

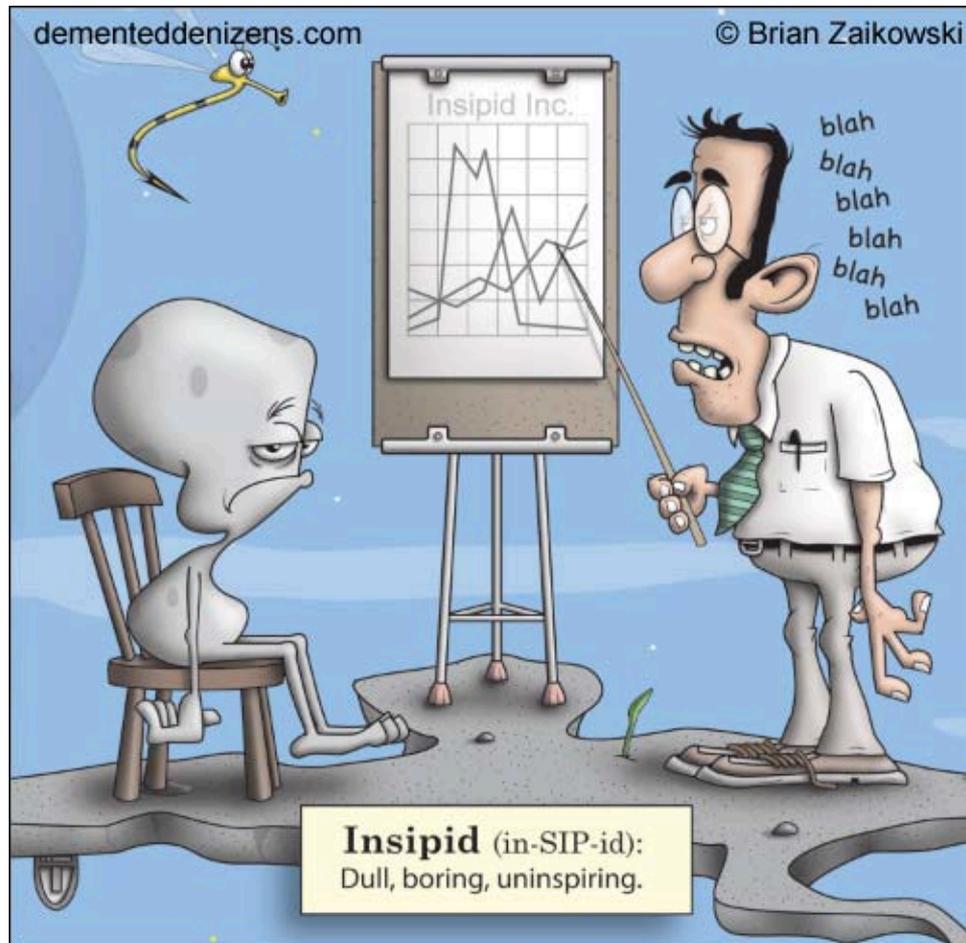
The Best Way and the Best Place to Publish Your Best Work

