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Eszter Lukács
IEEE Client Services Manager
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Peter the Great St. Petersburg State Polytechnic University

IEEE

About the IEEE

- A not-for-profit society
- World's largest technical membership association with over 415,000 members in 160 countries
- Five core areas of activity
  - Publishing
  - Conferences
  - Standards
  - Membership
  - E-learning

IEEE's Mission

IEEE's core purpose is to foster technological innovation and excellence for the benefit of humanity

Career Development Resources and Opportunities for student members

IEEE Job Sites and Career Alerts

- Locate career opportunities easily and confidentially
- Weekly email newsletter containing career advice

IEEE Xplore

- Learn to use IEEE Xplore for company, career, and job related searches

Awards, Fellowships & Scholarships

- Recognizes the accomplishments of IEEE members
- Enhance your resume with an IEEE award

Conferences

- Networking and Presenting Opportunities
- Student Paper Contests

Prestigious Student Competitions

Worldwide, 24-hour programming challenge
for IEEE Student Branches

Teams of student members, advised and proctored by an IEEE Member, compete in a 24-hour time span against each other to solve a set of programming problems.

Top prize is a trip
anywhere in the world
to the IEEE event of the top team's choice!

Teams registered in 2013:

1,838

IEEE covers all areas of technology

More than just electrical engineering & computer science

MACHINE LEARNING

BIG DATA

OPTICS

RENEWABLE ENERGY

SEMICONDUCTORS

SMART GRID

IMAGING

NANOTECHNOLOGY

SIGNAL PROCESSING

AEROSPACE

COMMUNICATIONS

HUMAN-CENTERED INFORMATICS

BIOMEDICAL ENGINEERING

ELECTRONICS

NEXT GEN WIRELESS

CIRCUITS

CLOUD COMPUTING

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ELECTROMAGNETICS

IEEE

Full text content from all 38 IEEE Societies

- IEEE Aerospace and Electronic Systems Society
- IEEE Antennas and Propagation Society
- IEEE Broadcast Technology Society
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- IEEE Computational Intelligence Society
- IEEE Computer Society
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- IEEE Robotics and Automation Society
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- IEEE Society on Social Implications of Technology
- IEEE Solid-State Circuits Society
- IEEE Systems, Man, and Cybernetics Society
- IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society
- IEEE Vehicular Technology Society

IEEE

IEEE quality makes an impact

Thomson Reuters Journal Citation Reports® by Impact Factor

IEEE publishes:

19 of the top 20 journals in Electrical and Electronic Engineering

18 of the top 20 journals in Telecommunications

7 of the top 10 journals in Automation & Control Systems

6 of the top 10 journals in Computer Science, Hardware & Architecture

4 of the top 5 journals in Cybernetics

3 of the top 5 journals in Artificial Intelligence

2 of the top 5 journals in Robotics

The Thomson Reuters Journal Citation Reports presents quantifiable statistical data that provides a systematic, objective way to evaluate the world's leading journals.

Based on the 2013 study released June 2014

More info: www.ieee.org/citations

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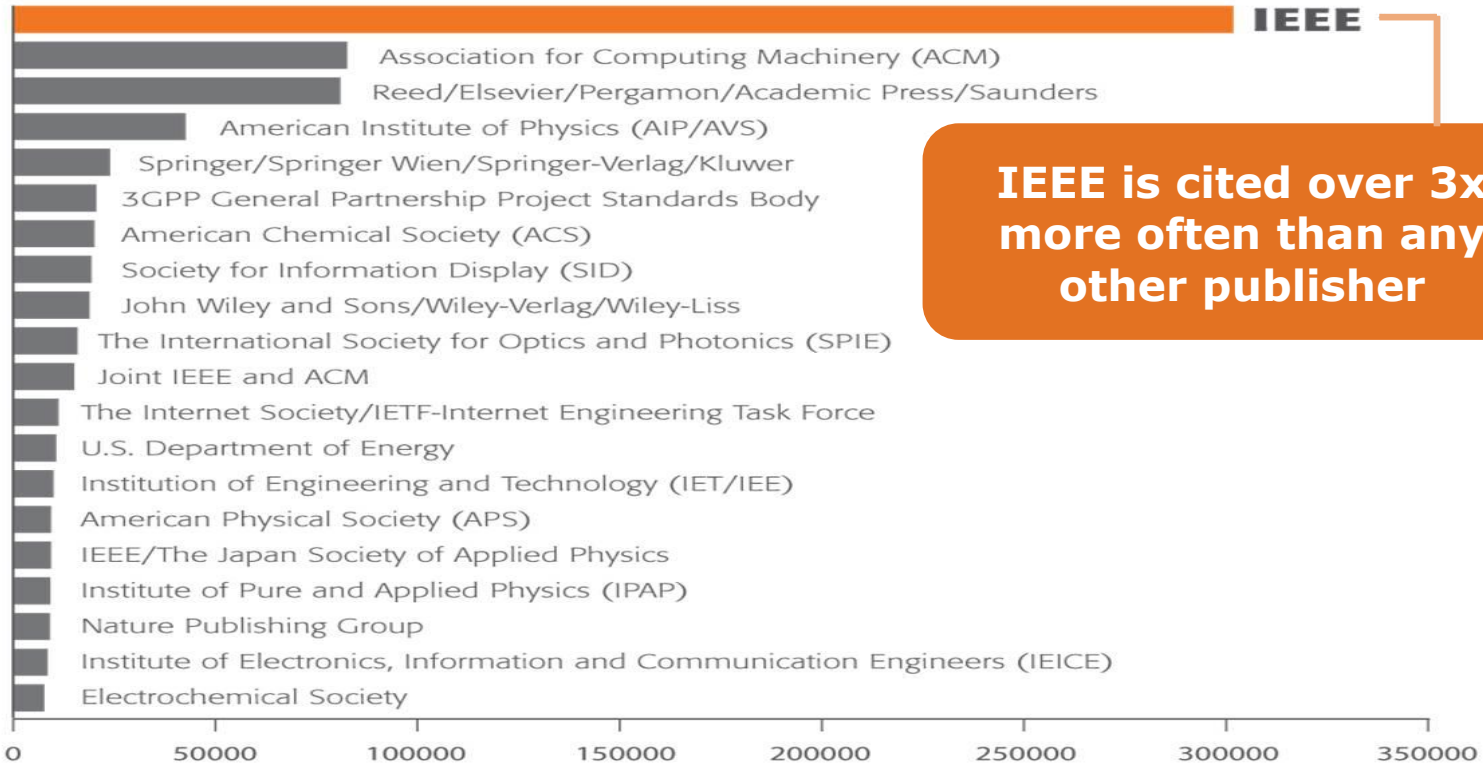
- More than 2800 IEEE standards (active, archived. redlines) + IEEE Standard Dictionary
- 20 IET conferences, 26 IET journals & magazines

- NEW! Bell Labs Technical Journal (BLTJ) back to 1922
- Inspec index records for all articles
- Backfile to 1988, select legacy data back to 1872

