Editorial Policy

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Background

In the late 1960s ACM perceived a need among its members for a journal that would help people discover new specialties and that would help practitioners stay abreast of our rapidly evolving field. Because its members provided a strong base of expertise for achieving these purposes, ACM founded **COMPUTING SURVEYS**.

The **SURVEYS** began publication in March 1969 with Bill Dorn as Editor-in-Chief, responsible for refereeing and accepting papers, and Myrtle Kellington as Executive Editor, responsible for all aspects of publishing the accepted papers. Lee Revens became Executive Editor in 1970, Art Blum in 1976, Mark Mandelbaum in 1979, and Janet Benton in 1981. The current circulation of **SURVEYS** is approximately 30,000 copies, and it is selected by roughly half of the ACM membership.

On taking over as Editor-in-Chief from Bill Dorn in 1973, Elliott Organick established an informal editorial panel—senior people who advised both on the suitability of particular papers and on areas of special interest or importance. Two years later this panel was formalized as an Editorial Board. He also pioneered the practice of publishing special issues. There have since been special issues on programming (December 1974), computer architecture (December 1975), database management (March 1976), software reliability (September/December 1976), parallel processors (March 1977), queuing network models of computer system performance (September 1978), graphics standards (December 1978), encryption (December 1979), microprogramming (September 1980), and user psychology (March 1981).

Peter Denning became Editor-in-Chief after Elliott Organick at the start of 1977. With the December 1977 issue, he pro-

moted the Editorial Board to a Board of Associate Editors. He established the *Surveyors' Forum* to provide readers with an opportunity to comment on papers published in the **SURVEYS** and introduced the option for authors to submit short notes. The first *Forum* appeared in September 1977 and the first *Short Note* appeared six months later, in March 1978.

Adele Goldberg became Editor-in-Chief at the beginning of 1979, and gave the Associate Editors an increased role in the reviewing process. She also took responsibility for a technical editing step; after a paper was accepted for its content, it would be edited for presentation and style.

I became an Associate Editor in 1980 and Editor-in-Chief in 1982, when Adele Goldberg became Secretary of ACM. Most of the policies established by previous Editors-in-Chief have been retained, with Associate Editors continuing to play an important role in assuring the quality of **SURVEYS**. I gratefully acknowledge the ongoing assistance of the current Associate Editors, David Barstow, Jack Grimes, Randy Katz, Roy Levin, John Mashey, Richard Muntz, and Bruce Weide, as well as the thoughtful and timely service of past Associate Editors. I am also most appreciative of the administrative support provided by Tina Walters of UCSF, and the knowledgeable and creative editing work of Rachel Ruth-erford of Xerox Corporation.

What Are Surveys and Tutorials?

Good survey papers often borrow concepts from both surveys and tutorials. The main difference between the two are emphasis and audience. A survey paper assumes its audience has a general knowledge of the field; it emphasizes an overall view of the literature. A tutorial assumes its audience is inexperienced; it emphasizes the basic con-

cepts of the field and provides concrete examples that embody these concepts. In practice, most of the papers published in *SURVEYS* combine the two approaches: they survey a range of material *and* explain the underlying concepts. The increasing specialization of our field, combined with the pace of new developments, makes this intermediate approach virtually essential.

The primary purpose of a "pure" survey is to give a guided tour through the literature in an area. By assuming its audience is familiar with the field's basic concepts, it can concentrate on classifying the literature, on developing a perspective of the field, and on evaluating trends. It is up-to-date and comprehensive. It may be as long as an extended discussion of the literature with many citations, or it may conceivably be as short as a structured, annotated bibliography with a preface.

The primary purpose of a "pure" tutorial is to explain a topic to a nonexpert who is familiar only with the basic concepts. Through its title, abstract, and introduction, a tutorial sets out clearly both what it assumes about a reader's background and what it intends to add. A tutorial may be simple, written for people with almost no prior knowledge, or it may be advanced, assuming that its readers are already versed in the subject. A tutorial need not contain new results or define new research problems; often, it binds together old results in a new way.

What Does *COMPUTING SURVEYS* Publish?

We have no limitations on which subjects to emphasize in *SURVEYS*. Historically, *SURVEYS* has closely reflected the interests of its members. Analysis of published papers by subject and page count correlates well with relative sizes of memberships in the various Special Interest Groups (see Table 1).

