


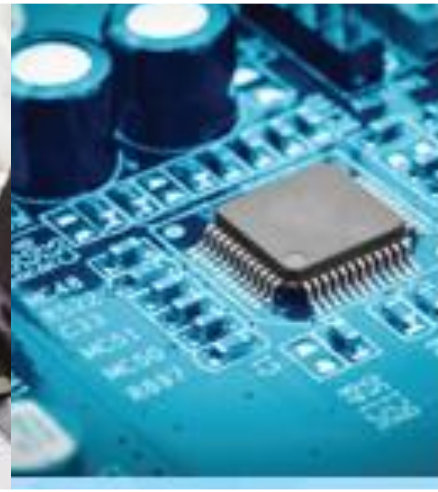

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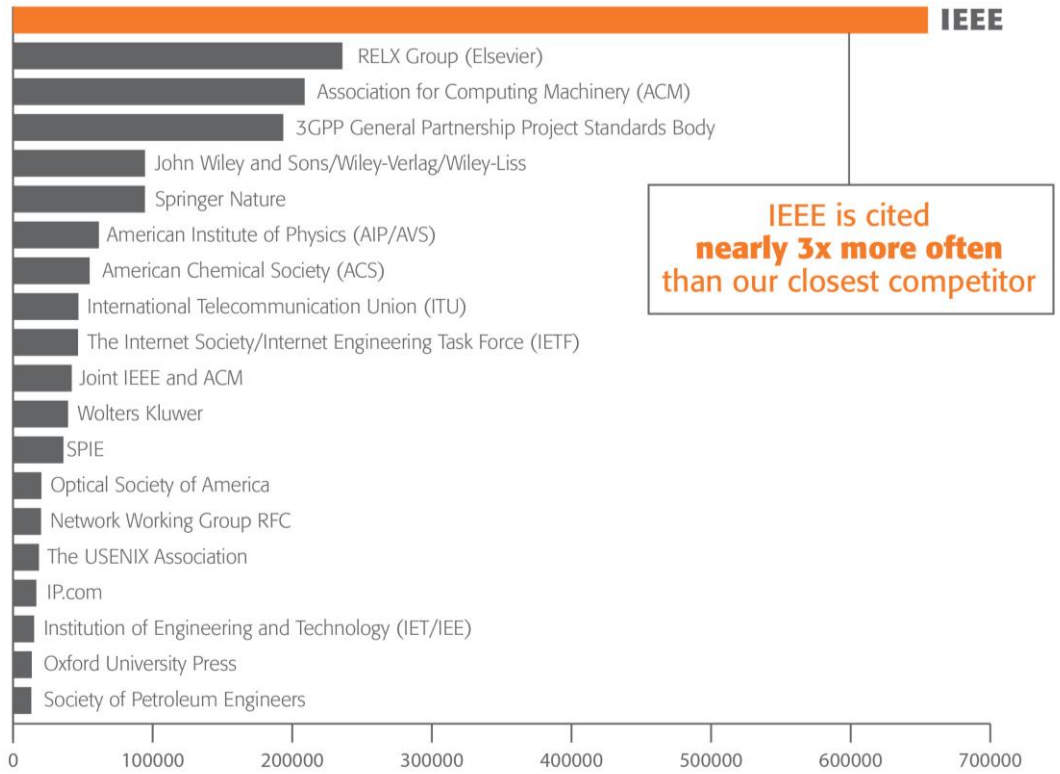

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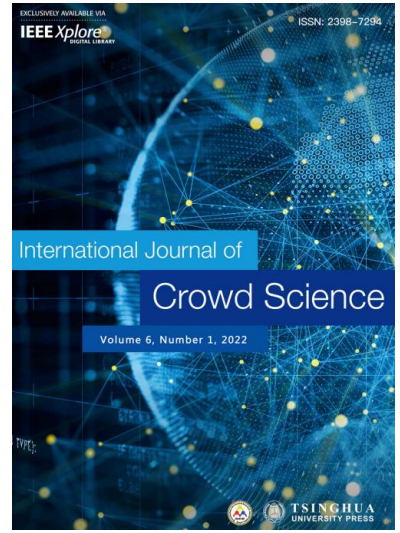

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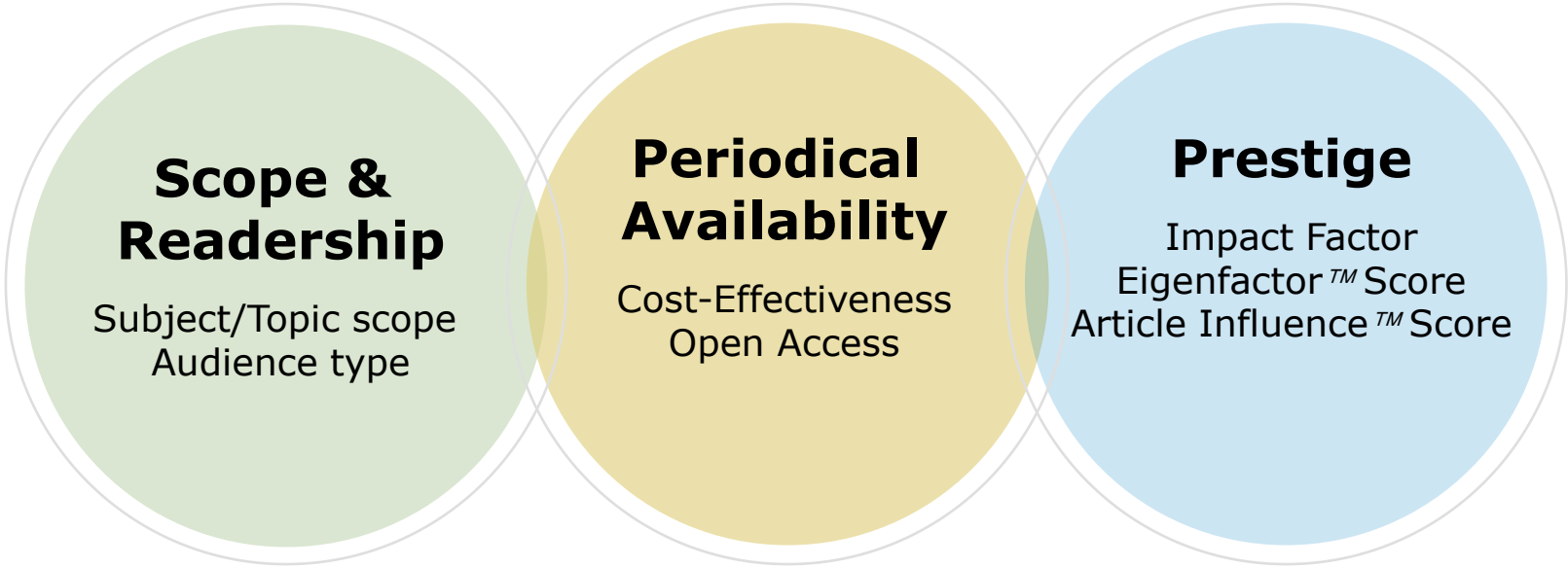