IEEE Leads US Patent Citations

Top 20 Publishers Referenced Most Frequently by Top 40 Patenting Organizations



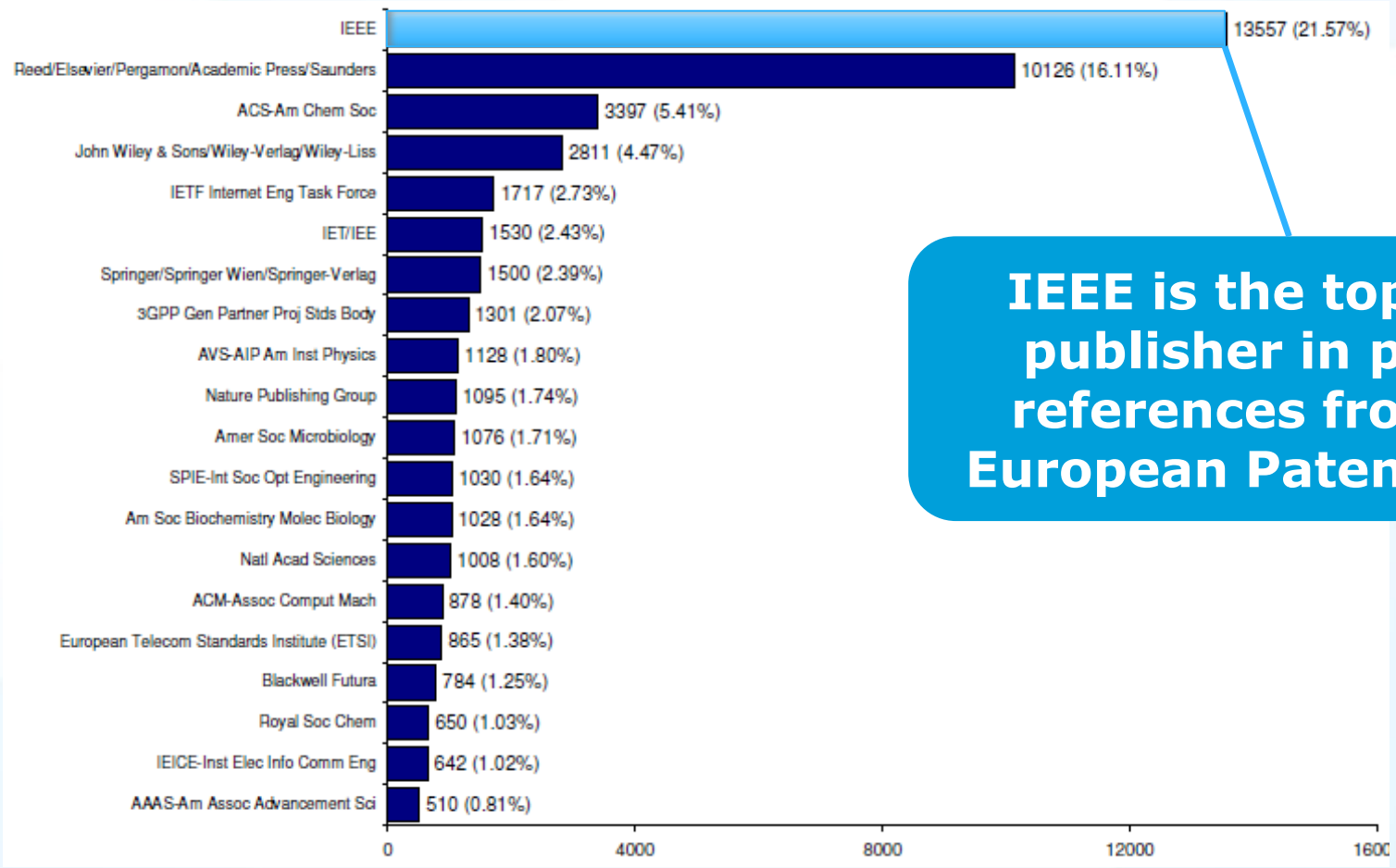
IEEE is cited over 3x more often than any other publisher

Source: 1790 Analytics LLC 2014. Based on number of references to papers/standards/conferences from 1997-2012

IEEE

IEEE Leads European Patent Citations

Top 20 Publishers Referenced Most Frequently in EPO Patents by Top 25 Patenting Organizations



IEEE is the top cited publisher in patent references from the European Patent Office

Source: 1790 Analytics LLC 2012, , Science References from 1997-2011

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New IEEE Journals Coming in 2015

- *IEEE Trans. on* ***Big Data***
- *IEEE Trans. on* ***Transportation Electrification***
- *IEEE Trans. on* ***Cognitive Communications and Networking***
- *IEEE Trans. on* ***Computational Imaging***
- *IEEE Trans. on* ***Molecular, Biological, and Multi-Scale Communications***
- *IEEE Trans.* ***on Multi-Scale Computing Systems***
- *IEEE Trans. on* ***Signal and Information Processing over Networks***
- *IEEE* ***Systems, Man, and Cybernetics*** *Magazine*

For a complete title listing, to go: http://ieeexplore.ieee.org/xpl/opacjrn.jsp

IEEE

Examples of New IEEE Conferences in 2014

- **Internet of Things** (WF-IoT), 2014 IEEE World Forum on
- **Humanitarian Technology** Conference, (IHTC), 2014 IEEE Canada International
- Aerospace Electronics and Remote Sensing Technology (ICARES), 2014 IEEE International Conference on
- Antenna Measurements & Applications (CAMA), 2014 IEEE Conference on
- Consumer Electronics, Taiwan (ICCE-TW), 2014 IEEE International Conference on
- Energy Conversion (CENCON), 2014 IEEE Conference on
- Ethics in Science, Technology and Engineering, 2014 IEEE International Symposium on
- **Transportation Electrification** Asia-Pacific (ITEC Asia-Pacific), 2014 IEEE Conference and Expo
- **Intelligent Energy** and Power Systems (IEPS), 2014 IEEE International Conference on
- Quantum Optics Workshop (QOW), 2014
- Sensor Systems for a Changing Ocean (SSCO), 2014 IEEE
- Wireless and Mobile, 2014 IEEE Asia Pacific Conference on
- Industrial Engineering and Information Technology (IEIT), 2014 International Conference on
- Guidance, Navigation and Control Conference (CGNCC), 2014 IEEE Chinese

IEEE

Examples of New IEEE Standards in 2014

IEEE 802®–2014—IEEE Standard for **Local and Metropolitan Area Networks**: Overview and Architecture

IEEE 1127™–2013—IEEE Guide for the Design, Construction, and Operation of **Electric Power Substations** for Community Acceptance and Environmental Compatibility

IEEE 1361™–2014 —IEEE Guide for Selecting, Charging, Testing, and Evaluating Lead-Acid Batteries Used in Stand-Alone **Photovoltaic (PV) Systems**

IEEE 1609.0™–2013 - IEEE Guide for **Wireless Access in Vehicular Environments** (WAVE) – Architecture

IEEE 1683™ -2014 - IEEE Guide for Motor Control Centers Rated up to and including 600 V AC or 1000 V DC with Recommendations Intended to Help **Reduce Electrical Hazards**

IEEE 1716™ –2014 - IEEE Recommended Practice for **Managing Natural Disaster Impact** on Key Electrical Systems and Installations in Petroleum and Chemical Facilities

IEEE 1782™–2014 - IEEE Guide for Collecting, Categorizing, and Utilizing Information Related to **Electric Power Distribution Interruption Events**

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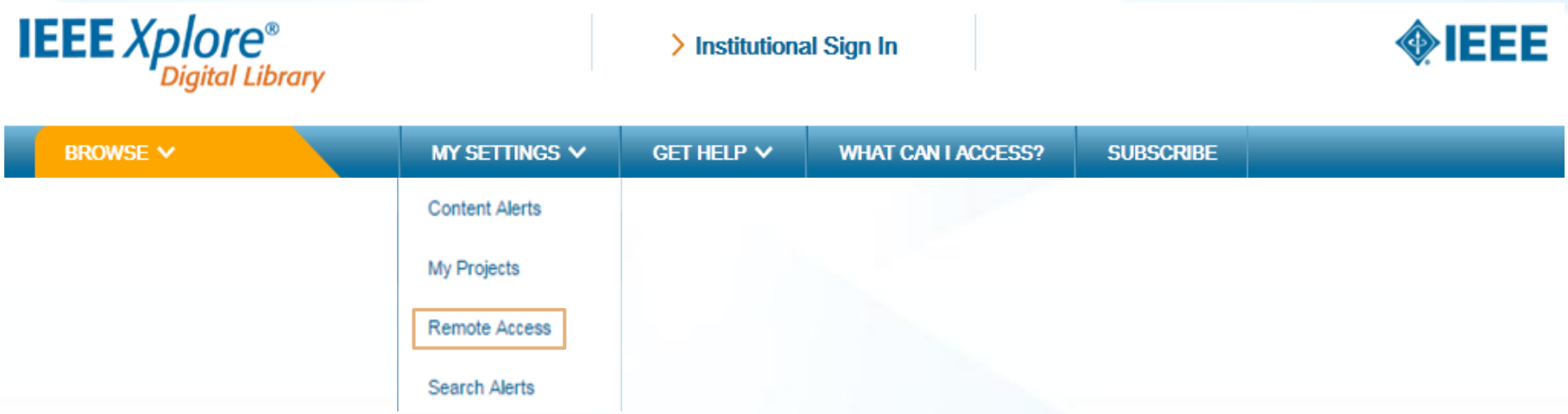

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BROWSE | MY SETTINGS | GET HELP | WHAT CAN I ACCESS?

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Search

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IEEE Access
The journal for rapid open access publishing

IEEE Access wins the 2015 PROSE Award

IEEE Access wins the subject category of "Journal/Best New STM (Scientific, Technical, and Medical) in the PROSE Awards, which annually recognize the very best in publishing by bringing attention to distinguished books,journals, and electronic content.

