

15<sup>th</sup> March 2015

Professor Prof. László Zentai  
Secretary-General & Treasurer  
International Cartographic Association

Takashi MORITA  
Chair of the National Committee for Cartography,  
Science Council of JAPAN

Dear Professor László Zentai,

I am very pleased to inform you that the National Committee for Cartography, Science Council of Japan, proposes the items below to the ICA:

**1) ICA Commission (2015-2019)**

Commission on Ubiquitous Mapping (continue)

Terms of reference:

1. Place the notion of Ubiquitous Mapping based on real-world map interaction and ICT-based context-aware mapping services in the domain of Theoretical Cartography; examining (1) Primal mapping between geomeia (real, graphic and language spaces) and human (cognitive space), and (2) Secondary or ICT-based mapping between geomeia (real, graphic and language spaces) and geodatabase.
2. Develop the theory of Map Evolution on ICT enabled socio-cultural environment, by (1) Clarifying similarity and difference in comparing variant systems to establish an evaluation scheme, (2) Revealing significant factors such as ubiquity and egocentrism for Map Evolution on ICT, and (3) Creating map evolutionary tree diagrams representing natural selection of maps in past, current and future according to real ICT-based ubiquitous mapping services and socio-cultural environment of different countries, particularly East Asia.
3. Organize regional workshops including site observation to comprehend contemporary situation of ubiquitous mapping. Particularly, this commission focuses on East Asian modern cultures in Cartography, which is important as a growing economic-center and has the differences from Western situation of Cartography. We

will investigate the diversity and soundness in the evolution of Cartography in Asian countries. We will also create publications about Cartography for ubiquitous computing environments.

Website of the commission on Ubiquitous Mapping

<http://ubimap.csis.u-tokyo.ac.jp/>

Chair: Masatoshi Arikawa

Center for Spatial Information Science

The University of Tokyo

5-1-5, Kashiwa-no-ha, Kashiwa City

Chiba 277-8568

Japan

phone: +81-4-7136-4305

fax: +81-4-7136-4292

e-mail: [arikawa@csis.u-tokyo.ac.jp](mailto:arikawa@csis.u-tokyo.ac.jp)

Vice-chair: Yuefeng Liu

Institute of Remote Sensing and Geographic Information System

Peking University

China

e-mail: [yuefengliu@pku.edu.cn](mailto:yuefengliu@pku.edu.cn)

## **2) ICA Vice-President (2015-2019)**

Professor Masatoshi Arikawa (University of Tokyo) => cf. attached CV and letter of intent

## **3) Bid for GA and ICC2019**

The National Committee for Cartography, Science Council of JAPAN proposes to organize the 17th General Assembly of Delegates and the 29th International Cartographic Conference in 2019 in Tokyo-JAPAN. => cf. dispatched Bid Book on the 8<sup>th</sup> March 2015

**4) Delegates for general assembly**

Principal delegate: Takashi MORITA

Deputy delegate: Masatoshi ARIKAWA

Sincerely yours,

A handwritten signature in blue ink, appearing to be 'Takashi Morita', with a long horizontal line extending to the left.

Takashi Morita

## CV



*Masatoshi ARIKAWA*

He is a professor of the Center for Spatial Information Science (CSIS) at the University of Tokyo. His research interests include cartography, spatial information technology, databases, virtual reality and user interfaces. He received the Ph.D. degrees in computer science and communication engineering from Kyushu University, Fukuoka, Japan, in 1992. He researches on developing new spatial communication tools to enhance spatial ability of people. He is now the chair of commission of Ubiquitous Mapping, International Cartographic Association, and the chair of the board of directors of Japan Cartographers Association (JCA). He was also the editor in chief of Journal of Geographic Information System Association from 2002 to 2004, and a vice chair of Special Interest Group of Data Engineering, the Institute of Electronics, Information and Communication Engineers (IEICE) from 2000 to 2003. He is also a member of CaGIS, IEEE, ACM, GISA (GIS Association), IPSJ (Information Processing Society of Japan), and VRSJ (Virtual Reality Society of Japan). He is a committee member of Japan's committee of ISO/TC211. His center is a university member of OGC and he is a representative of it. His email address is [arikawa@csis.u-tokyo.ac.jp](mailto:arikawa@csis.u-tokyo.ac.jp).

