



LocalRec 2024

Proceedings of the 8th ACM SIGSPATIAL International Workshop on
Location-based Recommendations, Geosocial Networks and Geoadvertising
(LocalRec 2024)

Oct. 29th, 2024, Atlanta, USA

Editors:

Clio Andris, Georgia Tech, USA

Panagiotis Bouros, Johannes Gutenberg University Mainz, Germany

Yaron Kanza, AT&T Labs – Research, USA

Matthias Renz, Christian-Albrechts-Universität zu Kiel, Germany

Dimitris Sacharidis, Université Libre de Bruxelles, Belgium

The Association for Computing Machinery, Inc.
1601 Broadway, 10th Floor
New York, NY 10019-7434

ACM COPYRIGHT NOTICE.

Copyright © 2024 by the Association for Computing Machinery, Inc (ACM). Permission to make digital or hard copies of portions of this work for personal or classroom use is granted without fee provided that the copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page in print or the first screen in digital media. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers, or to redistribute to lists, requires prior specific permission and/or a fee. Request permission to republish from: Publications Dept. ACM, Inc. Fax +1-212-869-0481 or E-mail <permissions@acm.org>.

For other copying of articles that carry a code at the bottom of the first or last page, copying is permitted provided that the per-copy fee indicated in the code is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

Notice to Past Authors of ACM-Published Articles

ACM intends to create a complete electronic archive of all articles and/or other material previously published by ACM. If you have written a work that was previously published by ACM in any journal or conference proceedings prior to 1978, or any SIG Newsletter at any time, and you do NOT want this work to appear in the ACM Digital Library, please inform permissions@acm.org, stating the title of the work, the author(s), and where and when published.

ACM ISBN: 979-8-4007-1152-7

Additional copies may be ordered prepaid from:

ACM Order Department

P.O. BOX 11405

New York, NY 10286-1405

Phone: 1-800-342-6626 (USA and Canada)

+1-212-626-0500 (Global)

Fax: +1-212-944-1318

E-mail: acmhelp@acm.org

Printed in the USA

FOREWORD

The eighth edition of the ACM SIGSPATIAL Workshop on Location-based Recommendations, Geosocial Networks and Geoadvertising (LocalRec 2024) was held as a half-day workshop, in conjunction with the 32nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2024). We have compiled these proceedings containing the papers selected for presentation.

The amount of publicly available geo-referenced data has seen a dramatic explosion over the past years. Human activities generate data and traces that are now often transparently annotated with location and contextual information. At the same time, it has become easier than ever to collect and combine rich and diverse information about locations. With the advent of smartphones and social networks, a multi-billion dollar industry has emerged which utilizes geosocial data for advertising and marketing. For example, geospatial data about people such as geotagged social media posts, GPS traces, data from cellular antennas and WiFi access points are used on a wide scale to directly access people for advertising, recommendations, and group purchases. Exploiting this torrent of geo-referenced data provides a tremendous potential to materially improve existing services and offer novel ones, with clear benefits in multiple domains. Furthermore, with the recent technological advances, Generative AI and Large Language Models (LLMs) are also affecting the area of location-aware recommender systems and geoadvertising. In this context, new technologies are required for collecting, storing, analyzing and utilizing the data. Additionally, challenges in the areas of responsibility, accountability, transparency, fairness, adequacy (e.g. avoiding ads in improper places) and preventing misconduct, naturally arise.

Fully exploiting this potential requires addressing many core challenges and combining ideas and techniques from various research communities, such as recommender systems, data management, geographic information systems, social network analytics, text mining and Generative AI. By bringing together researchers and practitioners from these communities, this workshop aims to provide a unique forum for discussing in depth and collecting feedback about challenges, opportunities, novel techniques and applications.

LocalRec 2024 received a total of 5 research paper submissions, out of which 2 were accepted as full papers, and 2 as short. The program of the workshop was organized in 2 sessions, and includes 2 keynotes, and a panel on the topic of “The Effect of Gen AI on Location Recommendations and Geoadvertising: Challenges, Opportunities, and the Role of Regulation”.