We will publish any survey or tutorial paper of work on any topic of interest to ACM, subject to our reviewing standards. Anyone is welcome to submit a paper or to propose a topic for a special issue. While we *occasionally* encourage individuals to prepare and submit papers on specific top-

ics, most of our submissions are unsolicited, and *all* of them are subject to the same reviewing standards. Our primary concerns are quality, accuracy, and clarity.

Papers published in *COMPUTING SURVEYS* must meet certain standards for *technical accuracy* and for *clear writing*. Readers should not have to contend with errors or omissions. Furthermore, crisp, concise, and coherent prose is as essential as technical accuracy.

How Is *COMPUTING SURVEYS* Different from Other ACM Journals?

There are some important differences between *SURVEYS*, and the other ACM journals. First, *SURVEYS*, like the *Communications of the ACM*, has an extremely broad audience. Papers written for *SURVEYS* should introduce the topic with the understanding that *most* of the readers are unfamiliar with the specific topic area of the paper. The author(s) should make an effort to define terms clearly and to avoid making unfounded assumptions about the expertise of the reader.

Second, *COMPUTING SURVEYS* is not intended as a forum in which to present original research results, but rather as one in which to organize and integrate a body of existing knowledge. *SURVEYS* authors commonly draw on work published in more specialized publications for their survey and tutorial articles.

Third, *SURVEYS* papers are thoroughly edited for style prior to their publication. After a paper has been conditionally accepted, the author will receive a copy of the paper marked with editorial suggestions. Papers are not finally accepted and put into production until a revised draft responding to these suggestions has been received by the Editor-in-Chief. Although this additional step requires time and effort, we have found that it greatly improves the quality of the published paper.

Finally, there are no firm limits on length. While some topics can be covered by a short article, other topics require more extensive treatment and a lengthy survey. We want to encourage authors to step forward with short papers of modest objective,

Table 1. Summary of *Computing Surveys*, Vols 1–14 (1969–1982)

Subject	Papers		Pages	
	Number	Percent	Number	Percent
Programming Methods, Validation, and Testing	29	16	591	12.2
Data Management and Organization; Information Systems; Business Applications	25	13.8	648	13.3
Modeling, Measurement, Simulation, and Evaluation	19	10.5	343	7.1
Graphics; Picture Processing	17	9.4	550	11.3
Computer Architecture; IC Design	15	8.3	419	8.6
Theory of Computation	10	5.5	207	4.3
Computer System Design	9	5.0	337	6.9
Encryption; Data Security	7	3.9	206	4.2
Man-Machine Interface Software Packages; Text Editors	8	4.4	326	6.7
Programming Languages	7	3.9	315	6.5
Data Communications; Networks; Distributed and Cooperative Computing	5	2.8	160	3.3
User Psychology; Learning Programming	5	2.8	103	2.1
Compiling and Loading	4	2.2	85	1.8
Privacy; Legal Issues	3	1.7	99	2
Fault-Tolerant Software	3	1.7	90	1.9
Microprogramming	3	1.7	65	1.3
History	3	1.7	55	1.1
Humanities Applications	2	1.1	65	1.3
Artificial Intelligence	2	1.1	63	1.3
Algorithms	2	1.1	50	1.0
Soviet Computing	2	1.1	45	0.9
Industrial Process Control	1	0.6	32	0.7

written perhaps to point out new results in an area already well surveyed, or to provide new perspectives that clarify acknowledged confusions. We have established the *Short Notes* Department for papers shorter than 4000 words (16 double-spaced manuscript pages). We will strive for rapid reviewing and timely publication of such material.

In general, it is often best to scale down the proposed area for a survey and provide thorough treatment of the subject, rather than provide minimal coverage of a larger area.

Surveyors' Forum Policy

Although we strive for accuracy and clarity, we sometimes err. To allow readers to take us to task, to note errors, and to comment on papers we have published, we established the *Surveyors' Forum*.

If there is publishable material, *Surveyors' Forum* appears in every issue of *COMPUTING SURVEYS*, including special issues. The subject matter is restricted to material previously published in *SURVEYS*. The Editor-in-Chief has sole responsibility for de-

termining which submitted comments are suitable for publication.

The commenter(s) will submit the comment in double-spaced type or print to the Editor-in-Chief. Normally, the comment should not exceed three pages, but the Editor-in-Chief will decide whether a particular topic warrants a longer comment.

The Editor-in-Chief will edit the comment, have it retyped, and secure the approval of the commenter(s). If the commenter(s) do not approve the new version, they may submit their subsequent changes and justifications, and the process will iterate until an agreement is reached.