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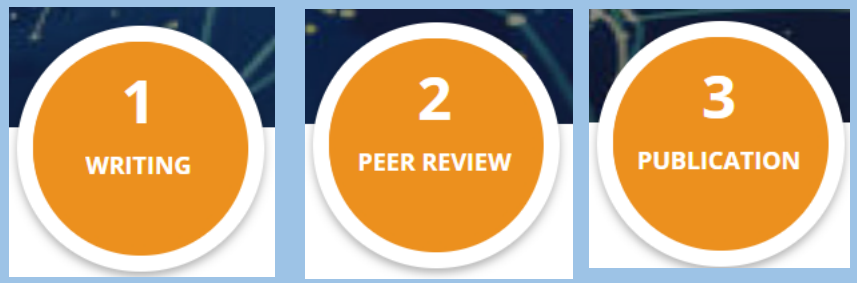

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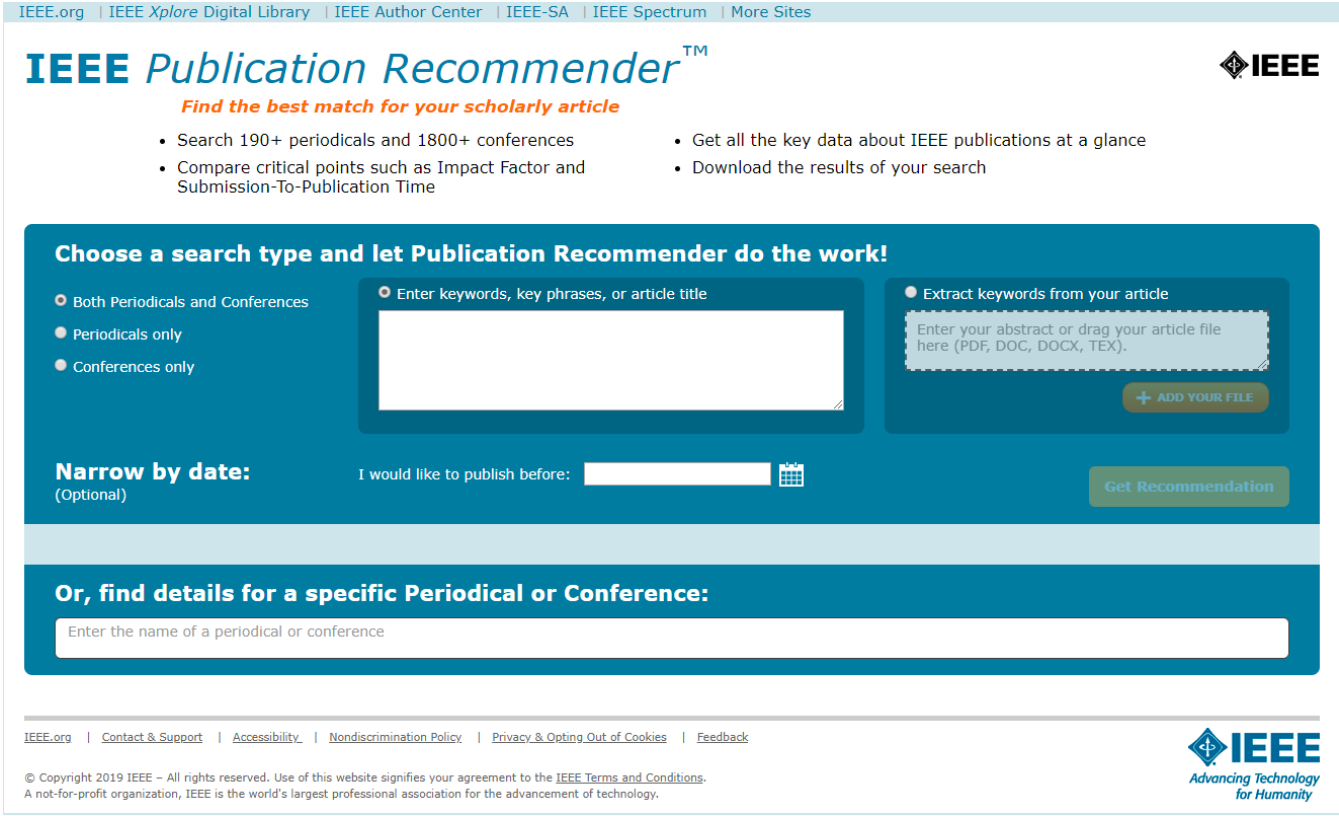

