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Experiences with Academic Publishing on the Internet: A Look at the *Technology Interface*

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Abstract

*This paper discusses the experiences of publishing academic papers through Internet journals such as the **Technology Interface**. While Internet publishing creates many opportunities for exchanging information, this can also cause concern for ownership, proper cataloging, citing, and archiving. Also, the Internet is a dynamic environment. Many questions arise due to the use of Internet publications. For example, should journal documents be allowed to change once placed on-line? Can a previously published paper be updated? Should guidelines for publishing on the Internet be different than the printed press? Should articles be published in HTML format or another such as Adobe Acrobat? Who should pay for the opportunity to publish on the Internet? This paper will address these issues and includes a discussion of the experiences with the **Technology Interface**.*

Introduction

Before 1996, only 100 on-line titles of science, technology and medicine (STM) peer-reviewed journals appeared on-line.¹ A search on the Internet search engine *Yahoo!*² was conducted January, 1998 using the underlined keywords. The search produced the following results:

- Found 266 Category and 4495 Site Matches for journal.
- Found 14 Category and 51 Site Matches for journals in engineering,
- Found 4 Category and 130 Site Matches for Technology Journals.
- Found 3 Category and 418 Site Matches for magazine technology.
- Found 0 categories and 2 sites for engineering technology journal

Not all of the listings are classified as peer-reviewed journals but the impact the Internet is making on electronic publishing is evident by the number of site matches to the keyword search.

The *Technology Interface* is a recent addition to the long list of providers of electronic information on the Internet. The first issue of the *Technology Interface - the Electronic Journal for Engineering Technology* appeared on the Internet in November of 1996. The *Technology Interface* is a paperless on-line publication accessed via the World-Wide Web (WWW). The *Technology Interface* was developed specifically to provide professionals in the Engineering Technology profession and related fields, the opportunity to share ideas concerning teaching, teaching improvements, projects, industrial activities, research and much more via the Internet. This paperless media provides the convenience for organizations to freely share their information. The journal is now in its second year of publication.

The concept of the *Technology Interface* is similar to an industry trade magazine in that articles appearing in the *Technology Interface* should be useful for our continuing education and day-to-day activities. This means that the topic areas are very broad. The paper could be as short as a handout provided to a class, a sample lab exercise, a homework exercise or the paper could be a very detailed description of a semester project, a tutorial over a difficult topic or an introduction to new technologies. Editorials are welcome in addition to papers discussing curriculum changes and new teaching methods. Basically, the *Technology Interface* is a place for members of Engineering Technology profession to easily exchange ideas.

The *Technology Interface* is a peer-reviewed³ Internet publication designed to serve members of the Engineering Technology profession and its related fields. The Journal is peer-reviewed so that the quality of publications will reflect the high standards expected of an academic publication. Additionally, the peer review process will help to make sure the content of the Journal remains within the context of supporting Engineering Technology and its related professions.

I. The Mechanics of the Journal

A Look at the Journal

The Technology Interface can be found by entering the following URL in your Internet browser <http://et.nmsu.edu/~etti>⁴. The *Technology Interface* does not have a subscription fee. Fig. 1 shows a portion of the home page for the *Technology Interface*.

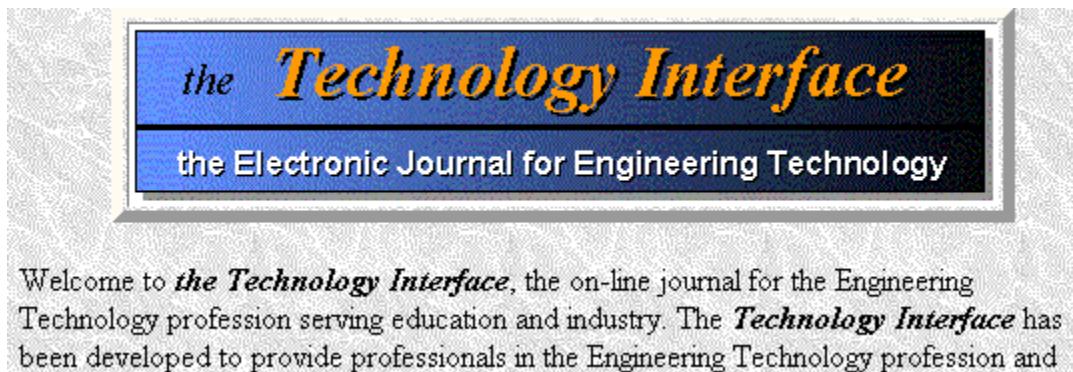


Fig. 1 A portion of the *Technology Interface* Home Page at <http://et.nmsu.edu/~etti>

For ease of navigation through the journal, current on-line issues are listed on the home page as shown in Fig. 2.