The edited comment will be sent to the author(s) of the subject paper, who will prepare a timely reply. As with the original comment, the Editor-in-Chief will edit the reply and secure the approval of the author(s). Authors of submitted papers accept the responsibility of replying to comments upon request of the Editor-in-Chief.

The Editor-in-Chief will assign a title to the comment(s) and reply, and will collect the references into a single common set. The Editor-in-Chief will then send the en-

tire package to the Executive Editor for publication in the next available issue of **COMPUTING SURVEYS**.

Are You a Prospective Author?

If you are planning on submitting a paper to the **COMPUTING SURVEYS**, you should submit five (5) copies of your manuscript following the typing guidelines given below. Your cover letter should identify your manuscript as a (regular) Paper, a Short Note, or a Forum Letter. Your cover letter should also declare your intention to transfer your copyright to ACM should the paper be accepted.

You should submit your manuscript (and copies) directly to the Editor-in-Chief, who may, in turn, direct it to one of the Associate Editors for processing. Papers and Notes will be reviewed by at least two referees. The referees, and any Associate Editor involved, will make recommendations to the Editor-in-Chief, who will make the final acceptance decision.

As you prepare your paper, keep in mind the following questions that we pose to the reviewers:

- (1) *Is the paper technically accurate?* If the paper is a survey, is it adequately comprehensive? Are there deficiencies or misleading statements, too many opinions, or insufficient examples? Does it give proper credits?
- (2) *Is the paper clearly written?* Is it crisp? Coherent? Concise? Well organized? Does it avoid undue formalism, needless notation, obscure symbols? Is it harder than the subject requires? Would a glossary be useful?
- (3) *Does the paper emphasize intuition rather than detail?* Does it interpret results rather than merely state or derive them? Does it show how to use results? Explain their limitations? Can difficult, but necessary, material be put in appendixes rather than in the body of the paper?
- (4) *Does the paper define its audience and meet its objectives?* Does it set forth clearly the author(s)'s assumptions

about the reader's background? Are these assumptions reasonable? Does it tell the reader what to expect? What not to expect? Does it tell what material is included? Excluded? If the paper is long, does the introduction advise various classes of readers which sections to read or omit?

- (5) *Is the paper interesting?* The subject timely? Thought provoking? Is the subject of wide interest or applicability? If the paper is a tutorial, does it use examples well? Define terminology sufficiently? Does it stimulate the imagination?
- (6) *Can the references be improved?* Would annotating or categorizing items add useful information?

The most common criticism from referees is that the audience is not clearly defined, the objectives and scope are not obvious, the writing is loose and verbose, important recent work is omitted, and that there is too much strict reporting with too little interpretation and intuition.

Guidelines for Manuscript Preparation

Your entire manuscript, including the references, should be in double-spaced type, on one side only of separate 8½ × 11-inch (or International A4) sheets. Authors' names should be given without titles or degrees, along with the name and address of the organization for which the work was carried out. The acknowledgment section should include funding sources, and presentations (if any) of the material at technical meetings (with dates and sponsoring societies).

To ensure proper indexing, classification, retrieval, and dissemination, you should include the following elements in the manuscript:

- (a) descriptive title;
- (b) authors' names and affiliations—if current address differs from that at which the work was done, it should be included in a footnote;
- (c) informative abstract;

- (d) content indicators of three types:
 - (i) Categories and Subject Descriptors following *Computing Reviews* (CR) conventions,
 - (ii) General Terms,
 - (iii) Additional Key Words and Phrases;
- (e) a Table of Contents whose main sections include:

INTRODUCTION

⋮

SUMMARY

ACKNOWLEDGMENTS

REFERENCES

- (f) citations to the relevant literature.

In the text, main-section headings should be all capital letters and the Introduction should be unnumbered.

The following suggestions may be helpful in preparing this information.

Descriptive Title. Use a specific and informative title to say accurately and clearly what the document is about. Choose title terms as highly specific as content and emphasis of the paper permit. Typically, a title might contain 6 to 12 words. Avoid special symbols and formulas in titles unless essential to indicate content.

Informative Abstract. The abstract should be 150 to 200 words and should consist of short, direct, and complete sentences. It should be informative enough to serve in some cases as a substitute for reading the paper itself. It should state the objectives of the work, summarize the results, and give the principal conclusions and recommendations. It should indicate clearly whether the focus is on theoretical developments or on practical questions, and whether subject matter or method is emphasized. The title need not be repeated. Work planned but not done should *not* be described in an abstract. Because abstracts are extracted from a paper and used separately, do not use the first person, do not display mathematics, and do not use reference citation numbers. Try to avoid starting with a phrase such as "This paper. . ."