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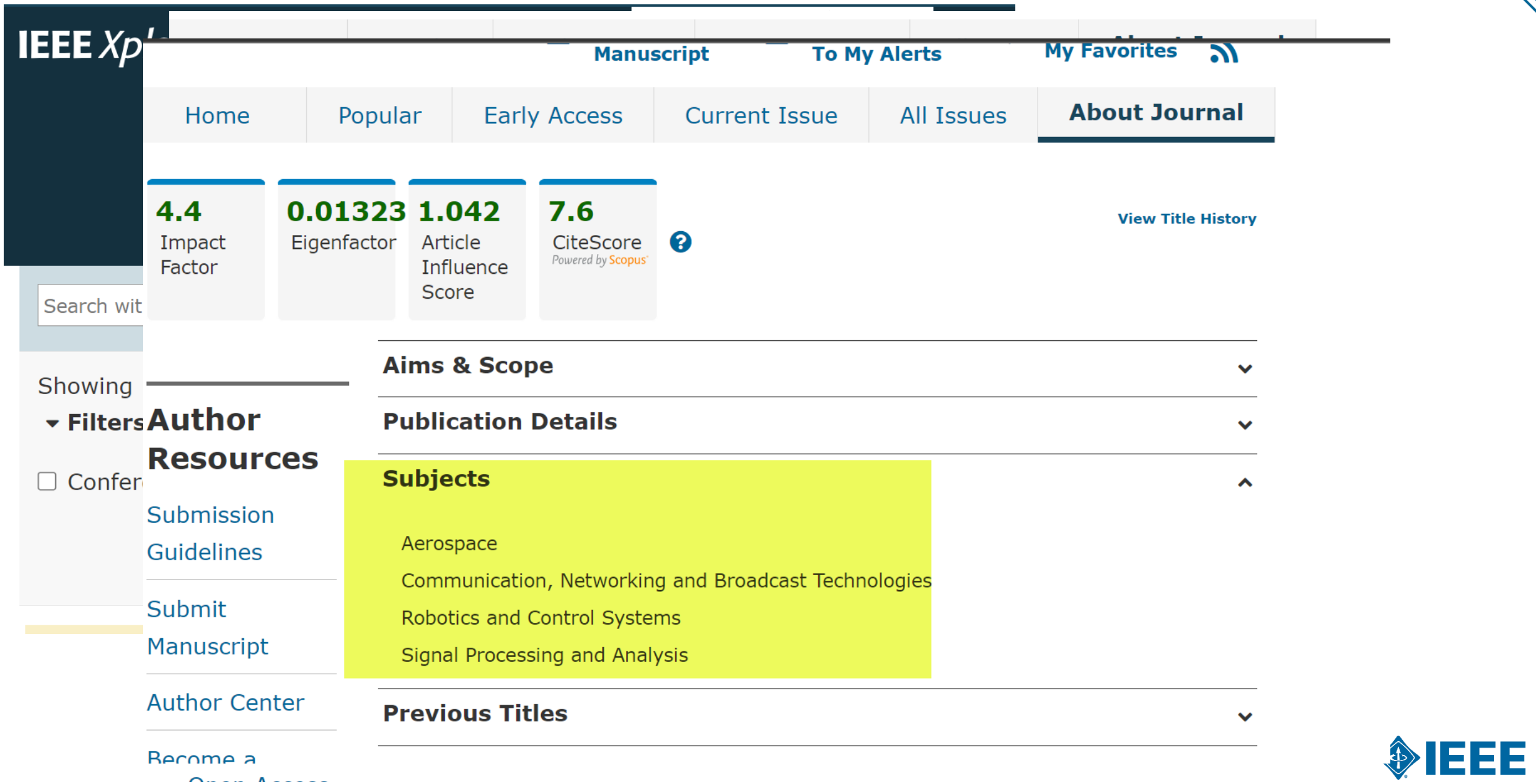
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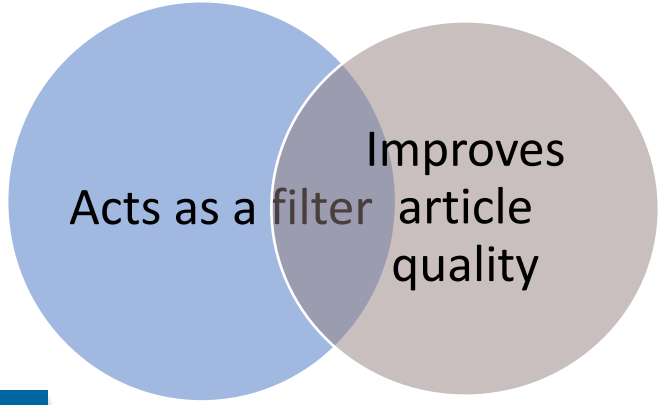