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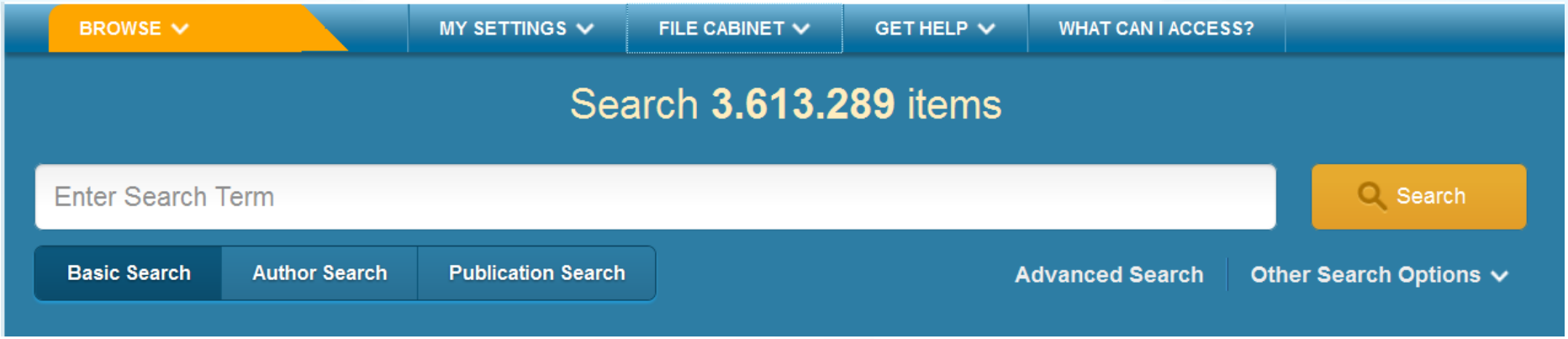
Basic Search Bar



- ANDs search terms
- Use quotes (“”) for an exact phrase
- Searching metadata only
- Automatic stemming
- Case insensitive
- Type-ahead (aka auto suggest) functionality

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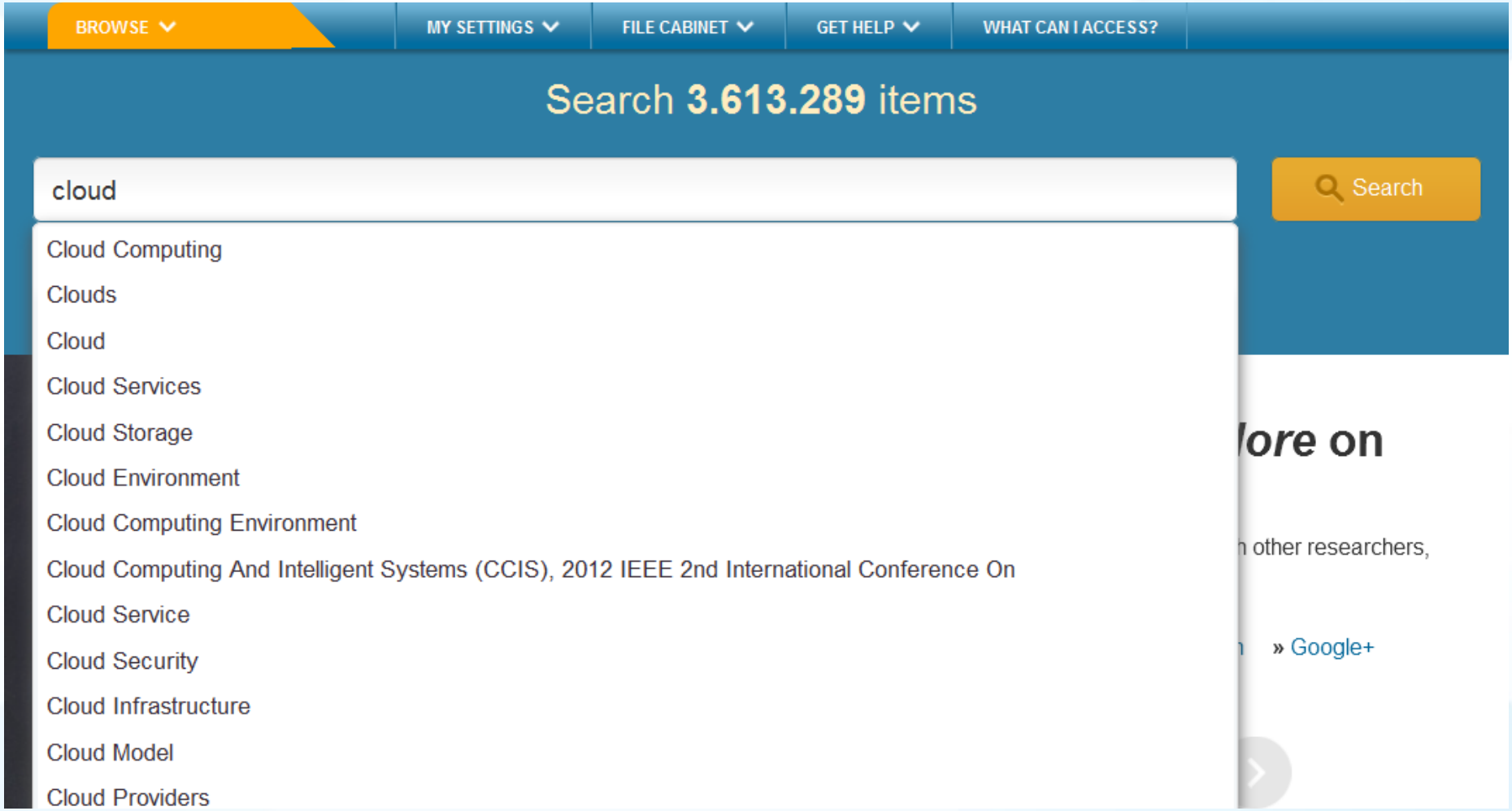
Type ahead from Basic Search



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From: 1931
To: 2013
SEARCH RESULTS
You searched for: ((("Author Affiliations":boeing) OR "Author Affiliations":raythec
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Aerospace Confe
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Quick
Real-time performance of fusion algorithms for computer aided detection and classification of bottom mines in the littoral environment
Ciany, C.M. ; Zurawski, W.C. ; Dobeck, G.J. ; Weilert, D.R.
OCEANS 2003. Proceedings
Volume: 2
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Address shown is from information saved in your preferences.
Saved Search Name *:
Query: You searched for: ((("Author Affiliations":boeing) OR "Author Affiliations":raytheon) OR "Author Affiliations":lockheed)
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Abstract Plus

In Fig. 10, we know that if $\mathcal{C}$ should have issued a query $X_B = \hat{e}(g^\gamma, sk_B)$ to the random oracle H_2, where $sk_B = ((g^\beta)^{\rho_B})^\alpha$, then

$$X_B^{(\rho_B)^{-1}} = \hat{e}(g^\gamma, ((g^\beta)^{\rho_B})^\alpha)^{(\rho_B)^{-1}} = \hat{e}(g,g)^{\alpha\beta\gamma}.$$

▼ TeX Source

```
$$X_{B}^{(\rho_{B})^{-1}} = \mathhat{e} (g^{\gamma},
((g^{\beta})^{\rho_{B}})^{\alpha})^{(\rho_{B})^{-1}} = \mathh          g)^{\alpha \beta
\gamma}.$$
```

It is the answer of the BDH instance $\langle g, g^\alpha, g^\beta, g^\gamma \rangle$.