Current On-Line Issues		
<u>FALL97</u>	<u>SUMMER97</u>	<u>SPRING97</u>
<u>WINTER97</u>		<u>FALL96</u>

Fig. 2 The listing of the current on-line issues.

Clicking on an issue will take you to a listing of articles. The articles are grouped by topics, as shown in Figure 3. This graphic shows the shortcut which is a quick way to jump to topics of your particular interest.

Shortcut to Article Topics		
<u>Electronics</u>	<u>Computers</u>	<u>Communications</u>
<u>Education</u>		<u>Civil</u>

Fig. 3 Shown are the shortcuts grouping of the example article topics.

Clicking on “Computers” will take you to the topic heading for the articles with a computer related interest. The list provides the paper title, the author, and the file size. The file size is an important requisite since many readers will be browsing the papers using their slower speed home computer connection. A sample listing is provided in Fig. 4.

COMPUTER
<u>Building an 8-bit PC-Based Logic Analyzer</u> (47 Kbytes) Kyle C. Quinnell
<u>Exploration, Not Optimazation: Using a Spreadsheet to Examine the Effect of Changing Variable Values in an Aggregate Scheduling Problem</u> (38 Kbytes) Roland S. Hanson and Michael K. Ogle

Fig. 4 A sample listing showing the article and author names and file size.

Corresponding with the *Technology Interface*

The *Technology Interface* home page also provides a section for **Author Information**⁵, **Frequently Asked Questions**⁶, **Reviewer Guidelines**⁷, and **How to Become a Reviewer**⁸ as shown in Fig. 5. Information regarding these topics can be browsed by clicking on the buttons.



Fig. 5 On-line guidelines for the *Technology Interface*

Submissions to the *Technology Interface* such as reception of documents, peer-review of submitted documents, requests for editing changes, notification of acceptance or rejection, and final publication of the accepted manuscript are handled electronically via WWW. Authors must be capable of communicating with the *Technology Interface* via email.

Articles for the *Technology Interface* are submitted to the editor as attachments to an email cover letter. Manuscripts submitted to the *Technology Interface* must be prepared either in HTML (Hyper-Text Mark-up Language) format, MS-WORD 6.0 or higher, or WordPerfect 5.1 or higher. For those wishing to submit an HTML document, a fully commented HTML template is provided on-line under **Author Information** which covers the required formats for submitting a manuscript. WORD and WordPerfect submissions are converted to HTML format by the *Technology Interface* staff, usually part-time student employees.

Monitoring Usage

Each article appearing in the *Technology Interface* is monitored for Internet activity. A counter, using Perl script, has been included in each article's HTML file which is used to increment an article counter each time the article .html file is opened (a hit). As of January, 1998, forty-seven articles, contributed by authors from higher education and industry, have appeared in the *Technology Interface*. Forty of these articles were authored by representatives from higher education and seven from industry. There have been 31,415 article hits for the *Technology Interface* as of January 12, 1998.

Archival and Security Issues

It is our intent to leave all issues of *Technology Interface* on-line. We also plan to place a search engine on-line so that viewers can easily search past articles. In addition, the *Technology Interface* is on the Edinburgh Engineering Virtual Library (EEVL)⁹ and the Internet search engines Yahoo² and Lycos¹⁰.

Security includes password protection on the UNIX host. A CD ROM backup for the first year is in the process of being made for archival and security purposes. Long term archival access will be

provided through the University Library. The University Library will have responsibility, as it does for other publications, to assure access through a currently used media for the indeterminate future.

The University Library will catalog the on-line file for access through the university catalog using hot links. This cataloging of data will be in the form of the Dublin Core standard for metadata, approved in 1997. Library users, who identify the journal as a needed resource, will be able to access full text immediately and on-line.

