text{ g} \cdot \text{cm}^{-2}$. Algorithm testing also showed that the SW errors are lower than the SC errors for increasing water vapor, and vice versa, as demonstrated in the simulation study presented in Sobrino and Jimenez-Munoz [18]. Although an extensive validation exercise from *in situ* measurements is required to assess the performance of the two LST algorithms, the results obtained for the simulated data, the sensitivity analysis, as well as the previous findings for algorithms with the same mathematical structure give confidence in the algorithm accuracies estimated here.

REFERENCES

- [1] J. R. Jensen, J. L. Dwyer, and J. A. Rast, “The next Landsat satellite: The Landsat Data Continuity Mission,” *Remote Sens. Environ.*, vol. 122, pp. 31–41, 2012.
- [2] J. A. Sobrino, “Remote sensing methods and applications,” *Remote Sens. Environ.*, vol. 122, pp. 31–41, 2012.
- [3] W. Karim and M. Anderson, “Advances in thermal infrared remote sensing for land surface modelling,” *Agric. Forest Meteorol.*, vol. 149, pp. 12, pp. 2071–2081, Dec. 2009.
- [4] Z.-L. Li, B.-H. Tang, H. Wu, H. Rao, G. Yan, Z. Wan, L. F. Tripi, and J. A. Sobrino, “Satellite-derived land surface temperature: Current status and perspectives,” *Remote Sens. Environ.*, vol. 151, pp. 14–37, Apr. 2015.
- [5] Z.-L. Li, H. Wu, M. Wang, S. Qiu, J. A. Sobrino, Z. Wan, B.-H. Tang, and G. Yan, “Land surface emissivity retrieval from satellite data,” *Int. J. Remote Sens.*, vol. 34, no. 9/10, pp. 5064–5127, 2013.
- [6] A. M. Minnis, “Three decades of Landsat instruments,” *Photogramm. Eng. Remote Sens.*, vol. 68, no. 1, pp. 109–122, Feb. 1997.
- [7] J. A. Sobrino, J. R. Soria, F. D. Pallares, D. L. Helder, S. F. H. Hoek, R. L. Matheron, G. Choudry, and E. M. O’Donnell, “Landsat TM and ETM+ thermal band calibration,” *Can. J. Remote Sens.*, vol. 39, no. 2, pp. 141–153, 2003.
- [8] J. C. Jimenez-Munoz, J. Cristóbal, J. A. Sobrino, G. Sola, M. Ninyerola, and X. Pons, “Revision of the single-channel algorithm for land surface temperature retrieval from Landsat thermal-infrared data,” *IEEE Trans. Geosci. Remote Sens.*, vol. 47, no. 1, pp. 259–268, Jan. 2009.
- [9] L. M. McMillin, “Estimation of sea surface temperatures from two infrared window measurements with different absorption,” *J. Geophys. Res.*, vol. 90, no. 14, pp. 1113–1117, 1975.
- [10] J. A. Sobrino, Z.-L. Li, M. P. Stoll, and F. Becker, “Multi-channel and multi-angle algorithms for estimating sea and land surface temperature with ATSR data,” *Int. J. Remote Sens.*, vol. 17, no. 11, pp. 2099–2114, 1996.
- [11] J. C. Jimenez-Munoz and J. A. Sobrino, “Split-window coefficients for land surface temperature retrieval from low-resolution thermal infrared sensors,” *IEEE Geosci. Remote Sens. Lett.*, vol. 5, no. 4, pp. 805–809, Oct. 2008.
- [12] A. Beck, G. P. Anderson, F. K. Ashury, J. H. Chervin, L. S. Demaree, E. F. Shale, M. W. Mosher, and S. M. Adnan-Golden, *MODTRAN4 User’s Manual*. Hampton, VA, USA: Air Force Res. Lab., 1999.
- [13] A. M. Salcedo, S. F. Hoek, C. J. Gove, and G. Silver, “The ASTER spectral library version 2.0,” *Remote Sens. Environ.*, vol. 115, no. 4, pp. 711–715, Apr. 2009.
- [14] J. Cristóbal, J. C. Jimenez-Munoz, J. A. Sobrino, M. Ninyerola, and X. Pons, “Improvements in land surface temperature retrieval from the Landsat series thermal band using water vapor and air temperature,” *J. Geophys. Res.*, vol. 114, no. D6, p. D06102, 2009.
- [15] D. P. Dee, S. M. Uppala, A. J. Simmons, P. Berrisford, P. Poli, S. Kobayashi, U. Andea, M. A. Balmeada, G. Balsano, P. Bauer, F. Bechtold, A. C. M. Beljaars, L. van de Berg, J. Bidlot, N. Bormann, C. Buisson, R. Chappin, M. F. Chelton, A. J. Gier, L. Hurrell, S. R. Hasler, H. Hersbach, K. V. Hólm, L. Isakson, P. Kallberg, M. Köhler, M. Matricardi, A. P. McNally, B. M. Monge-Sanz, J.-F. Morcrette, R.-K. Park, C. Peubey, R. de Rosnay, C. Tóth, L.-M. Tsiang, and F. Vitart, “The ERA-Interim reanalysis: Configuration and performance of the data assimilation system,” *Q. J. R. Meteorol. Soc.*, vol. 137, no. 659, pp. 553–597, 2011.
- [16] C. Mouny, C. Durkin-Alarcon, J. C. Jimenez-Munoz, and J. A. Sobrino, “Global Atmospheric Profile from Remote Sensing Information (GAPRS): A new dataset for forward simulations in the thermal infrared region,” *IEEE Trans. Geosci. Remote Sens.*, 2014, submitted for publication.
- [17] J. A. Sobrino and J. C. Jimenez-Munoz, “Land surface temperature retrieval from thermal infrared data: An assessment in the context of the surface processes and ecosystem changes through response analysis (SPECTRA) mission,” *J. Geophys. Res.*, vol. 118, no. D18, p. D18102, 2008.