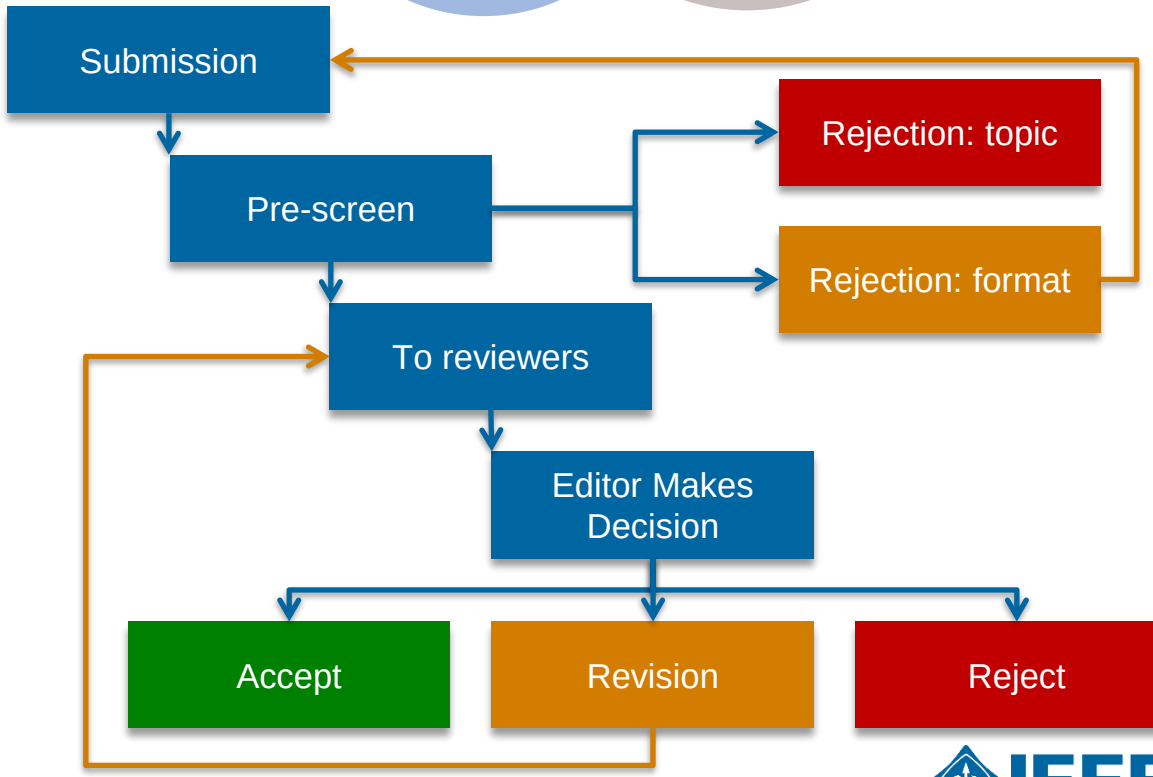

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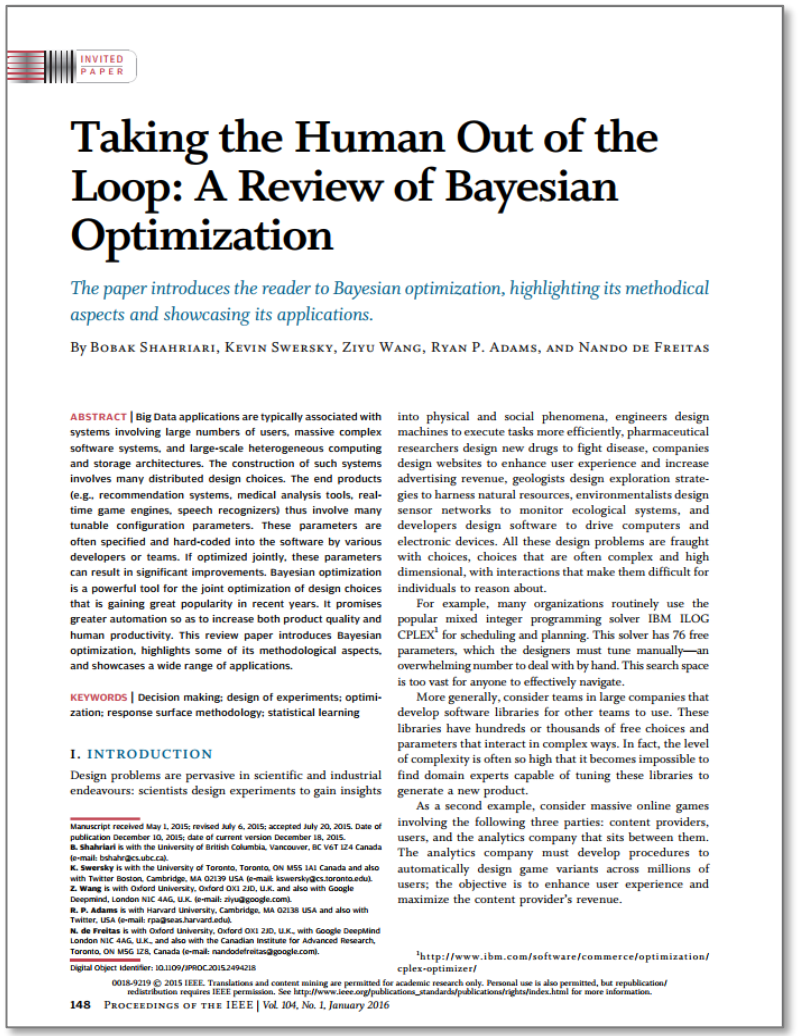

INVITED PAPER

Taking the Human Out of the Loop: A Review of Bayesian Optimization

The paper introduces the reader to Bayesian optimization, highlighting its methodical aspects and showcasing its applications.

By Bobak Shahriari, Kevin Swersky, Ziyu Wang, Ryan P. Adams, and Nando de Freitas

ABSTRACT | Big Data applications are typically associated with systems involving large numbers of users, massive complex software systems, and large-scale heterogeneous computing and storage architectures. The construction of such systems involves many distributed design choices. The end products (e.g., recommendation systems, medical analysis tools, real-time game engines, speech recognizers) thus involve many tunable 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 of design choices that is gaining great popularity in recent years. It promises greater automation so as to increase both product quality and human productivity. This review paper introduces Bayesian optimization, highlights some of its methodological aspects, and showcases a wide range of applications.

KEYWORDS | Decision making; design of experiments; optimization; response surface methodology; statistical learning

I. INTRODUCTION

Design problems are pervasive in scientific and industrial endeavours: scientists design experiments to gain insights into physical and social phenomena, engineers design machines to execute tasks more efficiently, pharmaceutical researchers design new drugs to fight disease, companies design websites to enhance user experience and increase advertising revenue, geologists design exploration strategies to harness natural resources, environmentalists design sensor networks to monitor ecological systems, and developers design software to drive computers and electronic devices. All these design problems are fraught with choices, choices that are often complex and high dimensional, with interactions that make them difficult for individuals to reason about.

For example, many organizations routinely use the popular mixed integer programming solver IBM ILOG CPLEX[1] for scheduling and planning. This solver has 76 free parameters, which the designers must tune manually—an overwhelming number to deal with by hand. This search space is too vast for anyone to effectively navigate.

More generally, consider teams in large companies that develop software libraries for other teams to use. These libraries have hundreds or thousands of free choices and parameters that interact in complex ways. In fact, the level of complexity is often so high that it becomes impossible to find domain experts capable of tuning these libraries to generate a new product.

As a second example, consider massive online games involving the following three parties: content providers, users, and the analytics company that sits between them. The analytics company must develop procedures to automatically design game variants across millions of users; the objective is to enhance user experience and maximize the content provider's revenue.

Manuscript received May 1, 2015; revised July 6, 2015; accepted July 20, 2015. Date of publication December 10, 2015; date of current version December 18, 2015.
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[1]http://www.ibm.com/software/commerce/optimization/cplex-optimizer/

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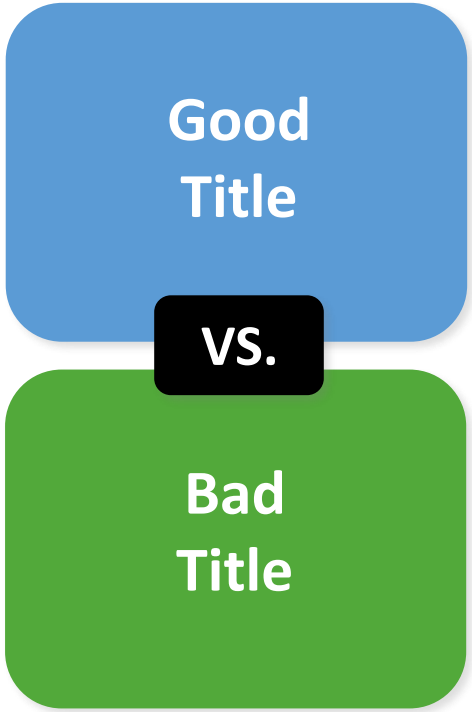