Many inquiries have been made regarding referencing articles appearing in the *Technology Interface*. It is the intent for articles appearing in the journal to always be available therefore the URL (web address) is specified in the reference. Each article is given a Vol. number and a publication number. Vol. 1 indicates the first year. No. 3 indicates the third issue for that year. Four issue are published each year. The following is the recommended method for referencing articles appearing in the journal. This suggested style for citing electronic information is modified from a style found in Electronic Styles by Li and Crane.¹¹

Author Name(s). (1997). Title of Paper, *the Technology Interface*, [on-line], Vol. 1 No. 3, Available: <http://et.nmsu.edu/~etti> [1998, winter]

The Review Process

All publications submitted to the *Technology Interface* are peer reviewed. Elements in the review process include:

1. Guidelines are published regularly in each issue.
2. Style requirements are published regularly in each issue.
3. Two or more individuals do preliminary screening. At least the editor and one outside reviewer are involved in all decisions to publish.
4. Outside experts who are not board members review the manuscripts. Potential reviewers are contacted by email and requested to review the article on-line. Only the authors, reviewers, and the editor are provided the URL of the article in review.
5. Two or more reviewers, excluding the editor, read each manuscript.
6. Reviewers use reviewer guidelines in evaluating the article.
7. Guidelines are published regularly.
8. Reviewers comments are forwarded to the author.

The HTML version of the submitted article is placed on-line for review. Potential reviewers are contacted by email and requested to review the on-line article. Only the authors, reviewers, and the editor are provided the URL of the article in review. The authors are given the URL so that the HTML version can be proofed and corrected. For grammatical errors, typos, or suggested changes, reviewers are encourage to electronically copy the text and include suggested corrections as an attachment to their review. Some reviewers choose to print the article at their end and proceed to conduct a paper review. Some reviewers edit the HTML text directly and will indicate errors and suggested changes in a red color font. Others cut and paste the text in

question into an email letter indicating the sections which need attention. All reviewers submit the results of their review back to the editor via email. Each of the review formats is acceptable. Reviewers are given the opportunity to conduct the review in a manner which they are most familiar. Not all reviewers are comfortable with cutting and pasting or editing on the computer. It will take time for this aspect of the review process to mature. Improvements in technology and user familiarity will improve this process.

Reviewers are given the following guidelines for conducting their review.

Reviewer Guidelines

Publications are reviewed based on the following:

- a) **QUALITY** (Is the paper's topic presented in a manner representative of the high quality expected from Engineering Technology?)
- b) **ACCURACY** (Is the material accurate?)
- c) **USEFULNESS** (How useful is this material to the Engineering Technology profession? For example, would you encourage a colleague to read this article? Would you encourage your students to read this article? Could you use this material at your place of employment?)
- d) **OVERALL COMMENTS** (What is your overall feeling about this article?)
- e) Please state whether this publication should be:
 - accepted as is
 - accepted with changes (please cite changes)
 - not accepted

We do not review articles based on length or if the information is new. Many old methods are still very useful yet people in our profession may not be aware of the old mouse-traps. The paper may not be in the final HTML form. Final HTML changes will be made prior to placing the article in an on-line issue. You can comment on needed HTML changes in your review.

These guidelines may differ in some respect to many academic journals. An obvious difference is that length is not a review issue. The *Technology Interface* is not constrained by page limitations. Reviewers are free to use their own judgment as to whether length is an issue. This is usually only an issue when the length detracts from the usefulness of a paper. Other review guidelines may differ from other academic journals but this is one of editorial bias rather than a by-product of using the Internet.

Authors are given time to make changes in their article after the review process and their paper has been accepted. However, once a document has been placed on-line, the article can not be changed. Articles may be updated in one of two ways: either by providing a letter to the editor or by submitting an updated article for possible publication. In both cases links may be established with the initial article.

All articles appearing in the *Technology Interface* are copyright protected. Information printed in this Journal may be used as needed for instruction and research. This includes making copies of any article for non-profit use. The ownership of articles appearing in the *Technology Interface*

remains with the authors. It is very difficult to control use of articles appearing on the Internet. This statement hopefully protects the author's ownership while minimizing reader concern over usage.