Jon Rokne,
IEEE PSPB

*Empowering Members
to Create the Future*

IEEE Sections Congress 2011

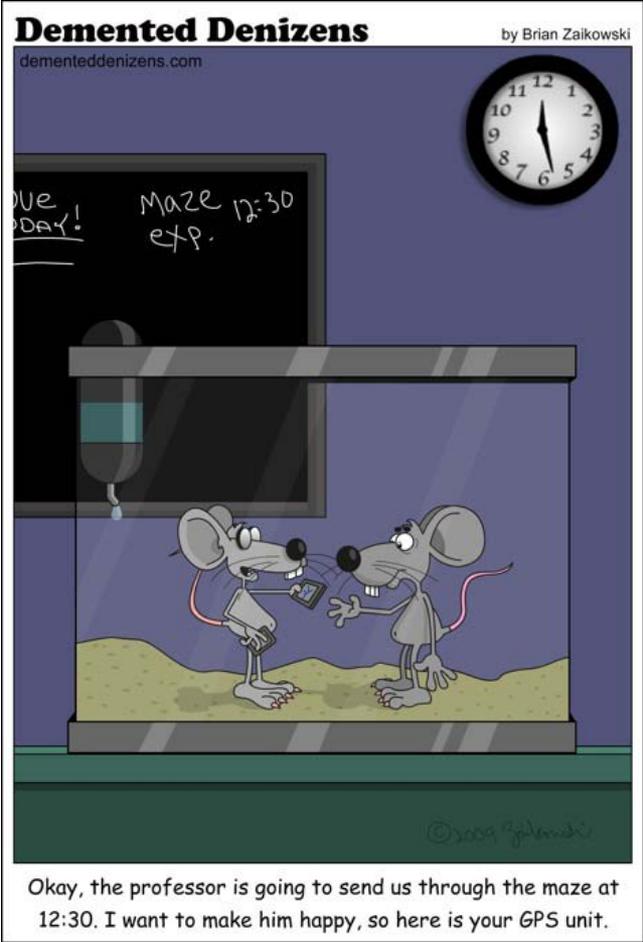
We Will Provide You with an Exciting Presentation on How to Publish Your Work



Why Would You Want to Publish Your Work?

- Technology professionals often have ideas, experiments and experiences that could be of interest to others
- Disseminating their knowledge could benefit their careers and provide visibility for their employers

For example, you might be doing an experiment that you want to write a paper about



Even Famous People Publish Their Ideas



Colin Firth is having a pretty good year. First he won an Oscar for the King's Speech, and now he also has a paper in Current Biology.