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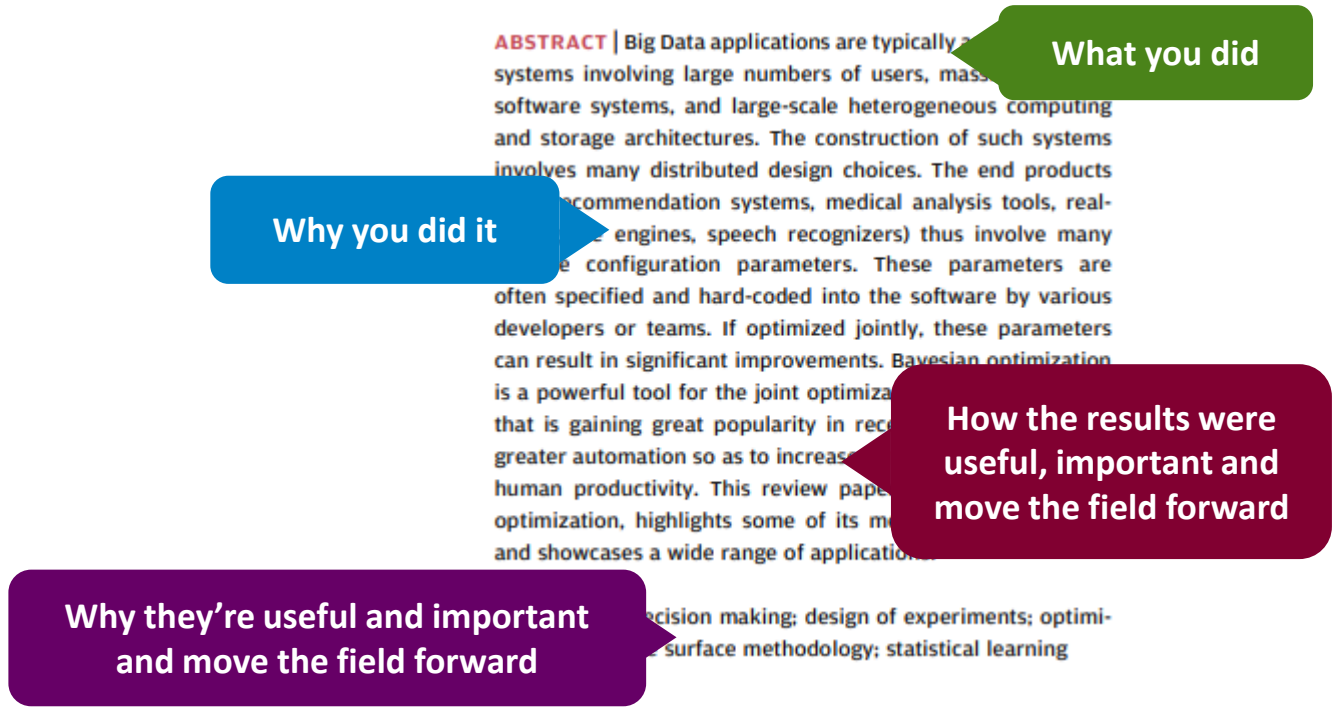

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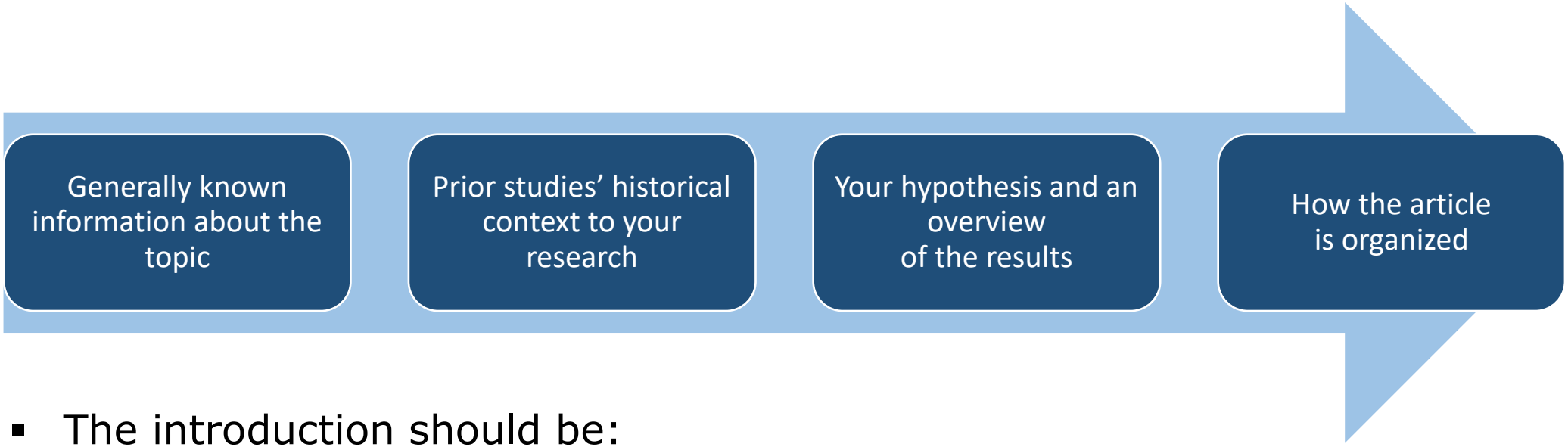

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- Problem formulation and the processes used to solve the problem, prove or disprove the hypothesis
- Use illustrations to clarify ideas and support conclusions

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

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Quickly show ideas/conclusions that would require detailed explanations

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Show relationships between data points or trends in data

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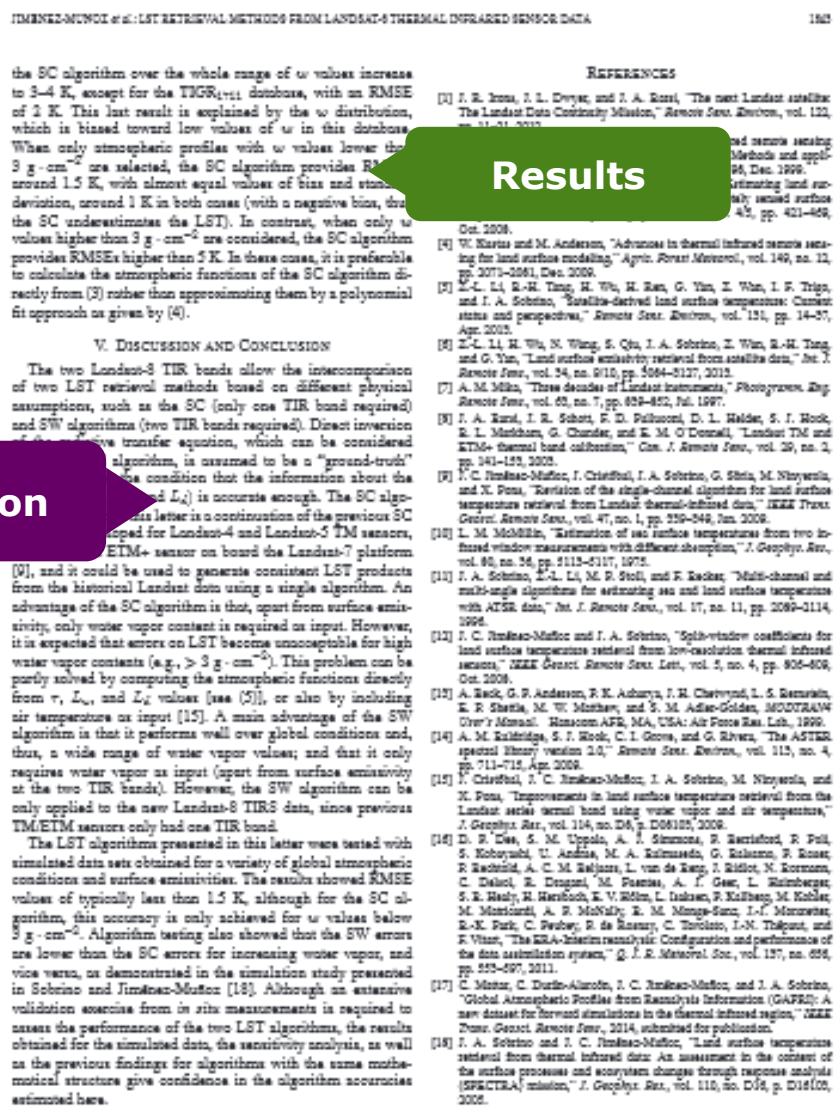
Demonstrate that you solved the problem or made significant advances