Results

Discussion

Paper Structure

Conclusion

- Explain what the research has achieved
 - As it relates to the problem stated in the Introduction
 - Revisit the key points in each section
 - Include a summary of the main findings and implications for the field
- Provide benefits and shortcomings of:
 - The solution presented
 - Your research and methodology
- Suggest future areas for research



Paper Structure

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We then have

$$\begin{aligned} (P_t^{k+} + P_t^{k-})^2 &= (P_t^{k+} - P_t^{k-})^2 + 4P_t^{k+}P_t^{k-} \\ &< (\hat{P}_t^{k+} - \hat{P}_t^{k-})^2 + 4\hat{P}_t^{k+}\hat{P}_t^{k-} \\ &= (\hat{P}_t^{k+} + \hat{P}_t^{k-})^2. \end{aligned} \quad (32)$$

Since $P_t^{k+} - P_t^{k-} = \hat{P}_t^{k+} - \hat{P}_t^{k-}$, we then have $P_t^{k+} < \hat{P}_t^{k+}$, and $P_t^{k-} < \hat{P}_t^{k-}$. Because the operational cost is an increasing function of (P_t^{k+}, P_t^{k-}) , we obtain that

$$c_{0/10}(P_t^{k+}, P_t^{k-}) < c_{0/10}(\hat{P}_t^{k+}, \hat{P}_t^{k-}). \quad (33)$$

Therefore the optimal pair $\{P_t^{k+}, P_t^{k-}\}$ must satisfy that $P_t^{k+}P_t^{k-} = 0$, i.e., only one of P_t^{k+}, P_t^{k-} can be non-zero. ■