Content Indicators. Three types of content indicators are to be assigned: categories and subject descriptors, general

terms from the classification system used by *Computing Reviews*, and additional key words and phrases consisting of English language words. The latest CR classification may be found in the January 1983 issue of *Computing Reviews*, or may be obtained by addressing a request to *Computing Reviews* at ACM Headquarters.

Use as many categories and subject descriptors as may be applicable. General terms are those common to more than one area of the computing field and are chosen from the fixed list given at the beginning of the classification system. Additional key words and phrases should not be synonymous with those already in the classification system: they should either be more specific than the subject descriptors, or they should be words that are not covered by the existing system at all. In this last case, the following guidelines for selection may be helpful:

- (a) use important terms from the title; include also their synonyms, related words, and words of higher or lower generic rank;
- (b) use English nouns, or noun-noun and noun-adjective combinations; do *not* use hyphens unless the hyphenated parts are normally treated as a single unit;
- (c) use specific terms whose meanings are generally accepted in the computer field and try to avoid broad catchall terms (such as "computer," "system," "description"); similarly, avoid private terms or acronyms that may not be generally known.

Citations. COMPUTING SURVEYS has adopted an author-date (name and year) system for citing and listing reference material. This new system replaces the alphanumeric bibliographical key system used from 1969 through 1982.

References cited in the text should include the last name of the author(s) and the year of publication, for example, [Denning 1978] or [Smith and Smith 1977]. When the citation includes three or more authors, it should read [Astrahan et al. 1979]. A trailing lowercase letter should distinguish multiple papers by the same

author(s) published during a single year, for example, [Andrews and Schneider 1982a].

In general, the citation, enclosed in brackets, should appear at the end of the sentence in which it is given. Multiple citations in the same sentence should be enclosed within brackets and separated by semicolons, for example, [Dijkstra 1972; Hoare 1972]. If part or all of the citation is incorporated into the text, then the author should be named directly, without brackets, then cited at the end of the sentence; for example, "Wirth observed ... [Wirth 1975a]."

The reference list should be arranged alphabetically by author's last name, followed by the date. In the case of multiple listings by a single author, the earliest publication appears first. When an author is listed both as a single author and as a senior author with coauthor(s), all of the single-author listings precede the multiple-author listings, with the latter arranged alphabetically by last name of successive authors. Again, chronological order is used for multiple papers by the same set of authors. The lowercase letter used in the citation to distinguish multiple papers by the same author(s) in the same year should be displayed in the reference list.

Every effort should be made to cite the most recent and most widely available version of a publication, making it possible for readers to locate the cited papers and books easily. Furthermore, authors should attempt to cite as much of the relevant work as possible, since *COMPUTING SURVEYS* articles often serve as a starting point for studying a subject area.

Algorithms and Program Segments. Algorithms and displayed program segments are set in reduced type, flush left on the column. Because of the narrow column width, long lines or heavily indented material cannot be accommodated on a single line, and the material should be arranged accordingly. Alignments should be clearly demonstrated, acceptable breaking points noted, and the placement of runovers indicated.

Figures. Figures should be drawn on smooth white paper or drafting linen. Let-

ters and numbers may be drawn professionally with a LeRoy Lettering Set (or similar sets) and with clear black ink (preferably India ink). Alternatively, figures may be phototypeset with the aid of programs for equations, pictures, tables, and text. Figures will be reduced to center on a maximum width of 12.5 cm (5 inches), with capital letters approximately 2mm high after reduction. Captions will be typeset by the compositor. The figure number, author's name, and name of the publication (abbreviated) should appear on the back of each figure. Because figures are photographed, not typeset, for publication, even the smallest correction requires reshooting. All figures, therefore, should be checked carefully for accuracy to avoid this costly and time-consuming procedure.

Mathematical Expressions

(1) Avoid the use of built-up fractions in the text; that is, use $1/n$ instead of $\frac{1}{n}$; use the negative exponent form n^{-1} instead of $\frac{1}{n}$; use $(1+n)^{-2}$ instead of $\frac{1}{(1+n)^2}$. If not avoided by the author, built-up fractions will be converted to equivalent expressions on the line when the paper is copyedited. In displayed matter, though, built-up fractions are preferred for clarity.

(2) Avoid the use of small-type-font mathematical expressions centered above or below arrows. If possible, try to use an alternative format.