In order to determine the advantage in (1), we use the technique in [5]. Suppose the adversary $\mathcal{C}$ has advantage $\epsilon_{\mathcal{C}}(k)$. Then the adversary against the BDH problem has following advantage:

$$\epsilon_{\mathrm{BDH}}(k) = \frac{\epsilon_{\mathcal{C}}(k)}{e(q_p + q_v + 1)},$$

▼ TeX Source

```
$$\epsilon_{\rm BDH}(k)= {\epsilon_{{\cal C}} (k)\over e(q_{p}+q_{v}+1)},$$
```

References & Citing Documents

4 Author(s)

Hyejin Son ; Sch. of Electr. Eng., Korea Univ., Seoul, South Korea ; Tae Yoon Kang ; Hwangnam Kim ; Jae Hyung Roh

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Showing 1-4 of 4 Results

Cited by IEEE

Citation Map

1. Mokhtari, G.; Zare, F.; Nourbakhsh, G.; Ghosh, A. "A new DER coordination in LV network based on the concept of distributed control", *Power Electronics for Distributed Generation Systems (PEDG), 2012 3rd IEEE International Symposium on,* On page(s): 1 - 8

   Abstract | Full Text: PDF (1825KB)

2. Hong Liu; Huansheng Ning; Yan Zhang; Guizani, M. "Battery Status-aware Authentication Scheme for V2G Networks in Smart Grid", *Smart Grid, IEEE Transactions on,* On page(s): 99 - 110 Volume: 4, Issue: 1, March 2013

   Abstract | Full Text: PDF (5064KB)

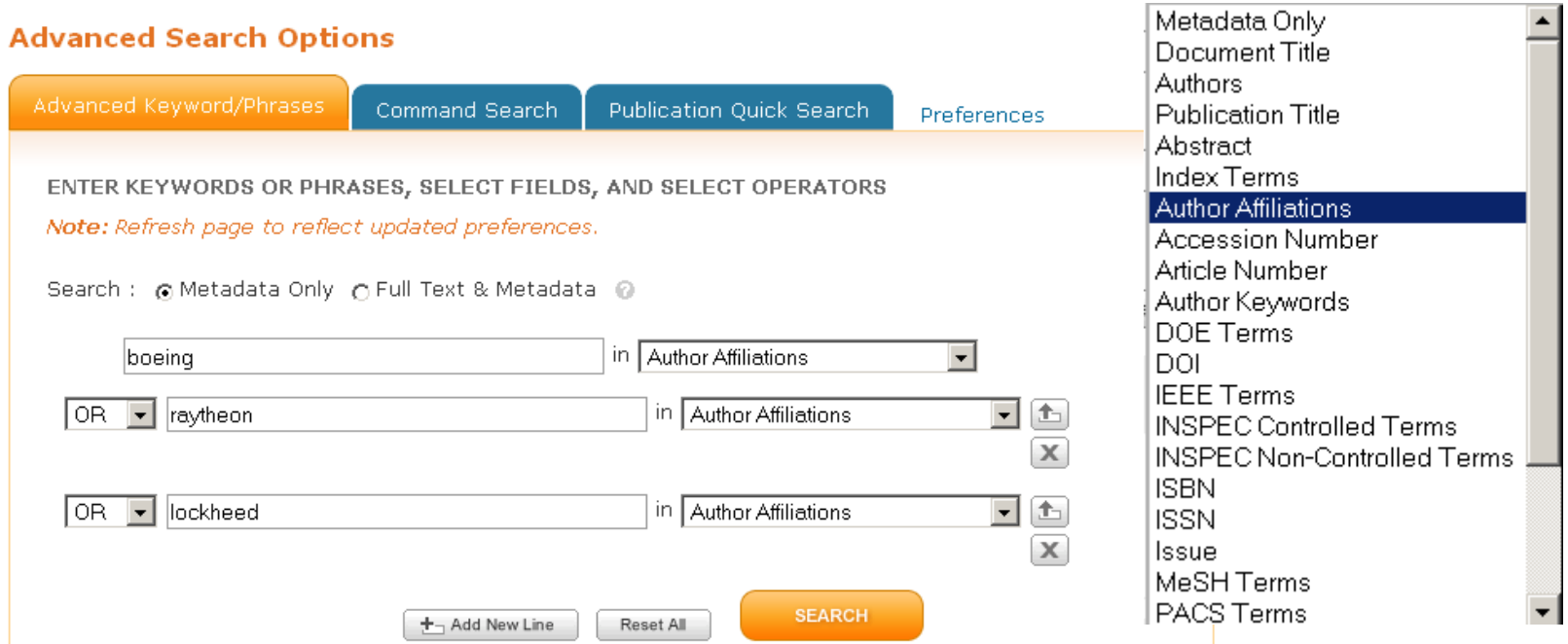
3. Hong Liu; Huansheng Ning; Yan Zhang; Yang, L.T. "Aggregated-Proofs Based Privacy-Preserving Authentication for V2G Networks in the Smart Grid", *Smart Grid, IEEE Transactions on,* On page(s): 1722 - 1733 Volume: 3, Issue: 4, Dec. 2012

   Abstract | Full Text: PDF (3894KB)

4. Taeyoon Kang; Hwangnam Kim "Preserving privacy with anonymity for customer collaboration in smart grid", *Communications (APCC), 2012 18th Asia-Pacific Conference on,* On page(s): 724 - 729

   Abstract | Full Text: PDF (157KB)

Advanced Search – Affiliation & Fields



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Search **3.613.289** items

Enter Search Term

Search

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- Command Search
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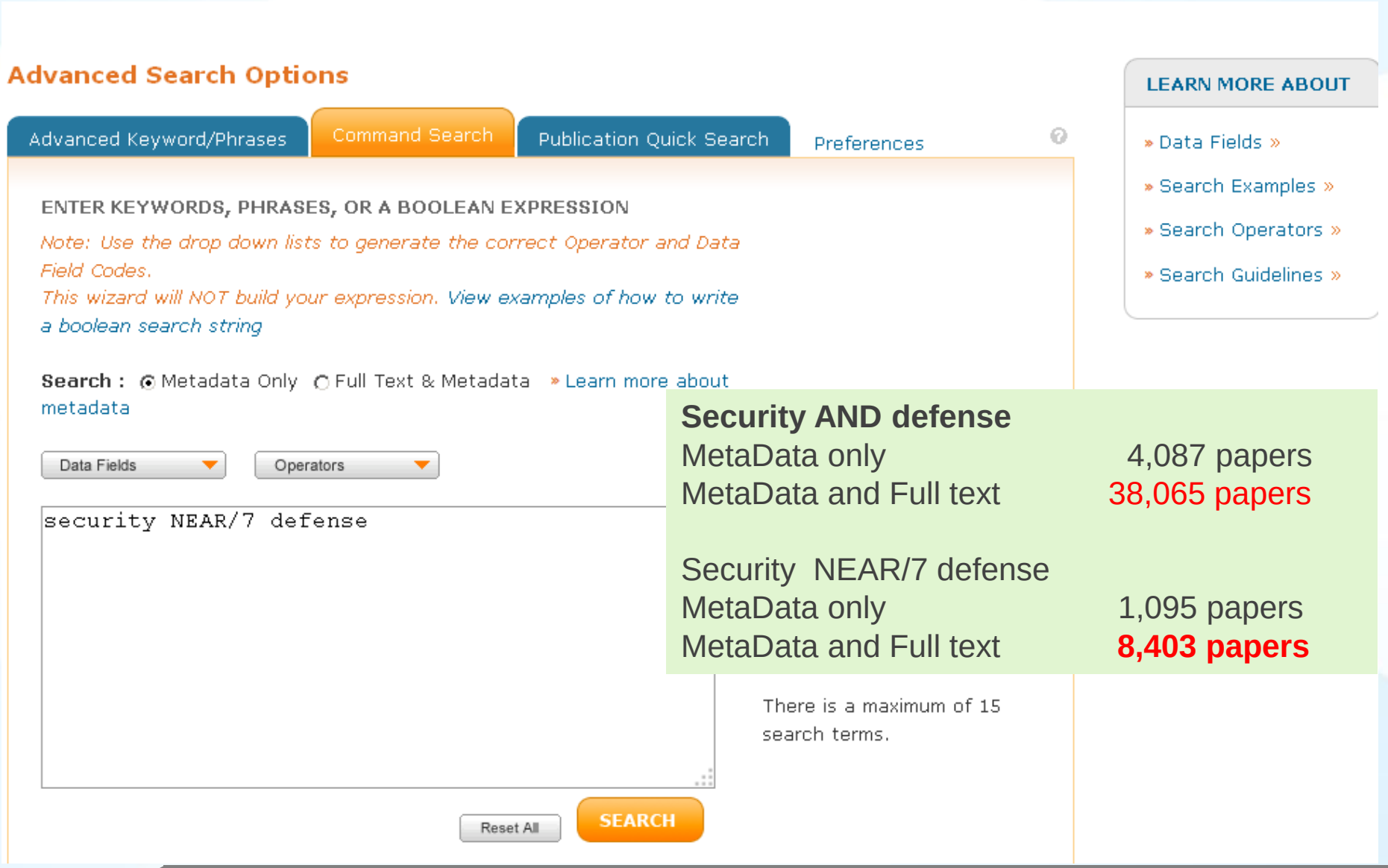
Top Technologies 2
Pepper the Robot

Interested in learning what the Top Technologies are for 2015? View the list, according to IEEE *Spectrum* and read more about Pepper the humanoid robot in IEEE *Xplore*.