Name in Full: Masatoshi ARIKAWA

Born: September 8th, 1962 in Fukuoka Prefecture, Japan

Age: 52

Citizenship: Japanese

Languages: Japanese, English

Marital status: Married

Residence: Tokyo, Japan

Occupation:

Professor and Director of the Division of Joint Use and Research,

Center for Spatial Information Science (CSIS), The University of Tokyo

Address of My Office: 5-1-5, Kashiwanoha, Kashiwa City, Chiba 277-8568, Japan

Tel: +81-4-7136-4291

Fax: +81-4-7136-4292

E-mail: arikawa@csis.u-tokyo.ac.jp

#### [Degrees]

1992 Ph. D. in Computer Science and Communication Engineering  
from Kyushu University

"Studies on View Functions for Geographic Databases"

1988 Master of Engineering in Computer Science and Communication Engineering  
from Kyushu University

1986 Bachelor of Engineering in Computer Science and Communication Engineering  
from Kyushu University

#### [Awards]

IP SJ (Information Processing Society of Japan) Convention Award, 1988

Award, Division of Education, GIS Association, 2006

Award, Division of Software, GIS Association, 2006

Cyber Japan Award, Division of PC, Geospatial Information Authority of Japan, 2013

#### [Work experience]

2010- PROFESSOR

Center for Spatial Information Science, University of Tokyo, Tokyo, Japan

- Study on Spatial Information Science and Technology, Databases, Internet Applications,  
Computer Cartography, and Mobile Computing.

1999-2010 ASSOCIATE PROFESSOR

Center for Spatial Information Science, University of Tokyo, Tokyo, Japan

- Study on Spatial Information Science and Technology, Databases, Internet Applications, Computer Cartography, Mobile Computing, and Media Art.

1994-99 ASSOCIATE PROFESSOR

Department of Intelligent Systems, Hiroshima City University, Hiroshima, Japan

- Conducted researches in interactive 3d graphics, cscw, high-speed computer networks, databases systems, geographic information systems, object-oriented programming, query languages, visual user interfaces, and map generation.
- Taught Compiler, PC Hardware Programming, Data Structures & Algorithms, Database Systems, 3D Computer Graphics to about 60 to 180 undergraduate students.

1996, Feb-Mar VISITING SCHOLAR

The National Center for Geographic Information and Analysis (NCGIA),  
Department of Geography,

University of California, Santa Barbara (UCSB), California, USA

- Work on dynamically changeable visual interfaces and to understand more about the human cognitive model for them.

1993-94 RESEARCH ASSOCIATE

Department of Information Science, Kyoto University, Kyoto, Japan

- Conducted researches in databases systems, geographic information systems, object-oriented programming, object-oriented data models, query languages, visual user interfaces, and map generation.
- Led seminars on database systems, algorithms, object-oriented programming, computer graphics, computational geometry, graphical user interface and cartography to senior students and graduate students of Dept. of Information Science in Kyoto University.

1989-93 RESEARCH ASSOCIATE

Department of Computer Science and Communication Engineering

Kyushu University, Fukuoka, Japan

- Conducted researches in databases systems, geographic information systems, object-oriented programming, object-oriented data models, query languages, visual user interfaces, and map generation.
- Led exercises on making a 8-bits CPU by 74 series TTL-IC's, and

concurrent programming on UNIX Operating Systems to undergraduate students of Dept. of Computer Science and Communication Engineering in Kyushu University.

- Led seminars on database systems, algorithms, object-oriented programming, computer graphics, computational geometry, graphical user interface and cartography to senior students and graduate students of Dept. of Computer Science and Communication Engineering in Kyushu University.

1988-89 RESEARCH ASSOCIATE

Kyushu University Computer Center

Kyushu University, Fukuoka, Japan

- Conducted researches in databases systems, scientific visualization, geographic information systems, object-oriented data models, query languages.
- Led a tutorial on information retrieval systems and scientific databases available in Kyushu University Computer Center for users of various faculties in Kyushu University.
- Led seminars on scientific visualizations and statistical analysis packages for technical staffs of Kyushu University Computer Center.
- Edited monthly books to inform users information concerning Kyushu University Computer Center.

1987-88 TEACHER

The Course of Information Processing (a college)

School Service of Business, Fukuoka, Japan

- Taught BASIC Programming and system design to about 40 students.

1987-88 TEACHING ASSISTANT

Department of Computer Science and Communication Engineering

Kyushu University, Fukuoka, Japan

- Taught 3rd year students of Dept. of Computer Science and Communication Engineering in Kyushu University how to use a CAD software for designing and testing logic circuits.

1984 TRAINEE AND PROGRAMMER

Hitachi Software Co., Yokohama, Japan

- Designed and implemented an editor for drawing in Hitachi Software Co., when I was a 3rd year undergraduate student in Kyushu University.