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



JIMÉNEZ-MUÑOZ *et al.*: LST RETRIEVAL METHODS FROM LANDSAT-8 THERMAL INFRARED SENSOR DATA 1843

the SC algorithm over the whole range of w values increase to 3–4 K, except for the $TIGR_{[+1]}$ 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 g · 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, thus the SC underestimates the LST). In contrast, when only w values higher than 3 g · 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 reference algorithm, is assumed to be a "ground-truth" method, under the condition that the information about the atmosphere (τ, $L_\uparrow$, and $L_\downarrow$) is accurate enough. The SC algorithm in this letter is a continuation of the previous SC algorithm developed for Landsat-4 and Landsat-5 TM sensors, and 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 g · cm^{-2}). This problem can be partly solved by computing the atmospheric functions directly from τ, $L_\uparrow$, and $L_\downarrow$ 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 g · 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 Jiménez-Muñoz [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. Irons, J. L. Dwyer, and J. A. Barsi, "The next Landsat satellite: The Landsat Data Continuity Mission," *Remote Sens. Environ.*, vol. 122, pp. 11–21, 2012.

[4] W. Kustas and M. Anderson, "Advances in thermal infrared remote sensing for land surface modeling," *Agric. Forest Meteorol.*, vol. 149, no. 12, pp. 2071–2081, Dec. 2009.

[5] Z.-L. Li, R.-H. Tang, H. Wu, H. Ren, G. Yan, Z. Wan, I. F. Trigo, and J. A. Sobrino, "Satellite-derived land surface temperature: Current status and perspectives," *Remote Sens. Environ.*, vol. 131, pp. 14–37, Apr. 2013.

[6] Z.-L. Li, H. Wu, N. 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. 3084–3127, 2013.

[7] A. M. Mika, "Three decades of Landsat instruments," *Photogramm. Eng. Remote Sens.*, vol. 63, no. 7, pp. 839–852, Jul. 1997.

[8] J. A. Barsi, J. R. Schott, F. D. Palluconi, D. L. Helder, S. J. Hook, B. L. Markham, G. Chander, and E. M. O'Donnell, "Landsat TM and ETM+ thermal band calibration," *Can. J. Remote Sens.*, vol. 29, no. 2, pp. 141–153, 2003.

[9] J. C. Jiménez-Muñoz, J. Cristóbal, J. A. Sobrino, G. Sòria, 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. 339–349, Jan. 2009.

[10] L. M. McMillin, "Estimation of sea surface temperatures from two infrared window measurements with different absorption," *J. Geophys. Res.*, vol. 80, no. 36, pp. 5113–5117, 1975.

[11] 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. 2089–2114, 1996.

[12] J. C. Jiménez-Muñoz 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. 806–809, Oct. 2008.

[13] A. Berk, G. P. Anderson, P. K. Acharya, J. H. Chetwynd, L. S. Bernstein, E. P. Shettle, M. W. Matthew, and S. M. Adler-Golden, *MODTRAN4 User's Manual*. Hanscom AFB, MA, USA: Air Force Res. Lab., 1999.

[14] A. M. Baldridge, S. J. Hook, C. I. Grove, and G. Rivera, "The ASTER spectral library version 2.0," *Remote Sens. Environ.*, vol. 113, no. 4, pp. 711–715, Apr. 2009.

[15] J. Cristóbal, J. C. Jiménez-Muñoz, 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. D8, p. D08103, 2009.

[16] D. P. Dee, S. M. Uppala, A. J. Simmons, P. Berrisford, P. Poli, S. Kobayashi, U. Andrae, M. A. Balmaseda, G. Balsamo, P. Bauer, P. Bechtold, A. C. M. Beljaars, L. van de Berg, J. Bidlot, N. Bormann, C. Delsol, R. Dragani, M. Fuentes, A. J. Geer, L. Haimberger, S. B. Healy, H. Hersbach, E. V. Hólm, L. Isaksen, P. Kållberg, M. Köhler, M. Matricardi, A. P. McNally, B. M. Monge-Sanz, J.-J. Morcrette, B.-K. Park, C. Peubey, P. de Rosnay, C. Tavolato, J.-N. Thépaut, and F. Vitart, "The ERA-Interim reanalysis: Configuration and performance of the data assimilation system," *Q. J. R. Meteorol. Soc.*, vol. 137, no. 656, pp. 553–597, 2011.

[17] C. Motter, C. Durfee-Aircoln, J. C. Jiménez-Muñoz, and J. A. Sobrino, "Global Atmospheric Profiles from Reanalysis Information (GAPRI): A new dataset for forward simulations in the thermal infrared region," *IEEE Trans. Geosci. Remote Sens.*, 2014, submitted for publication.

[18] J. A. Sobrino and J. C. Jiménez-Muñoz, "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. 110, no. D16, p. D16103, 2005.

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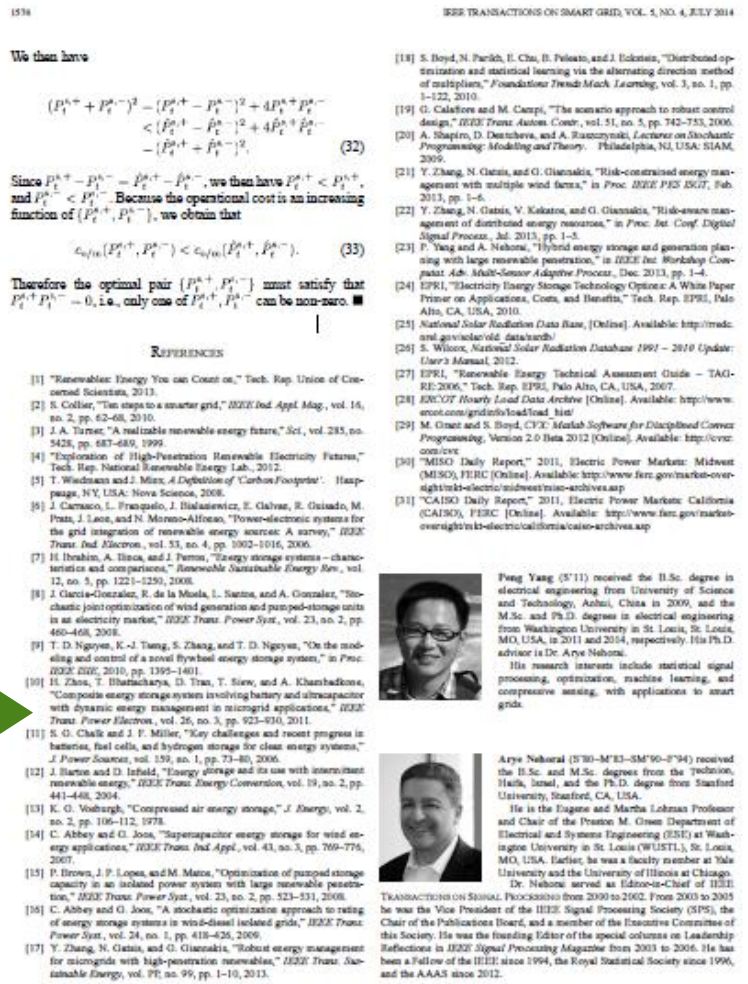