IEEE

Command Search



Security AND defense

MetaData only	4,087 papers
MetaData and Full text	38,065 papers

Security NEAR/7 defense

MetaData only	1,095 papers
MetaData and Full text	**8,403 papers**

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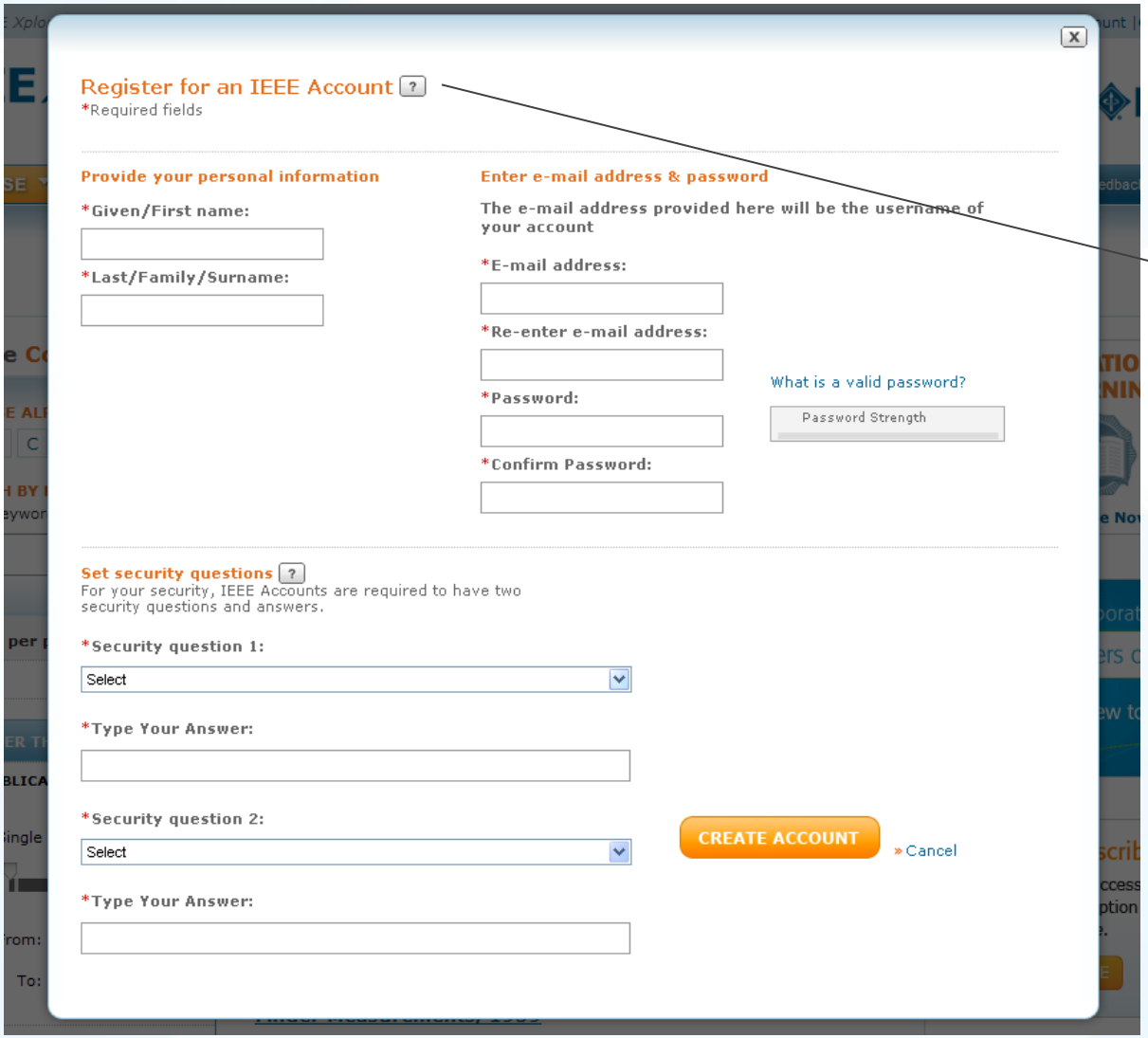
IEEE Personal Account Registration



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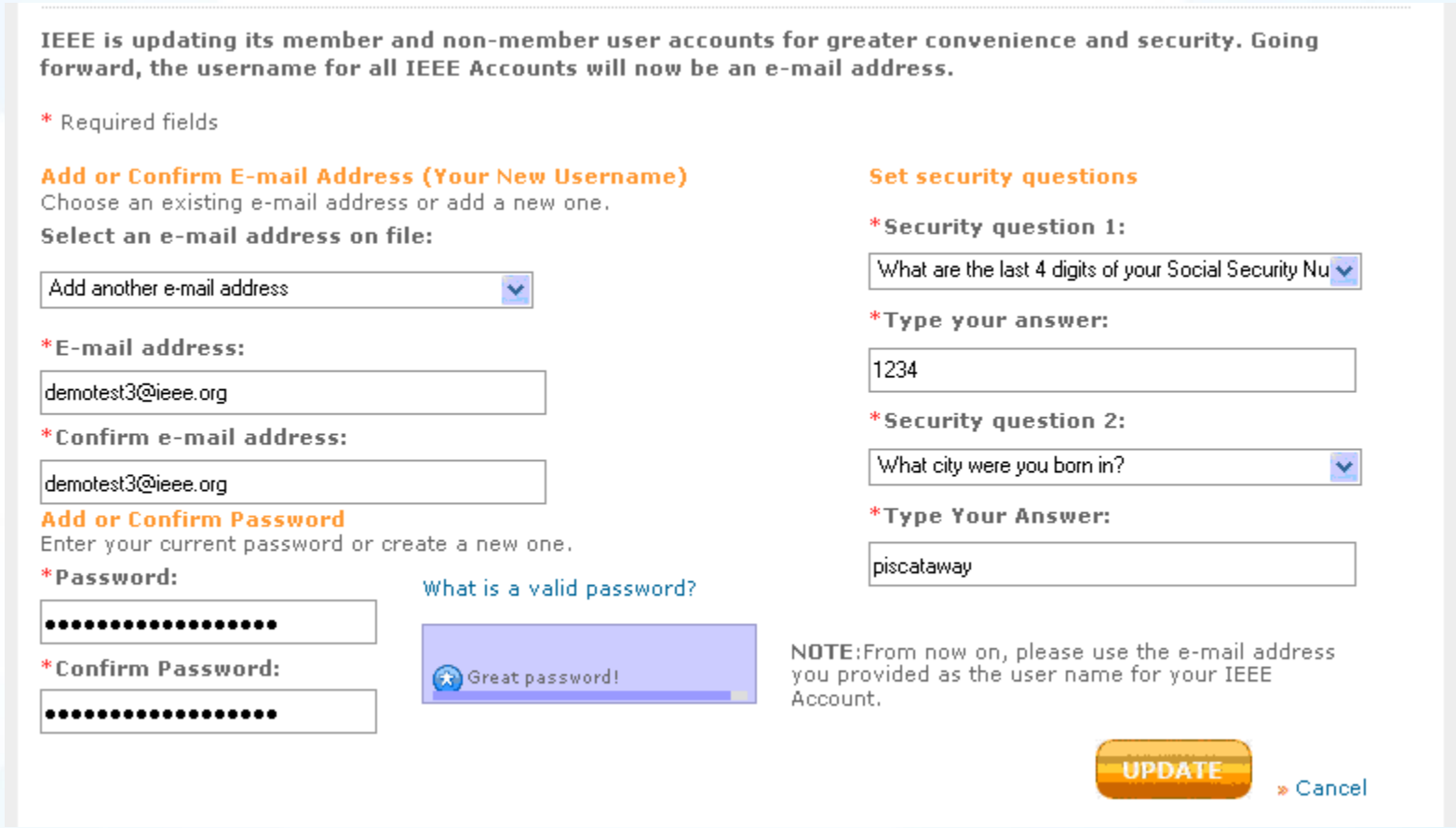