<http://blogs.nature.com/eva/2011/06/08/colin-firths-first-scientific-paper>

IEEE Sections Congress 2011 ■ 19-22 August

One Person's View of a Scientific Paper

Cartoon courtesy of Tayfun Akgul, a long-time IEEE and PSPB member

IEEE Sections Congress 2011 ■ 19-22 August

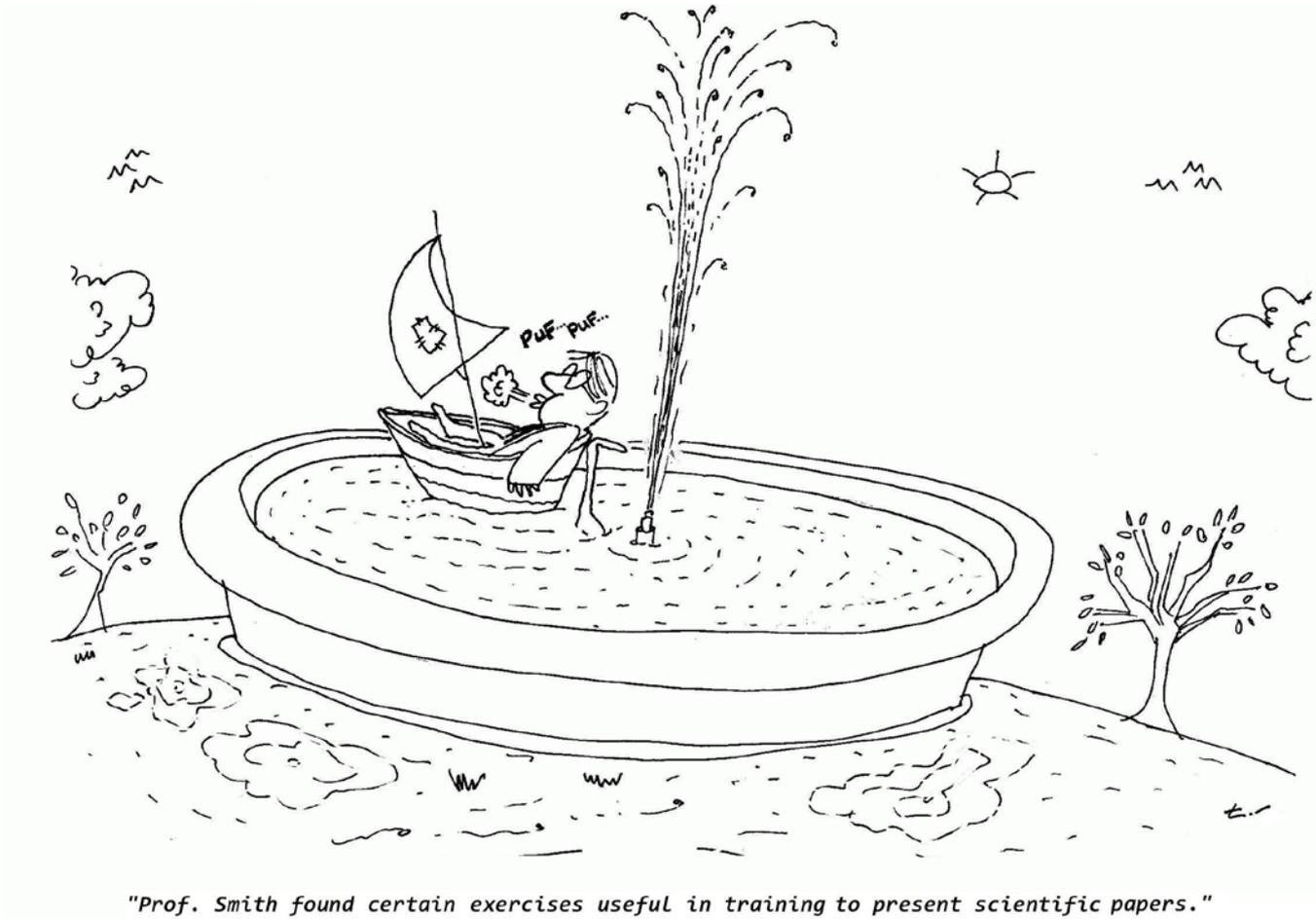
There are Many Ways of Presenting a Paper

- Conference presentations
- Journal papers
- Book chapters
- Internal websites
- Video presentations

In this presentation we focus on the process for publishing a journal paper describing our results.

Publishing: There are a Myriad of Choices

- In the past, the standard way of publishing a journal paper was to write the article (handwritten or typewritten) and then mail it to a journal publisher
- Today, there are many electronic submission and publication choices. Besides traditional publishers, there are:
 - vanity presses, subsidy publishers, print on demand publishers, self publishers, open access publishers, and any number of combinations of these basic types
- With all of the available methods of publishing, authors must determine which method best suits the topic, their personality, timeline and budget (if there are fees associated with the publication)
- As an author you would most likely want to publish with the best possible publisher



Cartoon courtesy of Tayfun Akgul, a long-time IEEE and PSPB member.

In the remainder of this presentation we will

- Look at the process of writing a publishable paper
- Then summarize the process from the written paper to the published paper
- And finally discuss finding the best place to publish

There are Several Stages to Publishing a Paper

- The paper has to be created
- The paper is submitted to the editor or editorial staff. Today this is mainly done electronically using a web based submission system
- The paper is refereed
- The paper is either
 - accepted (this is unusual),
 - rejected (the rate of rejection often depends on the reputation of the publication), or
 - sent back for revisions according to the referee comments (this is most likely the case for papers that are eventually accepted)

Each of these stages will now be discussed in some detail using an example.

The example considered here is how to write a paper that describes a new computer graphics modeling experiment modeling the Aurora Borealis, also known as the Northern Light.

Because we believe that we have a new way of looking at the Aurora Borealis that will interest the community studying this particular phenomenon.

What does the Aurora Borealis look like?