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We then have

$$(P_t^{h+}+P_t^{h-})^2-(P_t^{h+}-P_t^{h-})^2+4P_t^{h+}P_t^{h-} < (\hat{P}_t^{h+}-\hat{P}_t^{h-})^2+4\hat{P}_t^{h+}\hat{P}_t^{h-} -(\hat{P}_t^{h+}+\hat{P}_t^{h-})^2. \quad (32)$$

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

$$c_{o/m}(P_t^{h+},P_t^{h-})<c_{o/m}(\hat{P}_t^{h+},\hat{P}_t^{h-}). \quad (33)$$

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

REFERENCES

[1] "Renewables: 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. Wiedmann and J. Minx, *A Definition of 'Carbon Footprint'*. Hauppauge, NY, USA: Nova Science, 2008.
[6] J. Carrasco, L. Franquelo, J. Bialasiewicz, E. Galvan, R. Guisado, M. Prats, J. Leon, 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. Ilinca, and J. Perron, "Energy storage systems – characteristics and comparisons," *Renewable Sustainable Energy Rev.*, vol. 12, no. 5, pp. 1221–1250, 2008.
[8] J. Garcia-Gonzalez, R. de la Muela, L. Santos, 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. Tseng, S. Zhang, and T. D. Nguyen, "On the modeling and control of a novel flywheel energy storage system," in *Proc. IEEE IIEC*, 2010, pp. 1395–1401.
[10] H. Zhou, T. Bhattacharya, D. Tran, T. Siew, and A. Khambadkone, "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. Chalk 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. Barton 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. O. Yoxburgh, "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. 418–426, 2009.
[17] Y. Zhang, N. Gatsis, and G. Giannakis, "Robust energy management for microgrids with high-penetration renewables," *IEEE Trans. Sustainable Energy*, vol. PP, 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. 1–122, 2010.
[19] G. Calafiore 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 ISGT*, Feb. 2013, pp. 1–6.
[22] Y. Zhang, N. Gatsis, V. Kekatos, 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://rredc.nrel.gov/solar/old_data/nsrdb/
[26] S. Wilcox, *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] *ERCOT Hourly Load Data Archive* [Online]. Available: http://www.ercot.com/gridinfo/load/load_hist/
[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), FERC [Online]. Available: http://www.ferc.gov/market-oversight/mkt-electric/midwest/miso-archives.asp
[31] "CAISO Daily Report," 2011, Electric Power Markets: California (CAISO), FERC [Online]. Available: http://www.ferc.gov/market-oversight/mkt-electric/california/caiso-archives.asp

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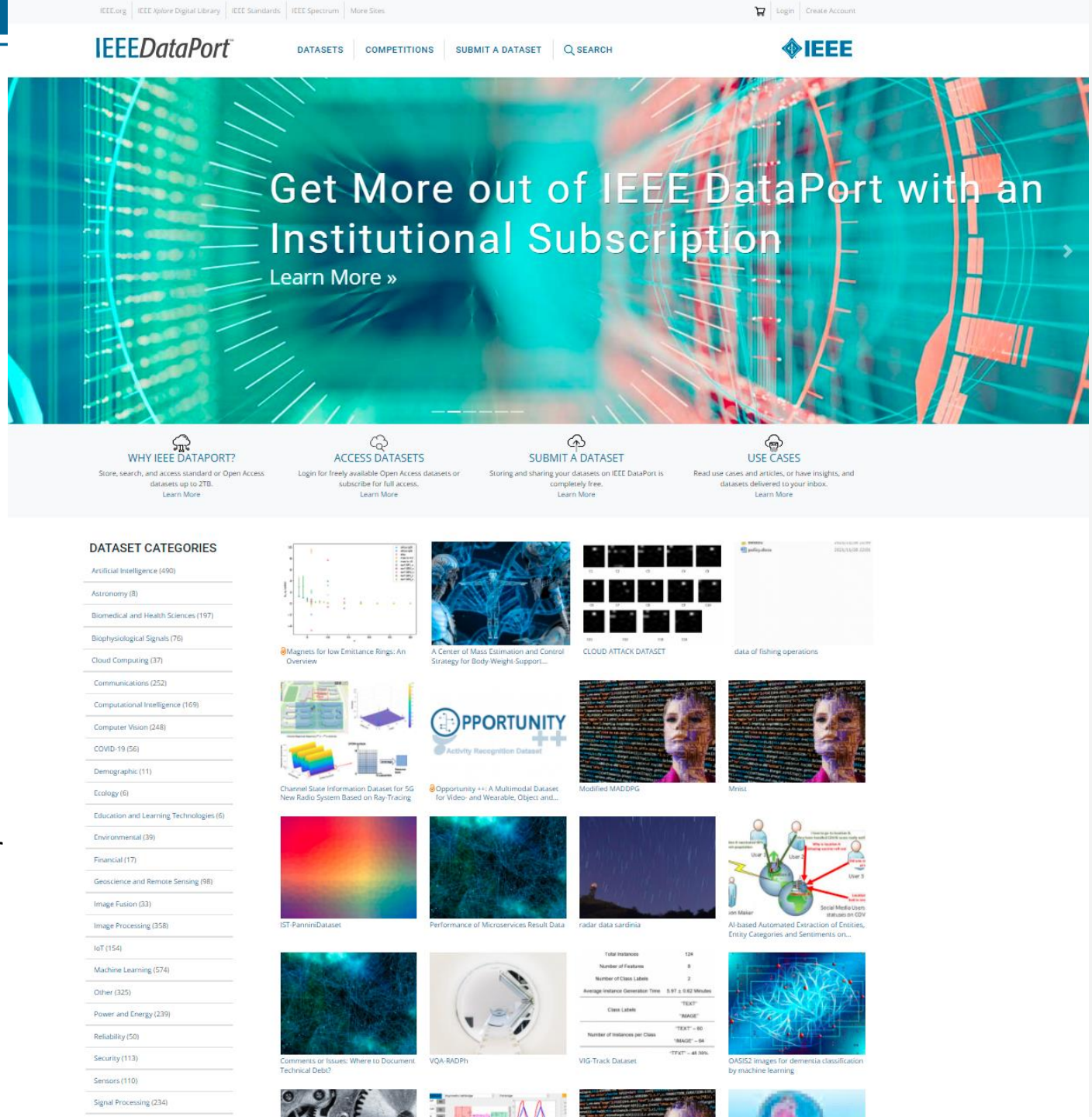