REFERENCES

- [1] "Renewable Energy You Can Count on," Tech. Rep. Union of Concerned Scientists, 2013.
- [2] S. Collier, "Ten steps to a smarter grid," *IEEE Ind. Appl. Mag.*, vol. 16, no. 2, pp. 62–68, 2010.
- [3] J. A. Turner, "A realizable renewable energy future," *Sci.*, vol. 285, no. 5428, pp. 687–689, 1999.
- [4] "Exploration of High-Penetration Renewable Electricity Futures," Tech. Rep. National Renewable Energy Lab., 2012.
- [5] T. Wachsman and J. Munn, *A Definition of 'Carbon Footprint'*. Hauppauge, NY, USA: Nova Science, 2008.
- [6] J. Carrasco, L. Franquelo, J. Balazs, E. Galvez, R. Guisado, M. Prats, J. Lazo, and N. Moreno-Alfonso, "Power-electronic systems for the grid integration of renewable energy sources: A survey," *IEEE Trans. Ind. Electron.*, vol. 53, no. 4, pp. 1002–1016, 2006.
- [7] H. Ibrahim, A. Iliescu, and J. Purnan, "Energy storage systems – characteristics and comparison," *Renewable Sustainable Energy Rev.*, vol. 12, no. 5, pp. 1221–1250, 2008.
- [8] J. Garcia-Gonzalez, R. de la Huelga, I. Surro, and A. Gonzalez, "Stochastic joint optimization of wind generation and pumped-storage units in an electricity market," *IEEE Trans. Power Syst.*, vol. 23, no. 2, pp. 460–468, 2008.
- [9] T. D. Nguyen, K.-J. Tang, S. Zhang, and T. D. Nguyen, "On the modeling and control of a novel hybrid energy storage system," in *Proc. IEEE Conf. Smart Grid Commun.*, 2010, pp. 1395–1401.
- [10] H. Zhao, T. Bhattacharya, D. Tran, T. Siew, and A. Khanbadi, "Composite energy storage system involving battery and ultracapacitor with dynamic energy management in microgrid applications," *IEEE Trans. Power Electron.*, vol. 26, no. 3, pp. 923–930, 2011.
- [11] S. G. Chait and J. F. Miller, "Key challenges and recent progress in batteries, fuel cells, and hydrogen storage for clean energy systems," *J. Power Sources*, vol. 159, no. 1, pp. 73–80, 2006.
- [12] J. Barrie and D. Infield, "Energy storage and its use with intermittent renewable energy," *IEEE Trans. Energy Conversion*, vol. 19, no. 2, pp. 441–448, 2004.
- [13] K. G. Vothurgh, "Compressed air energy storage," *J. Energy*, vol. 2, no. 2, pp. 106–112, 1978.
- [14] C. Abbey and G. Joos, "Supercapacitor energy storage for wind energy applications," *IEEE Trans. Ind. Appl.*, vol. 43, no. 3, pp. 769–776, 2007.
- [15] P. Brown, J. P. Lopes, and M. Matos, "Optimization of pumped storage capacity in an isolated power system with large renewable penetration," *IEEE Trans. Power Syst.*, vol. 23, no. 2, pp. 523–531, 2008.
- [16] C. Abbey and G. Joos, "A stochastic optimization approach to rating of energy storage systems in wind-diesel isolated grids," *IEEE Trans. Power Syst.*, vol. 24, no. 1, pp. 418–425, 2009.
- [17] Y. Zhang, N. Gatsis, and G. Giannakis, "Robust energy management for microgrids with high-penetration renewables," *IEEE Trans. Sustainable Energy*, vol. 5, no. 99, pp. 1–10, 2013.
- [18] S. Boyd, N. Parikh, E. Chu, B. Peleato, and J. Eckstein, "Distributed optimization and statistical learning via the alternating direction method of multipliers," *Foundations Trends Mach. Learning*, vol. 3, no. 1, pp. 1–222, 2010.
- [19] G. Calafiori and M. Campi, "The scenario approach to robust control design," *IEEE Trans. Autom. Contr.*, vol. 51, no. 5, pp. 742–753, 2006.
- [20] A. Shapiro, D. Dentcheva, and A. Ruszczyński, *Lectures on Stochastic Programming: Modeling and Theory*. Philadelphia, NJ, USA: SIAM, 2009.
- [21] Y. Zhang, N. Gatsis, and G. Giannakis, "Risk-constrained energy management with multiple wind farms," in *Proc. IEEE PES Smart Grid*, Feb. 2013, pp. 1–6.
- [22] Y. Zhang, N. Gatsis, V. Kotsios, and G. Giannakis, "Risk-aware management of distributed energy resources," in *Proc. Int. Conf. Digital Signal Process.*, Jul. 2013, pp. 1–5.
- [23] P. Yang and A. Nehorai, "Hybrid energy storage and generation planning with large renewable penetration," in *IEEE Int. Workshop Comput. Adv. Multi-Sensor Adaptive Process.*, Dec. 2013, pp. 1–4.
- [24] EPRI, "Electricity Energy Storage Technology Options A White Paper Primer on Applications, Costs, and Benefits," Tech. Rep. EPRI, Palo Alto, CA, USA, 2010.
- [25] National Solar Radiation Data Base, [Online]. Available: <http://nrel.gov/nsrdb/>
- [26] S. Wilson, *National Solar Radiation Database 1991 – 2010 Update: User's Manual*, 2012.
- [27] EPRI, "Renewable Energy Technical Assessment Guide – TAG-RE-2006," Tech. Rep. EPRI, Palo Alto, CA, USA, 2007.
- [28] *ENCORE Hourly Load Data Archive* [Online]. Available: <http://www.ercot.com/gridinfo/loadload.html>
- [29] M. Grant and S. Boyd, *CVX: Matlab Software for Disciplined Convex Programming*, Version 2.0 Beta 2012 [Online]. Available: <http://cvxr.com/cvx>
- [30] "MISO Daily Report," 2011, Electric Power Markets: Midwest (MISO), IERC [Online]. Available: <http://www.ferc.gov/markets-overnight/midwest/miso-archives.asp>
- [31] "CAISO Daily Report," 2011, Electric Power Markets: California (CAISO), IERC [Online]. Available: <http://www.ferc.gov/markets-overnight/california/caiso-archives.asp>