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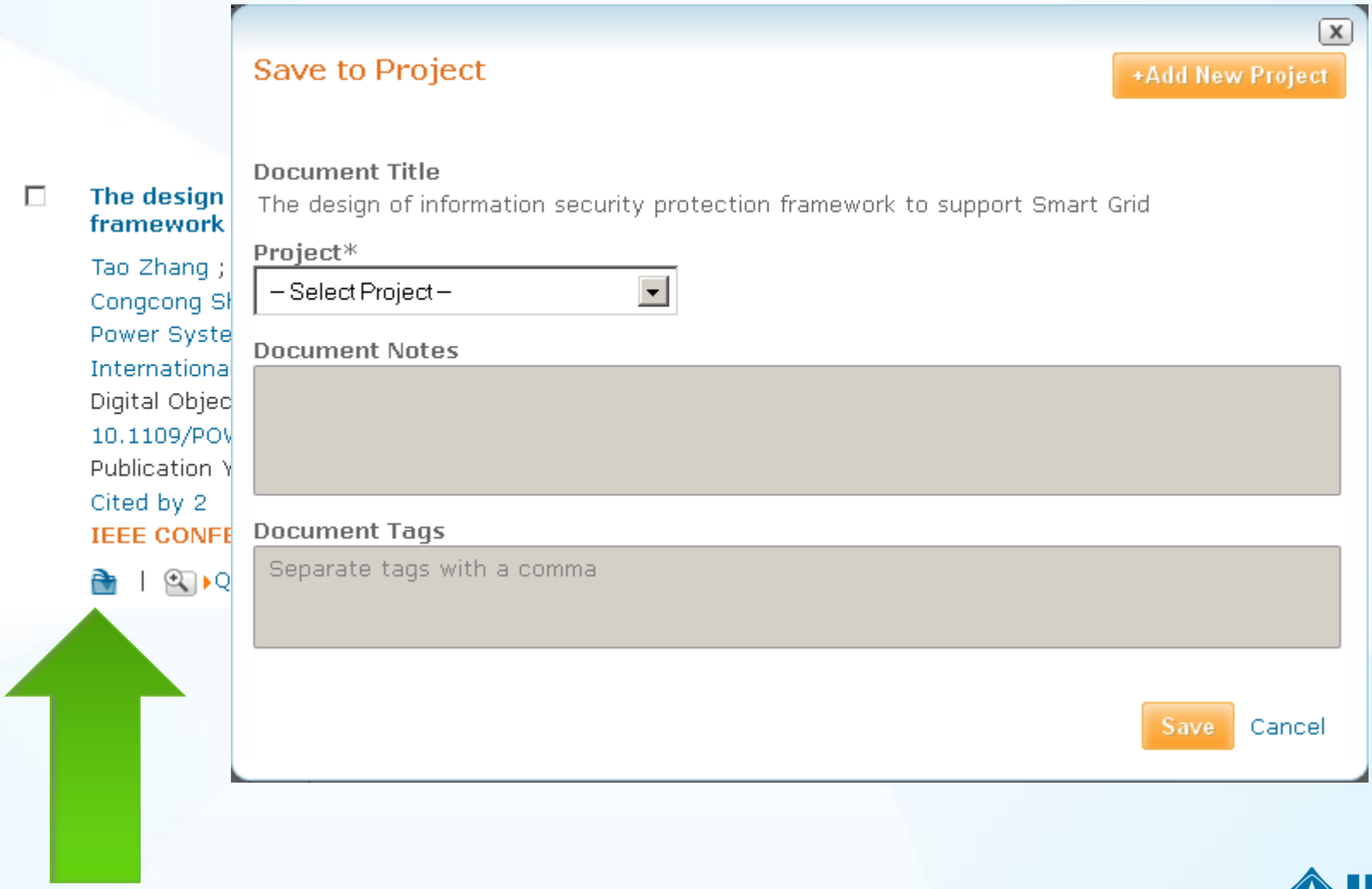

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Description: multimedia NO cites

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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
- Conference articles are typically shorter than journal articles, with less detail and fewer references

Audience

What IEEE editors and reviewers are looking for

- Content that is **appropriate, in scope and level, for the journal**
- Clearly written **original material that addresses a new and important problem**
- Valid methods and rationale
- Conclusions that make sense
- Illustrations, tables and graphs that support the text
- References that are current and relevant to the subject

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**
- **Reviewers have misunderstood the article**

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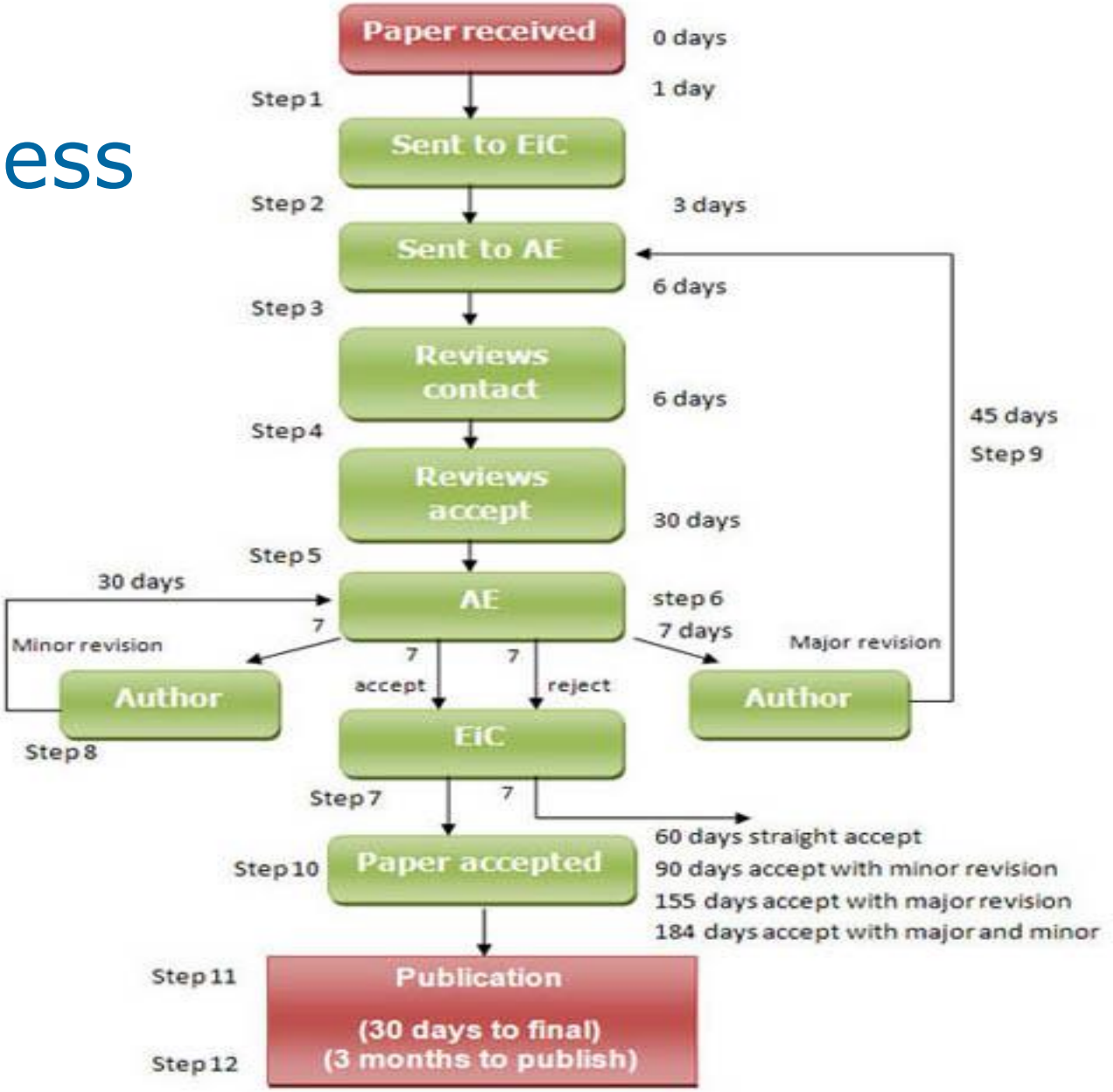
Review

Review Process



e.g. IEEE Transactions on Information Technology in Biomedicine

Review

Possible review decisions

- **ACCEPT:** Congratulations! The paper now is entered into a production process.
- **ACCEPT WITH MINOR CORRECTIONS:** One or more of the referees have made suggestions for improvement.
- **RESUBMIT:** The paper has major deficiencies that could be repaired by the author.
- **REJECT:** If you have a rejection from a top publication, you can try submitting the paper to a less-selective publication.