II. Cost of publishing on the Internet

Presently, all journal issues for the *Technology Interface* reside on a SUN Sparc IV workstation (server) in the department of Engineering Technology at New Mexico State University. The department has donated server CPU time and file space to this effort. The Internet link is provided by the university. Computer system management and maintenance support has also been donated by the department. The editorial staff is volunteer. The only paid staff associated with the publication has been student support. All correspondence with authors and reviewers are handled via email. Therefore, no land mail costs or fax charges are attached to the cost of operating the journal. The university estimates that the cost of an email message at New Mexico State University is \$6.00 per person per month^a. Maximum email message size is 2 Mbytes. The university estimates that each email user currently requires 0.5 megabytes of user disk space. The disk storage space is factored into the estimated email service cost.

This has kept the cost of operating the *Technology Interface* to a minimum and has removed any need for charging the authors a fee for publishing, the readers a subscription fee, and eliminated any cost to a library for providing access to its clients.

The cost of Internet publishing is certainly an issue that has to be addressed. There is a cost even if staffing is volunteer. Archiving past issues becomes a concern with the increase in the number of past issues and papers per issue. Internet access is a real cost and bandwidth use due to an increase in email messages and size add to the cost. Authors like the idea that their paper can be accessed globally by anyone linked to the Internet. This makes Internet publishing an exciting alternative. Organizations such as IEEE are investigating the impact of the Internet¹² and whether everyone should have access to searching for all of the information provided by their organization. IEEE recognizes that even access to abstracts is important for their members but who should pay?

Conclusions

This paper has presented a look at the *Technology Interface*. Electronic journals raise a great number of issues for the scholarly information system. The cost of publication and who pays these costs are very important. Access through libraries and appropriate scholarly apparatus, including indexes and abstracts, are essential. Security of text and accuracy of information must be maintained. Copyright is essential, but can be used to the benefit of the creators of the information as well as the publisher. It is possible to maintain the quality of refereeing that is the strongest measure of scholarly publishing. The format and mechanics of the journal can be modified electronically to enhance the understanding of the reader and access.

^a Quotation obtained from the NMSU Computing and Networking Center, Jan. 1998.

We believe that these changes will create a significant change in the context of scholarly publishing in the future. By sponsoring publications like the *Technology Interface* universities can change the system of scholarly publishing so that it more closely reflects the desire of individual scholars to exchange information freely throughout academia. It also allows librarians and others responsible for providing access to information with many new opportunities for organizing and providing access to scholarly information. If universities choose to support this process, it is possible that control of scholarly information and its costs will return to the academy.

References

1. Hitchcock, S., Carr, L., Hall, W., "A Survey of STM On-line Journals 1990-95: the calm before the storm, [on-line], Available <http://journals.ecs.soton.ac.uk/survey/survey.html>.
2. *Yahoo!*, [on-line], Available: <http://www.yahoo.com/>.
3. Miller, C, Serzan, S., "Criteria for Identifying A Refereed Journal," *Journal of Higher Education*, Vol. 55, No. 6.
4. *the Technology Interface*, [on-line], Available: <http://et.nmsu.edu/~etti> [1996, fall]
5. Guide for Authors, *the Technology Interface*, [on-line], Available: <http://et.nmsu.edu/~etti> [1996, fall].
6. Frequently Asked Questions, *the Technology Interface*, [on-line], Available: <http://et.nmsu.edu/~etti> [1996, fall].
7. Reviewer Guidelines, *the Technology Interface*, [on-line], Available: <http://et.nmsu.edu/~etti> [1996, fall].
8. How to become a reviewer, *the Technology Interface*, [on-line], Available: <http://et.nmsu.edu/~etti> [1996, fall].
9. *Edinburgh Engineering Virtual Library*, [on-line], Available: <http://eevl.icbl.hw.ac.uk/>.
10. *Lycos*, [on-line], Available: <http://www.lycos.com>.
11. Lia, X. and Nancy B. Crane, *Electronic Styles: A Handbook for Citing Electronic Information*. Second edition. Medford, NJ, Information Today, Inc., 1996, pg. 31
- 12 Alden, B., "Traveling the Information Highway - Doing IEEE Business Electronically," *the Institute*, Vol. 22, No. 1, January 1998.