

ACM'S Computing Classification System Reflects Changing Times

ACM's Computing Classification System (CCS) has been updated. The 1998 CCS (effective in January) is now available at <http://www.acm.org/class/>, together with its 1964 and 1991 predecessors.

CCS forms the framework for indexing all literature reviewed in *Computing Reviews* and for all documents indexed in the *ACM Guide to Computing Literature*. It is also utilized extensively by numerous professionals, groups, organizations, and libraries in organizing and interpreting the broad range of computing literature.

The revision effort began in spring 1996. Support from the ACM SIG Discretionary Fund and from the ACM Publications Board facilitated this needed revision. Many other volunteers and ACM staff contributed by providing suggestions and reviewing drafts of the update.

The revised CCS remains a tree structure with 11 top-level nodes and a maximum of four levels of nodes. The 1998 CCS does not alter the 11 major categories; however, many key words and phrases were added or deleted at the lower levels, with the greatest number of changes at the lowest level, or subject descriptor level. Indeed, over 225 new terms were added and over 150 terms were "retired." (Terms are retired instead of deleted because retired terms remain available for searching previously indexed literature,

although retired terms will not be used for further indexing.) Over 10 new third-level nodes were added, while more than 10 others were retired. Preserving the ability to search literature based on retired terms is essential for *Guide* users.

Computing is a rapidly evolving discipline, so keeping CCS current is a challenging task. For instance, some current popular topics not listed in the 1991 CCS include the World-Wide Web and its associated subjects, software architectures, and sound and music computing. Moreover, many other listed technical territories have expanded in areas readily recognizable by their domain experts.

The Update Committee was charged with recommending ways to provide more frequent, flexible, and useful taxonomy revisions to the professional community. The Committee considered both the option of a CCS maintenance plan and the feasibility of dissolving the format that has been in place since 1982 and replacing it with an entirely new structure.

The Update Committee recommends a CCS Maintenance Committee be established with volunteers who will annually review proposed changes to CCS and suggest updates. The proposed new terms for the CCS Maintenance Committee would come from four general sources:

- The ACM-based indexers who

perform the indexing for *Guide*

- A list of free-text words and their frequency of appearance in relevant bibliographic databases
- Editors from *Computing Reviews* and other professional publications
- The general public (via a Web page).

The Maintenance Committee would also consider the number of times CCS terms were used over the past three years to assist in retiring terms and in expanding nodes.

The Update Committee also considered the longer-range issue of ensuring that CCS's basic structure adequately reflects the encompassing view of computing, while still allowing consistent searches of literature based on a (possibly) different structure. The constraint of historical searches severely limited the Committee's options in its update, but it recognized the pressing need for a more functional CCS before consideration of a fundamentally different scheme.

The Committee recommends the following:

1. Perform a more careful and conclusive analysis of the strengths and weaknesses of the current CCS. (What are its goals, and how does it meet these goals?) This would include an evaluation of the range of docu-

ments that are now indexed in *Guide* to ensure it is widely representative of the field of computing. This should be done by a team of experts representing all subfields of computing, including representatives from the IEEE Computer Society.

2. Study other bibliographic database systems, including their indexing schemes, methodologies for keeping taxonomies current, and software support and other tools (dictionaries) for database maintenance and searching.

3. Consider the development of an online dictionary or thesaurus for CCS that would interact with the new taxonomy and assist users and indexers who work with the database. Such a dictionary would provide not only definitions of terms but also important informa-

tion about synonymy and semantic hierarchy.

4. Design a new taxonomy by using a variety of contemporary sources (including the current CCS and the documents mentioned earlier) that might reflect the modern structure of the field and its published literature more accurately.

5. Use statistical content analysis methods to corroborate/refine this new taxonomy using a significantly large corpus of text from the current published literature.

6. Suggest a mapping function that preserves the historical integrity of the current database and CCS taxonomy in future searching and indexing activities. It should connect the terms in the new taxonomy both with the terms in the current taxonomy

and the terms in the online dictionary.

The Committee hopes these changes and recommendations for future maintenance and improvement of CCS will serve the professional community well. The Web site used during the update (www.acm.org/class/update) remains available for anyone wishing to contribute suggestions for future revisions.

NEAL COULTER

Editor-in-Chief

*Computing Reviews and ACM
Guide to Computing Literature*

Members of the CCS Update Committee are Neal Coulter (Chair), James French, Thomas Horton, Ephraim Glinert, Nancy Mead, Roy Rada, Anthony Ralston, Allen Tucker, Peter Wegner, and Eric Weiss; participating ACM staff are Bernard Rous, Carol Wierzbicki, and Craig Rodkin.

Nominees for Elections and Report of the ACM Nominating Committee

In accordance with the Constitution and Bylaws of the ACM, the Nominating Committee hereby submits the following slate of nominees for ACM's offices. Besides the officers of the ACM, two Members at Large, and the Western Regional Representatives election will be elected. The names of the candidates for each office are presented in random order below:

PRESIDENT (7/1/98 - 6/30/00):

Barbara Simons, IBM

Mary Jane Irwin, Penn State University

VICE PRESIDENT (7/1/98 - 6/30/00):

A. Joe Turner, Clemson University

Doris Lidtke, Towson University

SECRETARY (7/1/98 - 6/30/00):

Claus Unger, University of Hagen

Mark Scott Johnson, Softwire Corporation

MEMBERS AT LARGE (7/1/98 - 6/30/02):

Maria Klawe, University of British Columbia

Charles Thacker, Microsoft Corporation

David Brown, Sun Microsystems

Lezsek Pacholski, Wroclaw University

WESTERN REGION (7/1/98 - 6/30/01):

Bryan Preas, Xerox PARC

David Kasik, Boeing Commercial Airplanes

The Constitution and Bylaws provide that candidates for elected offices of the ACM may also be nominated by petition of one percent of the Members who as of November 1 are eligible to vote for the nominee. Such petitions must be accompanied by a written declaration that the nominee is willing to stand for election. The number of Member signatures required for the each office is as follows: President, Vice President, Secretary and Members at Large: 574; Western Regional Representative: 158.

The Bylaws provide that such petitions must reach the Elections Committee before January 31. Original petitions for ACM offices are to be submitted to the ACM Elections Committee, c/o Pat Ryan, ACM Headquarters, by January 31, 1998. Duplicate copies of the petitions should also be sent to the Chair of the Elections Committee, Gerry Segal, Chief Information Architect, New York State Psychiatric Institute, 722 West 168th Street, New York, NY 10032, USA. All candidates nominated by petition are reminded of the requirements stated in the Policy and Procedures on Nominations and Elections that a candidate for high office must meet in order to serve with distinction. Copies of this document are available from Rosemary McGuinness, Office of Policy and Administration, ACM Headquarters. Statements and biographical sketches of all candidates will appear in the May 1998 issue of CACM.

The Nominating Committee would like to thank all those who helped us with their suggestions and advice.

Robert Ritchie, Chair
Judy Brown
David Patterson
Maurice Wilkes
Stuart Zweben