We hope that these proceedings will inspire new research ideas, and that you will enjoy reading them.

ACKNOWLEDGEMENTS

We would like to thank the authors for publishing and presenting their papers. We would also like to thank the program committee whose reviewing efforts are important for ensuring the quality of the accepted papers. In addition, many thanks to our keynote speakers Clio Andris and Subhro Guhathakurta from Georgia Institute of Technology, who kindly accepted our invitation to share their research in LocalRec 2024, and to the panel members Yao-Yi Chiang, Gengchen Mai, Mario Nascimento, and Liang Zhao.

ORGANIZERS

ORGANIZING COMMITTEE:

Clio Andris, Georgia Institute of Technology, USA
Panagiotis Bouros, Johannes Gutenberg University Mainz, Germany
Yaron Kanza, AT&T Labs – Research, USA
Matthias Renz, Christian-Albrechts-Universität zu Kiel, Germany
Dimitris Sacharidis, Université Libre de Bruxelles, Belgium

PROGRAM COMMITTEE:

Dirk Ahlers, Norwegian University of Science and Technology, Norway
Matthias Braunhofer, Microsoft, Germany
Federica Cena, University of Torino, Italy
Theodoros Chondrogiannis, University of Konstanz, Germany
George Christodoulou, Delft University of Technology, Netherlands
Arie Croitoru, George Mason University, VA, USA
Haosheng Huang, Ghent University, Belgium
Vana Kalogeraki, Athens University of Economics and Business, Greece
Yuhao Kang, University of Wisconsin-Madison, WI, USA
Chrysanthi Kosyfaki, The University of Hong Kong
Amr Magdy, University of California, Riverside, CA, USA
Rajat Malik, AT&T, NY, USA
Kjetil Nørvåg, Norwegian University of Science and Technology, Norway
Dimitris Papadias, The Hong Kong University of Science and Technology
Dimitrios Skoutas, Athena Research Center, Greece
Wolfgang Würndl, Technical University of Munich, Germany
Hongyu Zhang, University of Massachusetts Amherst, USA

SPONSORS

CORPORATE SPONSORS

Platinum



Bronze



**QUANTUM
GEOMETRY LLC**



PUBLISHER SPONSORS

Bronze



TABLE OF CONTENTS

Beyond Smart Cities: The Role of Technology in Resilient Urban Futures	1
<i>Subhro Guhathakurta (Georgia Institute of Technology)</i>	
Road Generalization Method Using Minimum Steiner Tree for Dynamic Generation of Illustrated Maps	5
<i>Yuki Kobayashi (Nagoya Institute of Technology), Yonghwan Kim (Nagoya Institute of Technology), Daisuke Yamamoto (Nagoya Institute of Technology)</i>	
A FAIR Public Permissioned Blockchain System for monitoring deforestation in the Amazon	9
<i>Christos Daoulas (Université Libre de Bruxelles), Dimitris Sacharidis (Université Libre de Bruxelles)</i>	
Spatial Heterogeneity and Influencing Factors of Music Training Institutions in Beijing-Tianjin-Hebei Urban Agglomeration	13
<i>Wenwen Liu (Henan Normal University), Jun Zhao (Henan Normal University), Shaohua Wang (Aerospace Information Research Institute), Chang Liu (Aerospace Information Research Institute), Xiaojian Liang (Lanzhou Jiaotong University), Xiangwen Cui (Henan Normal University), Chunxiang Cao (Aerospace Information Research Institute), Jianning Yang (China Conservatory of Music), Nanmu Su (Peking University Nanning Affiliated Experimental School)</i>	
Understanding Individual-Space Relationships to Inform and Enhance Location-Based Applications	20
<i>Licia Amichi (Oak Ridge National Laboratory), Gautam Thakur (Oak Ridge National Laboratory), Carter Christopher (Oak Ridge National Laboratory)</i>	