Figure 5



Figure 5. Photograph of a real Auroral display (courtesy of Jan Curtis). Two Auroral curtains produced by two sheets of precipitating electrons causing emissions primarily at a wavelength of 557.7 nm.

We also wish to model the Aurora because as Lynch and Livingston appropriately observe:

Aurorae stand alone for mouth-gaping, awe-inspiring, spell-binding majesty. Their silent play of eerie color is surely one of the Mother Nature's grandest spectacles.

In general, why would we try to write an article about a particular subject?

- The motivation for publishing such an article would be that it is a subject that has interest to a community of researchers
- The article would enhance the reputation of the authors
- The article might describe a new solution, a better solution, a cheaper solution, a faster solution or any other aspect relating to the topic of interest

The Abstract

- In the final version of the article, an abstract is normally included. The abstract is what sells the article to an Editor-in Chief of a journal or a transaction
- However, in terms of preparing the article for publication, the abstract is normally written last when the flow of the paper has been determined

The Introduction

- Most papers have an introductory paragraph or section
- This introduces the subject of the paper, provides a historical overview, and introduces terminology to be used later in the paper

An Example of an Introduction

1 Introduction

The earth is constantly bombarded by energy from outer space. Sunlight is the most visible and common example. Other parts of this bombardment are invisible, such as cosmic rays, X-rays and atomic particles that stream out from the sun in all directions.....

The impressive visual characteristics of auroral displays have fascinated writers, philosophers, poets and scientists over the centuries. Although descriptions and investigations are more prevalent in northern cultures, which live along the region known as the 'auroral oval', we can also find descriptions in the Bible and in the ancient texts of Greek, Roman and Chinese writers and philosophers.

.....

Theory/Experimental Setup, etc.

- Following the introduction, we often find a theoretical section or a section describing a particular experimental setup
- The language used is mainly formal and follows the rules of logic, using definitions and statements

Example (continued): Theory

In our example paper, we continue with a theoretical section:

Auroral physics involves several complex energy reaction and transfer mechanisms. In this section we present an overview of Auroral phenomena, focusing on physical aspects directly related to its morphology, spectrum and intensity.

.....

Following the theoretical development there could be a section on data, quantitative facts, models etc.