IEEE

Author Processing

Once accepted…

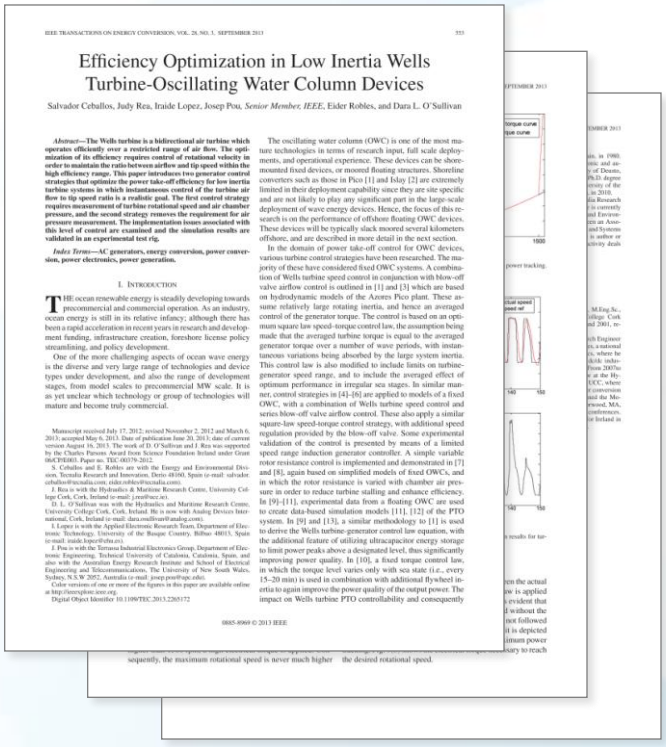
- Bills are sent to the author, if open access.
- Article production is initiated.
- Articles are posted online and included in the print version, if available.

Structure

Paper Structure

Elements of a manuscript

- Title
- Abstract
- Keywords
- Introduction
- Methodology
- Results/Discussions/Findings
- Conclusion
- References



Efficiency Optimization in Low Inertia Wells Turbine-Oscillating Water Column Devices

Salvador Ceballos, Judy Rea, Iraide Lopez, Josep Pou, *Senior Member, IEEE*, Eider Robles, and Dara L. O'Sullivan

Paper Structure

Title

An effective title should…

- Answer the reader's question: *"Is this article relevant to me?"*
- Grab the reader's attention
- Describe the content of a paper using the fewest possible words
  - Is crisp, concise
  - Uses keywords
  - Avoids jargon

Paper Structure

Good vs. Bad Title

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

Good vs. Better Title

An Investigation into the Effects of Residential Air-Conditioning Maintenance in Reducing the Demand for Electrical Energy

vs

"Role of Air-Conditioning Maintenance on Electric Power Demand"

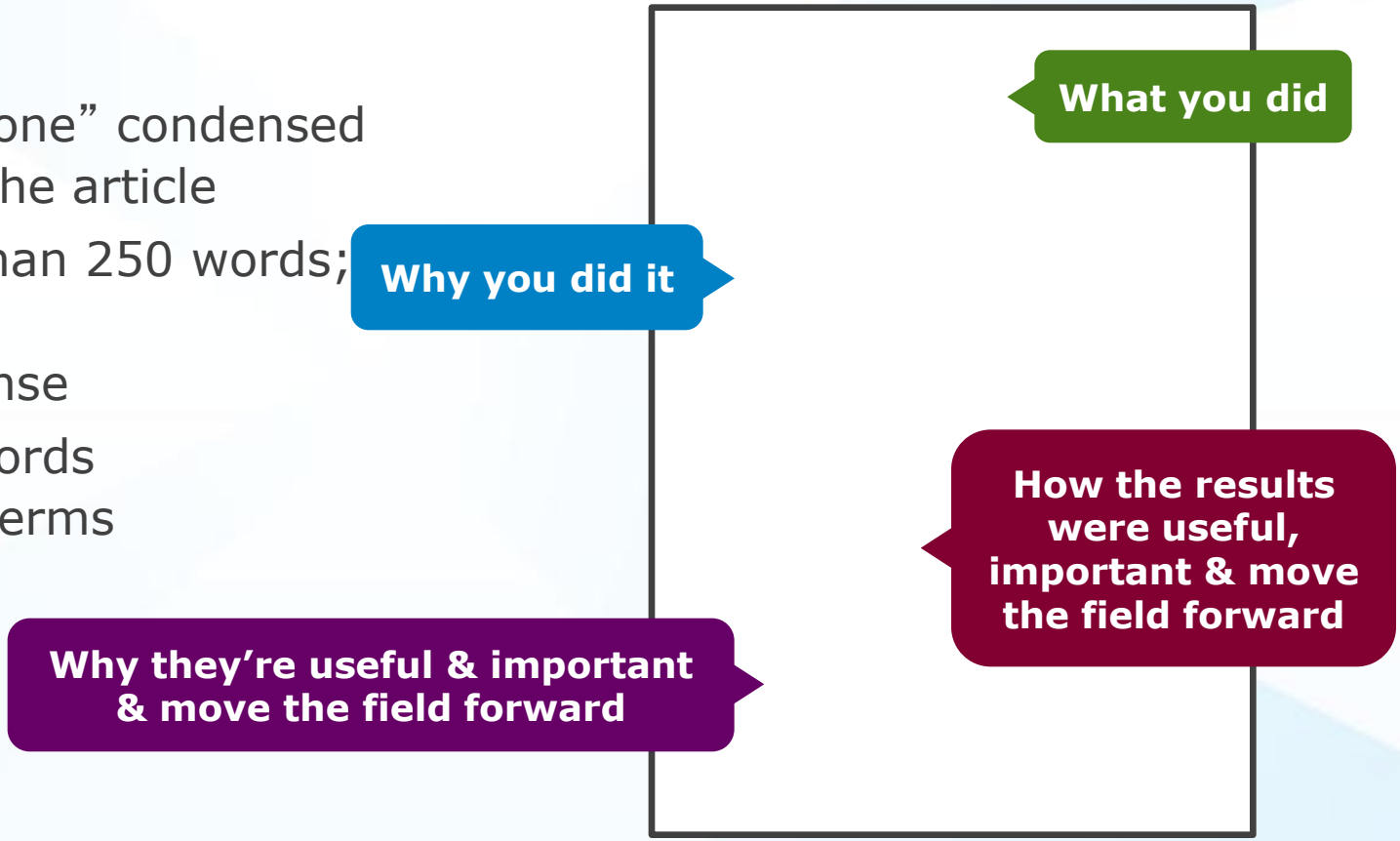
IEEE

Paper Structure

Abstract

A “stand alone” condensed version of the article

- No more than 250 words; written in the past tense
- Uses keywords and index terms



Paper Structure

Good vs. Bad Abstract

The objective of this paper was to propose a human expert-based approach to electrical peak demand management. The proposed approach helped to allocate demand curtailments (MW) among distribution substations (DS) or feeders in an electric utility service area based on requirements of the central load dispatch center. Demand curtailment allocation was quantified taking into account demand response (DR) potential and load curtailment priority of each DS, which can be determined using DS loading level, capacity of each DS, customer types (residential/commercial) and load categories (deployable, interruptible or critical). Analytic Hierarchy Process (AHP) was used to model a complex decision-making process according to both expert inputs and objective parameters. Simulation case studies were conducted to demonstrate how the proposed approach can be implemented to perform DR using real-world data from an electric utility. Simulation results demonstrated that the proposed approach is capable of achieving realistic demand curtailment allocations among different DSs to meet the peak load reduction requirements at the utility level.