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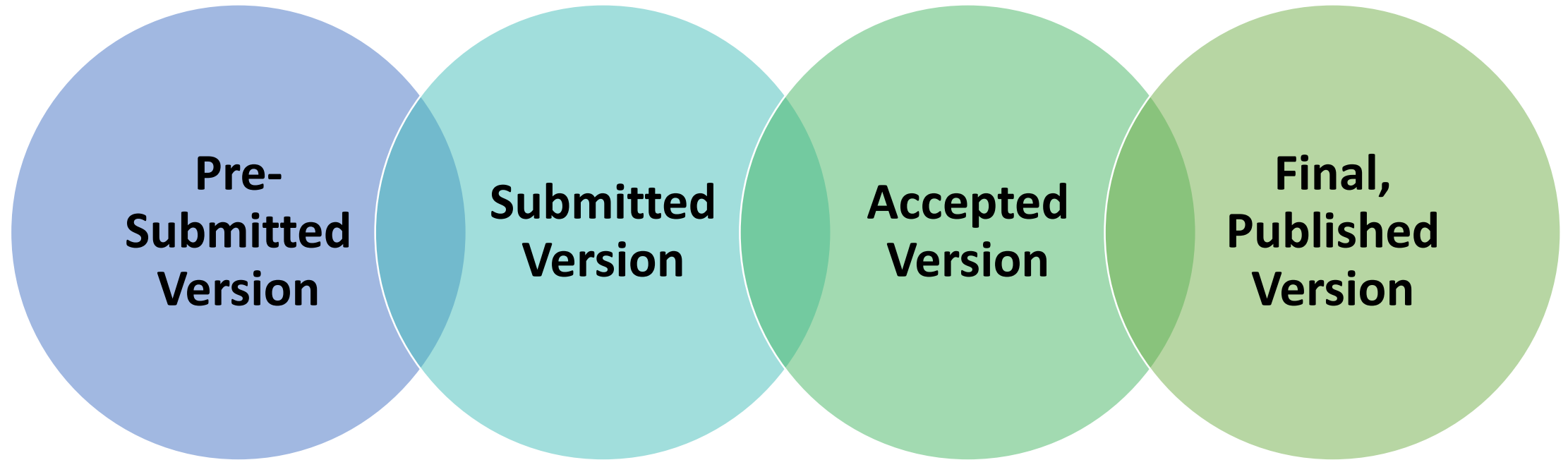