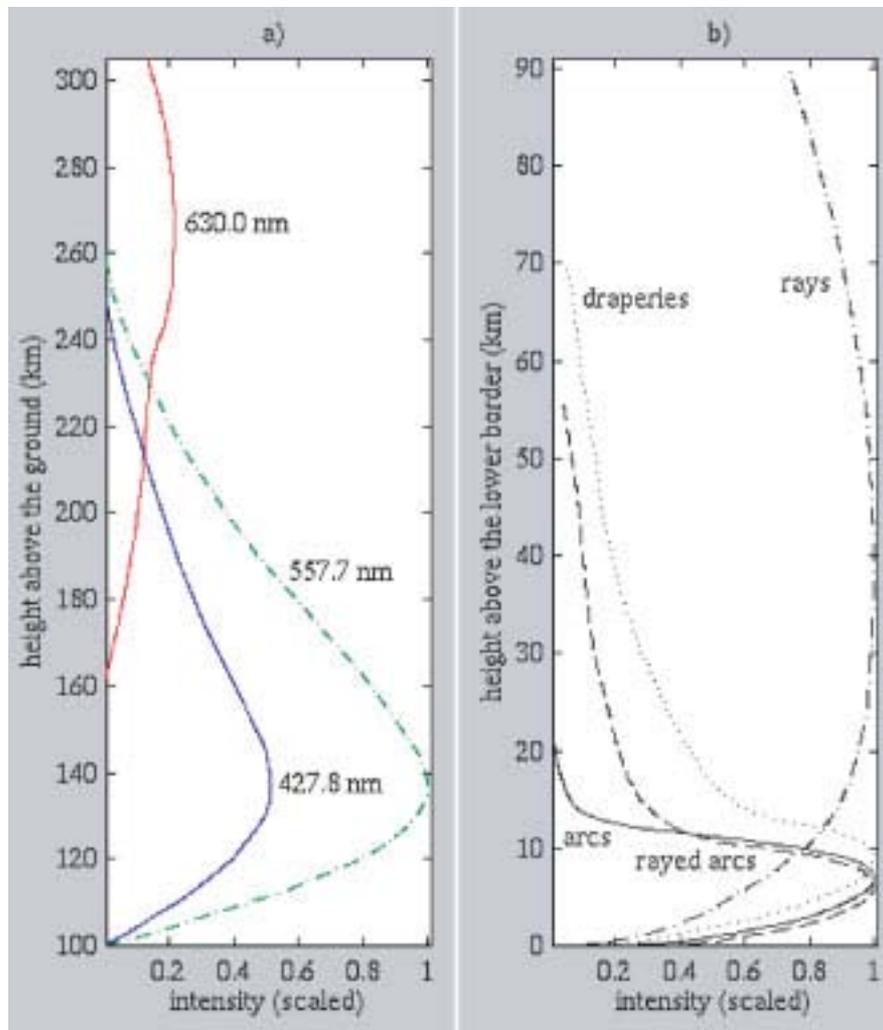


Figure 13.
(a) Spectral emission curves (redrawn from Brekke and Egeland).

(b) Auroral intensity profiles along various forms (redrawn from Vegard and Krogness).

More Explanations: Forward Mapping of Emissions

- *Each electron beam is tracked from its starting point until it reaches the low border of the electron sheet. The deflection points along the path of an electron beam can be regarded as emission points For illustrating the applicability of our model, we simulated several Auroral displays. To facilitate the comparison with real photographs of Aurorae, we also added a background—night sky—and a foreground—mainly vegetation—with respect to the simulated aurora display (Figure 16).*

The Model

- *Despite their inherent complexity most Auroral displays present a set of features that make them readily recognizable by viewers: arcs and band shapes with and without rayed structures, characteristic spectral variation, vertical distribution of intensity dependent on the type of Auroral display and apparent surface brightness dependent on the direction of observation.*

.....

Experiments and Conclusions

- One or two sections are typically devoted to experiments that are supposed to validate the theoretical results or the hypotheses
- The results from the experiments are discussed and from the results some conclusions are obtained. Typically the results are summarized in a graph or a table

Example Experiments

- Figure 16. Simulation of two Auroral curtains in different settings



Explanations to the Figures

- *Since the Aurora is characterized by its storm-like behavior, the variations of spectral ratios (Figure 13a) and intensities (Figure 13b) according to the Auroral heights are given in the literature as average values.*

And, further material:

- *Each electron beam is tracked from its starting point until it reaches the low border of the electron sheet. The deflection points along the path of an electron beam can be regarded as emission points.*

.....

Results

- For *illustrating the applicability of our model, we simulated several Auroral displays.*
- *To facilitate the comparison with real photographs of Aurorae, we also added a background—night sky—and a foreground—mainly vegetation—with respect to the simulated Aurora display (Figure 16).*
 - *The image synthesis process starts by initializing the color buffer with a background scene, then superimposing the Auroral display, and finally filtering out regions of the image that would be covered by foreground objects*

A Section called “Conclusion and Future Work” is Frequently Added

We presented a physically based approach for simulating Auroral phenomena. The major Auroral visual features apparent to naked eye can be promptly identified on our images. The results presented in the previous section demonstrate that the proposed approach qualitatively represent real Auroral displays shown in photographic images commonly published in the literature.....

Other Items in a Paper

- Keywords
- Table of content
- Bibliography or references.
- Appendices
- Acknowledgements
- Thanks

The paper has been written and we can now write the abstract, which will “sell” the paper to the editor.