Vs

This paper presents and assesses a framework for an engineering capstone design program. **We explain** how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. **Next, we describe** a way to administer and execute the capstone design experience including design workshops and lead engineers. **We describe the importance** in assessing the capstone design experience and report recent assessment results of our framework. **We comment** specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

First person, present tense
No actual results, only describes the organization of the paper

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Paper Structure

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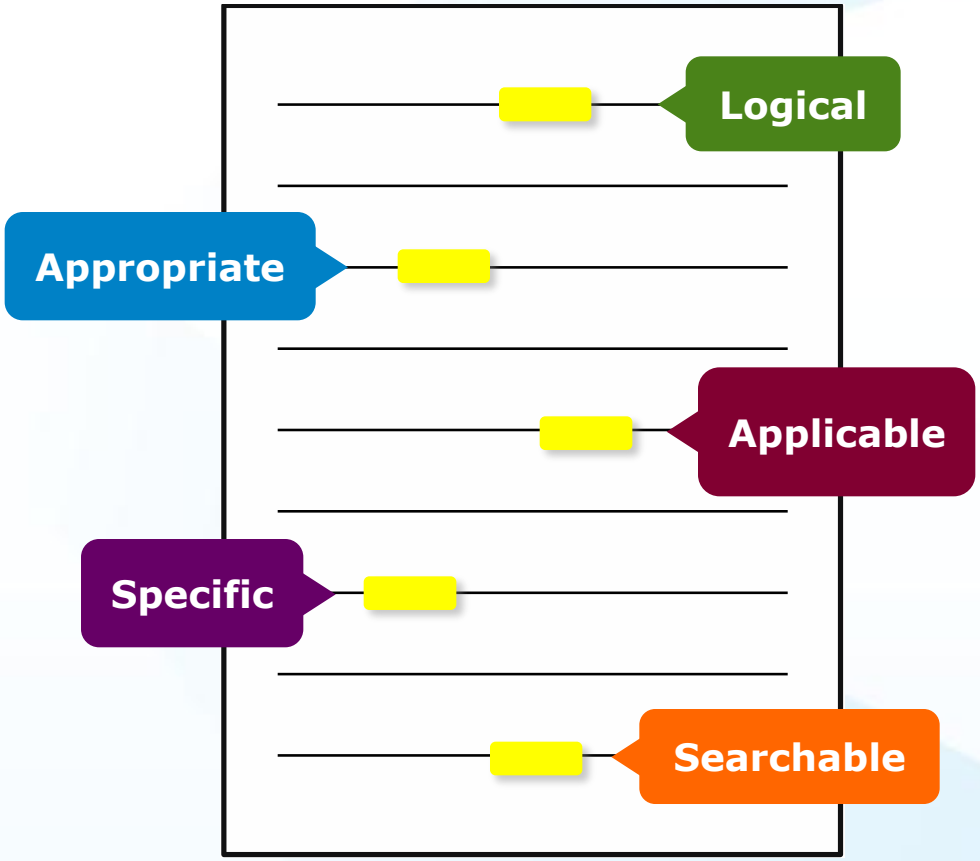
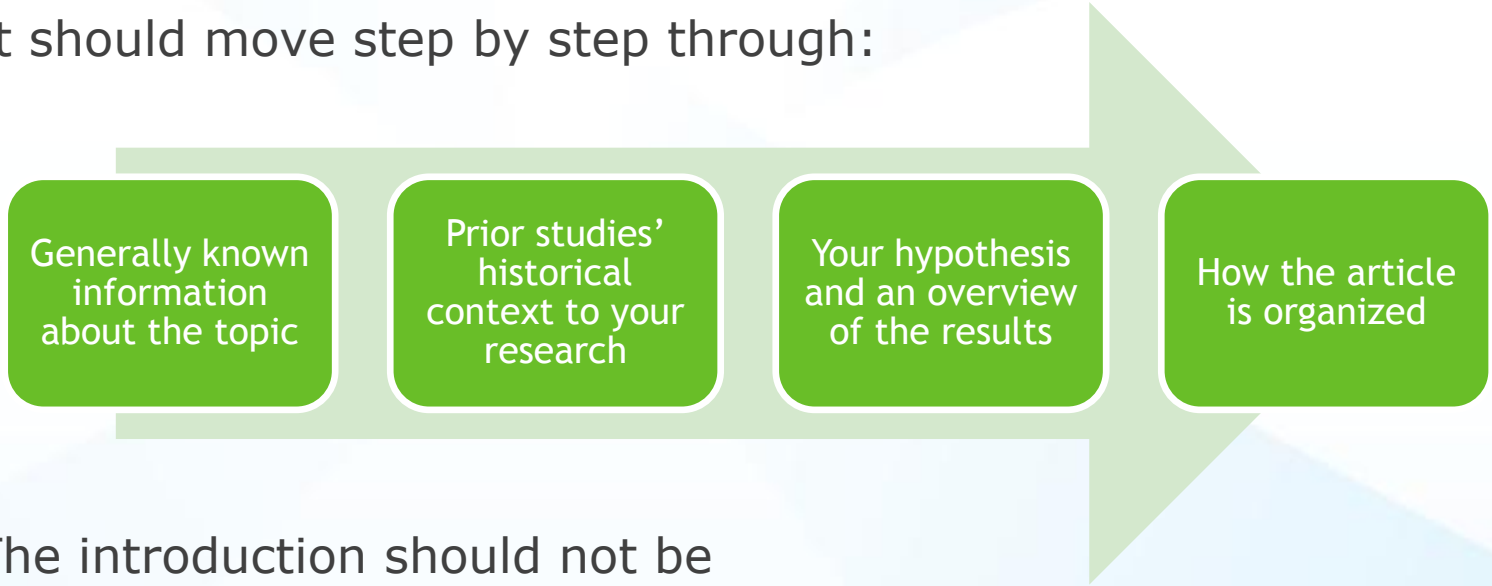
Use in the Title and Abstract for enhanced Search Engine Optimization



Paper Structure

Introduction

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



- The introduction should not be
  - Too broad or vague
  - More then 2 pages
  - Written in the present tense

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Paper Structure

Methodology

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

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

Graphs
Show relationships between data points or trends in data

Figures
Quickly show ideas/conclusions that would require detailed explanations

Fig. A

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Paper Structure
Results/discussion

Demonstrate that you solved the problem or made significant advances

Results: Summarized 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
- Acknowledge any limitations

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, important conclusions and implications for the field
- Provide benefits and shortcomings of:
  - The solution presented
  - Your research and methodology
- Suggest future areas for research

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Paper Structure
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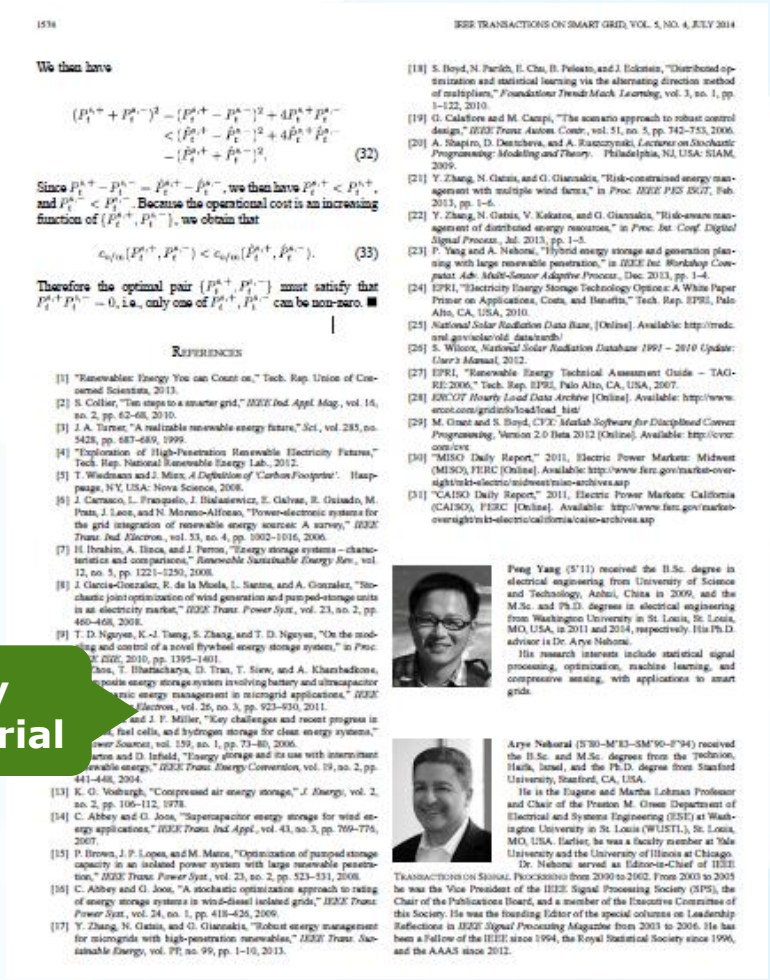
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We then have

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

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

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

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

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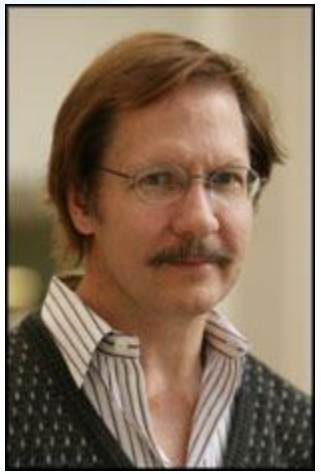

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