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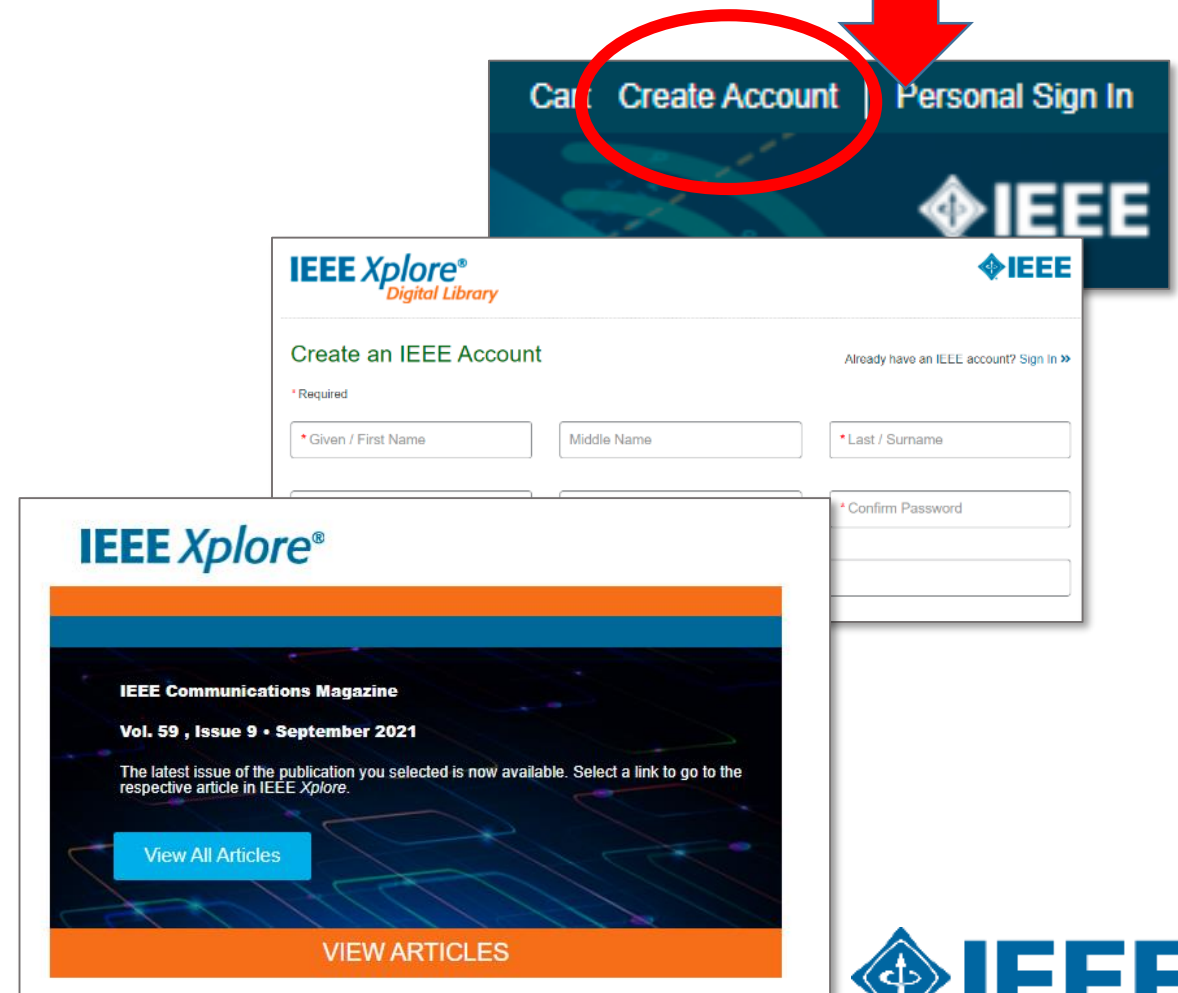
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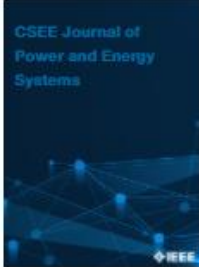
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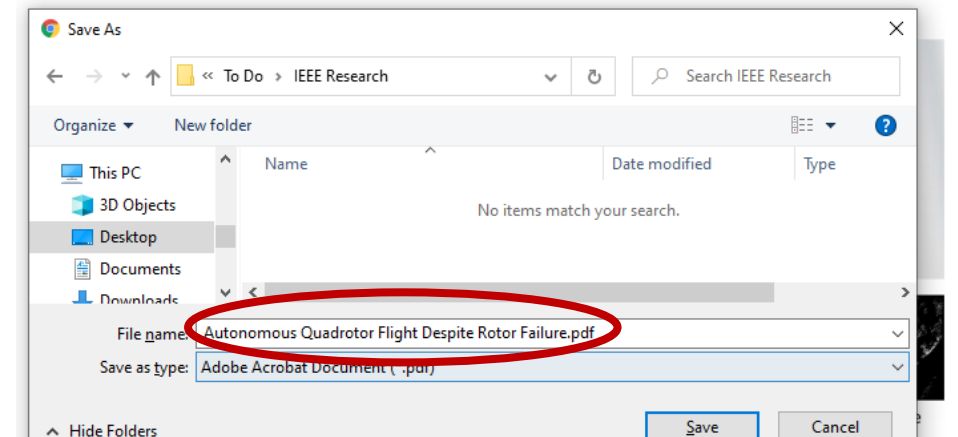


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IEEE ROBOTICS AND AUTOMATION LETTERS, VOL. 6, NO. 2, APRIL 2021

Autonomous Quadrotor Flight Despite Rotor Failure With Onboard Vision Sensors: Frames vs. Events

Sihao Sun¹, Giovanni Cioffi, Coen de Visser, and Davide Scaramuzza²



experiments is available at: <https://youtu.be/Ww8u0KH7Ugs>.

Index Terms—Aerial systems; perception and autonomy, robot safety, sensor-based control, event camera.

rotation, over 20 rad/s (top figure). Bottom figures show a standard frame and events captured by an onboard event camera. **Bottom Left:** standard frame with motion blur. **Bottom Center:** Events only (blue: positive events, red: negative events). **Bottom Right:** Event frame generated from events. Blue circles are detected features, green dots indicate tracked features.

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