We present the first computer graphics algorithm designed to simulate the Aurora, a natural phenomenon of great visual beauty and considerable scientific interest. The algorithm is based on the current understanding of the physical origin of this natural display.

.....

Assume, now, that the Paper has been Written

- The next step is to send the paper to a journal or transaction **that is suitable** for the subject matter of the paper. This is an important point. A paper on the modeling of the aurora will most likely not be accepted by, say, [IEEE Transactions on Medical Imaging](#)
- The style of the paper, the writing of the paper and the logical flow of the paper are also important factors for acceptance or rejection of the paper

Clarity of Writing is Important

Below is an example of a sentence discussed in a book on how to write a paper:

“After standing in boiling water for an hour, examine the contents of the flask.”

What is obviously wrong with this sentence describing a chemistry experiment?

(From Gustavii, 2008).

Identifying the Appropriate Journal

- Once a suitable journal has been selected for the paper, it is important that you familiarize yourself with the submission requirements such as: format, style, and length, etc.
- It is not sufficient to read about the expectation of the publisher, since each journal in the publisher's portfolio might have its particular requirements
- This is particularly true for IEEE transactions, since editorial policies vary substantially from one transaction to another (The common rules are found in the Publication Services and Products Board Operations Manual.)

The Paper has to Sell Itself

- As noted, the abstract is the first opportunity, since a poorly written abstract may cause the paper to be rejected immediately (In the case of IEEE, the abstract will provide IEEE Publications with a sense of whether the paper is within the technical scope of the publication, and, in addition, each paper has to be seen by two referees.)
- The quality of English, tables, photos and diagrams is important. LaTeX is a good choice for good quality functions
- IEEE provides authors with tools to ensure that they are submitting high-quality graphics and that their references are complete and as correct as possible. You can find IEEE's Author Digital Tool Box at:

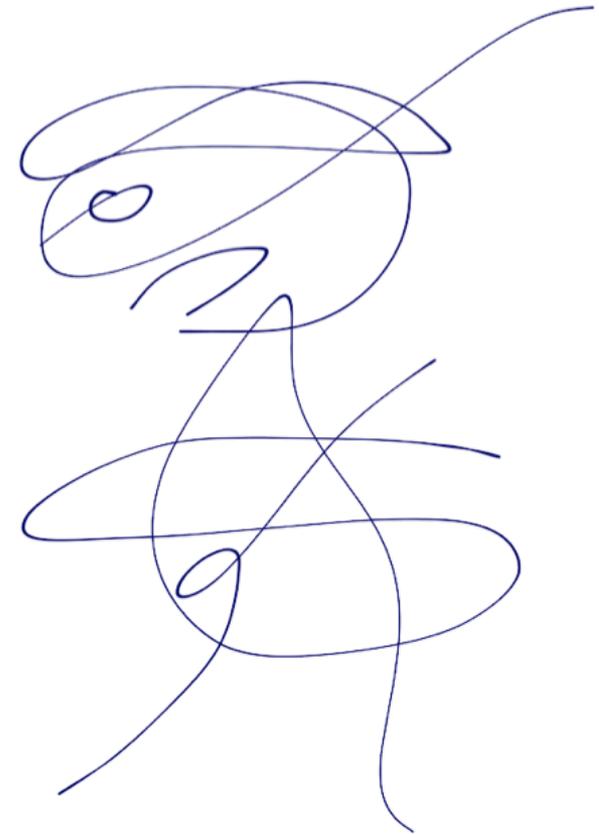
http://www.ieee.org/publications_standards/publications/authors/authors_journals.html

Web-Based Peer Review Systems are Widely Used

- Today, papers are usually submitted electronically to a central manuscript handling software system
- The system used by IEEE is called ScholarOne Manuscripts (formerly known as Manuscript Central)
 - It handles the workflow for most of IEEE publications, and also keeps statistics for time to publication, as well a date relating to authors and referees
 - It manages the peer review process for IEEE periodicals and also keeps statistics regarding submission to acceptance, as well as data related to authors and referees

The manuscript system informs the Editor-in Chief (EIC) that an author has submitted a paper, which has been received by the manuscript system.