(3) In the exponential function, avoid exponents having more than one or two characters; that is, instead of

$$e^{x^2+y^2}$$

use $\exp(x^2 + y^2)$.

(4) Avoid the use of reference numbers for equations that are not subsequently referenced in the paper. Costs are reduced if the mathematical equations and other expressions in the text are run in (instead of each displayed on a separate line). Remember that in *COMPUTING SURVEYS*, because of the narrow column width, relatively small segments of mathematical displays can be accommodated on a single line. Authors must expect that when accepted

papers are copyedited, excess equation reference numbers will be deleted and equations will be run in with text.

(5) Be sure to indicate special marking for symbols (e.g., italics, boldface) and clearly identify any unusual symbols. Try to avoid underscored symbols because they often require hand composition and insertion of extra space between lines, and thus are expensive. In vector notations, indicate which letters or notations, if any, should be set in boldface type. Indicate if asterisks are to be set in superscript position or centered on the line.

Phototypesetting. Unfortunately, ACM is not yet able to publish articles from a tape containing text with instructions for a phototypesetting program. As a result, authors must be prepared to check galley proofs for typesetting errors.

We have found, though, that machine processable, including phototypeset, *submissions* are helpful both to authors and reviewers, particularly since each paper goes through one or more revisions during the review and editing process. Furthermore, typeset material may easily be used for figures, which is particularly helpful for displaying computer programs. We have noted that many of the above-cited problems of manuscript preparation may be overcome with such systems. We therefore encourage authors to use text-processing programs for preparing their submissions, and hope to be able to publish papers directly from phototypesetter input eventually.

Copyright Policy

It is ACM's policy to own the copyrights in its technical publications. Not only does this protect ACM and its authors and their employers, but it also facilitates the reuse of the material by others in accordance with ACM's scientific and educational purposes.

The 1977 U.S. Copyright Law requires that the transfer of each private author's copyright be confirmed in writing. The law states that documents whose authors are employed by the U.S. government are already in the public domain and cannot be copyrighted.

Each author of an accepted paper will be asked to sign the ACM copyright form as a condition of publication; this form confirms the copyright transfer of a private author or the U.S. Government status of other authors. Private authors retain all proprietary rights other than copyright (such as patent right); particularly, they retain the right to use any part of the article with proper acknowledgment to ACM in their own future works, such as lectures, articles, reviews, textbooks, or reprint books.

When you submit your paper, you will receive a sample copy of the ACM copyright form. You will not be asked to sign the form until and unless the paper is accepted.

Further copyright information can be obtained from the Director of Publications, ACM Headquarters.

Prior Publication. The technical contributions appearing in ACM journals are normally original papers which have not been published elsewhere. Widely disseminated conference proceedings and newsletters constitute a form of publication, although they are only semiarchival and often unreferenced. Publication, or republication, or a (perhaps revised) paper which has been widely disseminated is permitted only if the Editor-in-Chief judges that (a) the revision contains significant amplification or clarification of the original material, or (b) there is significant additional benefit to be gained from journal republication. In either case, any prior appearance should be noted on the title page of the paper.

Papers prepared for COMPUTING SURVEYS are occasionally excerpted from a book written by the same author(s). The prior publication rule implies that the published paper must *appear* prior to the publication of the book.

Permission to Reprint. If your paper includes material (quotations of about 60 words or more, tables, or figures) that has been quoted exactly from or has been adapted from a published source, you must

- (1) write to the copyright owner (usually the publisher) and request permission to republish; the copyright owner's permission must be obtained in writing;
- (2) write to the author and request permis-

sion to republish (most publishers grant permission contingent upon that of the author); the author's permission must be obtained in writing;

- (3) forward the *original* letters of permission to ACM immediately upon receipt and retain copies for your own records;
- (4) credit the source in your paper (e.g., Reprinted from . . . ; Adapted from . . .).

Page Charges

At its meeting of May 1981, the ACM Publications Board instituted a voluntary page charge of \$30 per printed page for authors of accepted papers. The purpose of the page

charge is to help defray some of the publication costs. Publication does not in any way depend on payment.

Conclusion

This policy document is intended to cover most of the commonly asked questions and frequently occurring problems in the process of handling papers and editing *COMPUTING SURVEYS*. The Editor-in-Chief will be glad to try to provide answers to other questions as appropriate, and will try to respond to queries concerning the suitability of manuscripts for *COMPUTING SURVEYS*.