

SIGMOD Record

SIGMOD Record is a quarterly publication of the Special Interest Group on Management of Data (SIGMOD) of the Association for Computing Machinery (ACM). SIGMOD is dedicated to the study, development, and application of database and information technology. SIGMOD Record Web Edition is also freely available online at <https://sigmodrecord.org/>.

SIGMOD Record solicits contributions of articles, reports, and proposals for special sections. Conference announcements and calls for papers can be published if relevant to the interests of the SIGMOD community and, in most cases, are limited to one page. The SIGMOD Record editorial policy can be found online at: <https://sigmodrecord.org/sigmod-record-editorial-policy/>.

Papers should be submitted electronically in PDF format through the submission site for SIGMOD Record at <https://mc.manuscriptcentral.com/sigmodrecord/>. Detailed information for authors is available at <https://sigmodrecord.org/authors/>.

Notice to Contributing Authors to SIG Newsletters

As a contributing author, you retain copyright to your article. ACM will refer all requests for republication directly to you. By submitting your article for distribution in any newsletter of the ACM Special Interest Groups, you hereby grant to ACM the following non-exclusive, perpetual, worldwide rights:

- to publish your work online or in print on condition of acceptance by the editor
- to include the article in the ACM Digital Library and in any Digital Library-related services
- to allow users to make a personal copy of the article for noncommercial, educational, or research purposes
- to upload your video and other supplemental material to the ACM Digital Library, the ACM YouTube channel, and the SIG newsletter site

Furthermore, you affirm that:

- if third-party materials were used in your published work, supplemental material, or video, that you have the necessary permissions to use those third-party materials in your work

Editor-in-Chief:

Rada Chirkova, North Carolina State University, <rychirko AT ncsu.edu >

Associate Editors:

- Lyublena Antova (Industry Perspectives and Reports), Meta, <lyublena AT fb.com >
- Marcelo Arenas (Research Highlights), Catholic University & IMFD Chile, <marenas AT ing.puc.cl >
- Manos Athanassoulis (DBrainstorming), Boston University, <mathan AT bu.edu >
- Renata Borovica-Gajic (Surveys), The University of Melbourne, <renata.borovica AT unimelb.edu.au >
- Vanessa Braganholo (Distinguished Profiles), Universidade Federal Fluminense, <vanessa AT icc.uff.br >
- Susan B Davidson (The Future of Data(base) Education), UPenn, <susan AT seas.upenn.edu >
- Aaron J. Elmore (Research and Vision columns), University of Chicago, <aelmore AT cs.uchicago.edu >
- Wook-Shin Han (Research and Vision columns), POSTECH, <wshan AT dlab.postech.ac.kr >
- Wim Martens (Research Highlights), University of Bayreuth, <wim.martens AT uni-bayreuth.de >
- Kyriakos Mouratidis (Research Centers), Singapore Management University, <kyriakos AT smu.edu.sg >
- Dan Olteanu (Database Principles), University of Oxford, <dan.olteanu AT cs.ox.ac.uk >
- Tamer Özsu (Advice to Mid-Career Researchers), University of Waterloo, <tamer.ozsu AT uwaterloo.ca >
- Kenneth Ross (Research Highlights), Columbia University, <kar AT cs.columbia.edu >
- Pinar Tözün (Reminiscences on Influential Papers), IT University of Copenhagen, <pito AT itu.dk >
- Immanuel Trummer (Research columns), Cornell University, <it224 AT cornell.edu >
- Yannis Velegarakis (Systems and Prototypes), Utrecht University, <i.velegarakis AT uu.nl >
- Marianne Winslett (Distinguished Profiles), University of Illinois, <winslett AT cs.uiuc.edu >

SIGMOD Record (ISSN 0163-5808) is published quarterly by the Association for Computing Machinery, 1601 Broadway, 10th Floor, New York, NY 10019-7434. Periodicals postage paid at New York, NY 10001, and at additional mailing offices.

POSTMASTER: Send address changes to SIGMOD Record, ACM, 1601 Broadway, 10th Floor, New York, NY 10019-7434.