He or she then assigns the paper to two or more referees.



The EIC receives a paper!

The Referees will Comment on the Paper

- The paper might be perfect, and they may recommend acceptance
- The referees may find some detail that need improvement
- The referees might find that there are passages copied from other papers with no acknowledgement of the source (plagiarism)
- The subject matter of the paper might be unsuitable for the publication

Here are Some Actual Comments on Particularly Bad Papers

“The abstract and results read much like a laundry list.”

“The biggest problem with this manuscript, which has nearly sucked the will to live out of me, is the terrible writing style.”

“A weak paper, poor experimental design, comparison of sequences using different primers, no statistical analysis possible, carelessly written, poorly thought through.”

“The writing and data presentation are so bad that I had to leave work and go home early and then spend time to wonder what life is about.”

Referees Make Recommendations to the EIC, Based on their Review

- Accept
- Accept with corrections, revise
- Resubmit following consideration of comments
- Reject with no possibility of resubmission

Based on the referee reports, the EIC will decide which of the above recommendations are appropriate for the paper, and then inform the author of the decision regarding the paper

Decision: Accept

The author(s) can celebrate. The paper now is entered into a production process. Assuming the typesetting has been done expertly, the author(s) will only have to check the final edited paper, and then wait until it has been published.

Decisions: Accept with Minor Corrections

This is the most common form of acceptance of a paper. One or more of the referees have made suggestions for improvement. These improvements have to be considered and accepted or rejected. The reworked paper is then returned to the EIC with a cover note explaining what has been changed, because of the referee reports.

Decision: Revise and Resubmit

In this case the paper has major deficiencies that might be repaired by the authors, according to the referees. When the referee comments have been considered, and the paper resubmitted with a covering letter explaining the changes to the paper, the revised paper is sent out for a review. The result is either acceptance or rejection at this stage, and usually not a repeat resubmit.

Decision: Reject

The author(s) will probably feel deflated. If they have a rejection from a top publication (an IEEE Transactions, for example), then they might try submitting the paper to a less prestigious publication.

Where is the best place to publish Your Paper? (Assuming that you now have an article.)

- Publish your work in the journal where it will have the most impact!
- Readership, prestige, availability, subject scope, peer review process and acceptance rate should all be considered when choosing a journal. Resources in this section will guide you toward this information
 - <http://researchguides.library.wisc.edu/content.php?pid=103674&sid=779714>

Measures of Importance of a Publication

- The impact factor is a measure for finding out how a journal or a transaction ranks in comparisons to its peers. It is based on the Journal Citation Report (JCR) and is widely used and criticized
 - According to Thompson Reuters, it:
"presents quantifiable statistical data that provides a systematic, objective way to evaluate the world's leading journals and their impact and influence in the global research community."

Other Measures of Importance

- **Eigenfactor:** of a journal or transactions is a more recent measure of impact. For an example, the Eigenfactor of IEEE CG&A is found at:
<http://www.eigenfactor.org/detail.php?year=2001&jrlname=IEEE%20COMPUT%20GRAPH&issnnum=0272-1716>
- **Article Influence Score (AI):** it measures how often articles in the journal are cited within the first five years after its publication.
 - These citations are weighted based the influence of the journals from which citations are received: being cited in an article in Science can boost a journal's AI more than being cited in an article in an obscure journal

On the next slide the current overall JCR score of IEEE journals in their fields is summarized.

Journal Citation Reports

A 2009 study, released in June 2010, shows that IEEE journals continue to maintain rankings at the top of their fields. The JCR ranks journals by their impact factor, defined as the average number of times articles published in a specific journal in the previous two years were cited in a particular year.