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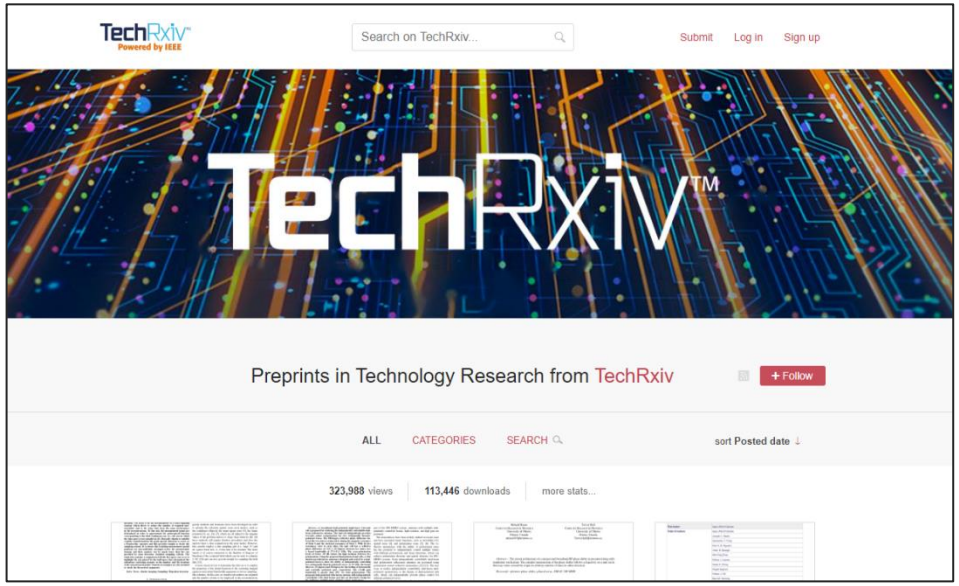

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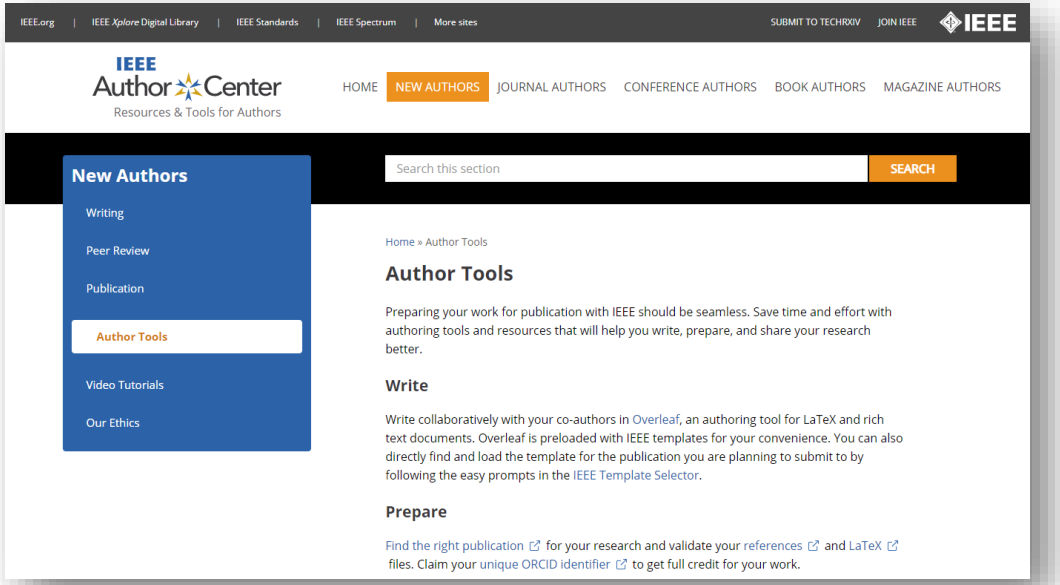

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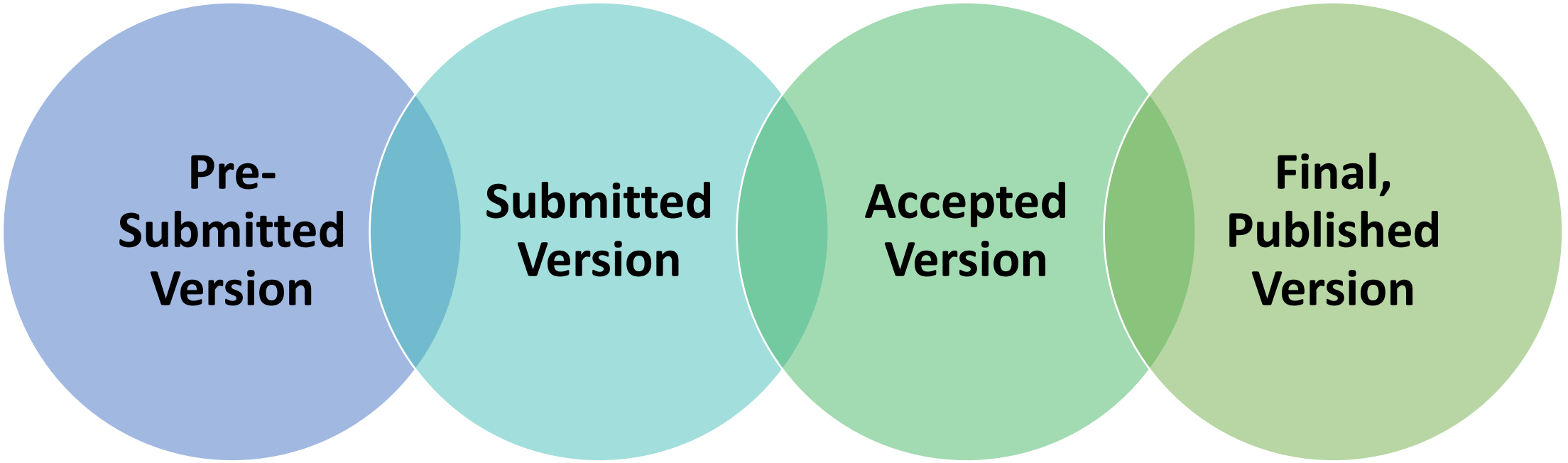

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