- **According to the JCR, IEEE publishes:**
 - 16 of the top 20 journals in Electrical and Electronic Engineering
 - 9 of the top 10 journals in Telecommunications
 - 6 of the top 10 journals in Computer Science, Hardware & Architecture
 - 3 of the top 5 journals in Automation & Control Systems
 - 3 of top 5 journals in Computer Science, Software Engineering
 - 2 of the top 5 journals in Computer Science, Artificial Intelligence
 - 2 of the top 5 journals in Robotics

The Acceptance Rate of a Publication is Another Indicator

- It is roughly inversely proportional to its prestige
- Generally, the acceptance rate is in the 10%-30% range for some of the engineering and computer science journals
 - As an example: IEEE Transactions on Visualization and Computer Graphics had a 26% acceptance rate for a recent special issue

Other Factors to Consider

- Is the journal I'm considering widely available?
- How well known and how reliable is the publisher's digital library?
- How can I use my own work after it has been published?
- Does the publisher offer Open Access to my work?
- How is Open Access funded?

How Should One Evaluate a Potential Journal?

- What is the journal's scope/audience?
- Is the journal refereed (peer reviewed)?
- Where is the journal indexed?
- Who is the publisher? (consider university presses, professional associations).
- Who is the Editor-in-Chief and who is on the Editorial Board?
- Look at the journal itself, and
 - Consult Tables of Contents
 - Look at some issues
- Link to journal website for Information for Authors
 - Consult the "[Instructions for Authors](#)" section

IEEE Author Advantages - 1

- From manuscript preparation to publication, **IEEE Publishing** assists you every step of the way
- As an IEEE journal or conference author, you have access to resources that make the submission process convenient and easy

(see also: http://www.ieee.org/documents/pubsbrochure_08.pdf)

IEEE Author Advantages - 2

■ Graphics Checking

- This easy to use tool enables you to check your graphics files before they are submitted, eliminating common problems, like inadequate image resolution
 - It provides step-by-step instructions on how to improve your images

IEEE Author Advantages- 3

■ Author Gateway

- The Gateway is your direct connection to the IEEE publishing process.
- Here you will find useful information regarding
 - your articles in production
 - update your biography
 - communicate with IEEE staff and editors, and
 - learn about copyrights, permissions and other policies

IEEE Author Advantages- 4

▣ Reference Validation

- This automated tool allows you to validate your references during the authoring process
- It provides corrections as needed by checking your references against the IEEE and CrossRef databases to ensure successful online linking through search functions like Google Scholar, scitopia.org and IEEE *Xplore*®

IEEE Author Advantages - 5

■ Electronic Copyright Form

- Available in 8 languages, this time-saving form makes copyright transfer an effortless, completely electronic process

IEEE Author Advantages - 6

- **IEEE Manuscripts** (formerly known as Manuscript Central, a trademarked product of Thomson Reuters/ScholarOne®)
 - IEEE offers an online peer review system licensed by Thomson Reuters
 - The system allows you to submit your manuscript electronically, speeding up the review process, and shortening the time between submission and publication
 - Authors are able to submit your manuscript, track its status, view details, and review editor and reviewer comments

IEEE Author Advantages - 7

- **IEEE Xplore®** digital library is widely recognized as one of the premier repositories of technical information
 - IEEE Xplore contains almost 3 Million documents
 - It now provides information about how your article is being cited, in addition to reference linking
 - It offers robust search capabilities
- IEEE has liberal policies for reuse of work
- IEEE offers Open Access options for all journals



| June 26, 2009 - during the IEEE PSPB meeting - Los Angeles, USA.

The Auroral paper was accepted and appeared in:
THE JOURNAL OF VISUALIZATION AND COMPUTER
ANIMATION 2003; 14: 43–59 (DOI:
10.1002/vis.304):

with the title: "Simulating the aurora"

Below are the happy authors:

Gladimir V. G. Baranoski, Jon G. Rokne, Peter
Shirley, Trond S. Trondsen and Rui Bastos



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