[Society Activity]

1. PC Chair, International Symposium on Cartography in Internet and Ubiquitous Environments, Sponsored by ICA and Center for Spatial Information Science, the University of Tokyo, March 17-19, 2015.
2. Vice-Chair, ICC Bid Committee, Japan, 2015
3. Chair, Commission of Ubiquitous Mapping, International Cartographic Association (ICA), 2011-2015
4. Member, National Committee for Cartography, Science Council of Japan, 2012-2016
5. Chair, the board of directors of Japan Cartographers Association (JCA), 2013-2017
6. Member, the board of directors of Japan Cartographers Association (JCA), 2009-2013
7. Member, the board of trustees of Japan Cartographers Association (JCA), 2005-2009
8. Member, Committee of reviewing digital national base maps, The Geospatial Information Authority of Japan (GSI), 2013-2014.
9. Member, Committee of reviewing metadata for geospatial information, The Geospatial Information Authority of Japan (GSI), 2012-2013.
10. Chair, Committee of reviewing the internal standard of geographic identifiers, The Geospatial Information Authority of Japan (GSI), 2010-2011.
11. PC Member, W2GIS, 2003-
12. PC Member, ICT-EurAsia conference, 2011-
13. PC Member, ER 2012
14. PC Member, the International Symposium on Spatial Data Handling 2012
15. Reviewer, XXII International Society for Photogrammetry & Remote Sensing Congress 2012
16. Workshop Chair, The 18th International Conference on Geoinformatics 2010, Peking University, June 18th-20th, 2010, Beijing, China
17. PC Member, Joint International Conference on Theory, Data Handling and Modelling in GeoSpatial Information Science, Hong Kong, The Hong Kong Polytechnic University, 26-28 May, 2010.
18. PC Member, 2009 International Workshop on Theory and Applications Frontier of Location Based Services, 4 to 6 June, 2009 in Qindao China, published by IEEE CS (Indexed by EI).
19. PC Member, DASFAA (The International Conference on Database Systems for Advanced Applications) , 2005-2008
20. Member, Editorial Committee, GIS Association, 2006-2008
21. Chair, Editorial Committee, GIS Association, 2004-2006



22. Vice-Chair, Editorial Committee, GIS Association, 2002-2004
23. Member, Editorial Committee, GIS Association, 2000-2002
24. Member, Editorial Committee, DBSJ(DataBase Society of Japan), 2005-2011

[Major papers written in English]

1. Min Lu and Masatoshi Arikawa, Creating Geo-enabled Hand-drawn Maps: An Experiment of User-generated Mobile Mapping, the International Journal of Cartography, 2015, to appear
2. Yasushi Inoue, Ken'ichi Tsuruoka and Masatoshi Arikawa, Spatio-temporal story mapping animation based on structured causal relationships of historical events, ISPRS TC IV Symposium on Geospatial Databases and Location Based Services, 14-16 May 2014, Suzhou. (USB Proceedings)
3. Ruochen Si, Min Lu, Masatoshi Arikawa, Yasushi Asami and Junko Iwasaki, Finding good areas for renting apartments using apartments information and users' trajectories. ISPRS TC IV Symposium on Geospatial Databases and Location Based Services, 14-16 May 2014, Suzhou. (USB Proceedings).
4. Min Lu and Masatoshi Arikawa, Walking on a Guidebook with GPS: a Framework Geo-enabling Pages with Illustrated Maps in LBS, Principle and Application Progress in Location-Based Services, Lecture Notes in Geoinformation and Cartography 2014, Springer, pp 243-264.
5. Hideki Kaji and Masatoshi Arikawa, Blog Based Personal LBS, Distributed, Ambient, and Pervasive Interactions, Springer, Lecture Notes in Computer Science Volume 8028, 2013, pp 122-127.
6. Shin'ichi Konomi, Tomoyo Sasao, Masatoshi Arikawa, and Hideyuki Fujita, A Mobile Phone-Based Exploratory Citizen Sensing Environment, Human Interfaces for Civic and Urban Engagement. Workshop in the 2013 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp 2013), Zurich, September 8, 2013.
7. Min Lu and Masatoshi Arikawa, Location-Based Illustration Mapping Applications and Editing Tools, Cartographica: The International Journal for Geographic Information and Geovisualization, Vol. 48, No. 2, 2013, pp. 100-112.
8. Hsiang-Yun Wu, Shigeo Takahashi, Daichi Hirono, Masatoshi Arikawa, Chun-Cheng Lin, and Hsu-Chun Yen, Computer Graphics Forum, Vol. 32, Issue 3, No. 3, pp. 261-270, June 2013
9. Daichi Hirono, Hsiang-Yun Wu, Masatoshi Arikawa, and Shigeo Takahashi, Constrained Optimization for Disoccluding Geographic Landmarks in 3D Urban Maps, in Proceedings of the 6th IEEE Pacific Visualization Symposium (PacificVis 2013), Sydney, Australia, pp. 17-24, 2013.
10. Lu Min and Masatoshi Arikawa, Map-based Storytelling Tool for Real-World Walking Tour, 9th International Symposium on Location-Based Services, which will take place in Munich, Germany,

from October 16 to 18, 2012, Springer , Progress in Location-Based Services, Lecture Notes in Geoinformation and Cartography 2013, pp. 435-451.

11. Lu Min and Masatoshi Arikawa, Stage-Structured Mobile Storytelling with Art Maps, accepted for an oral presentation at the GIScience 2012, Sept. 18-21, USB Proceedings (GIScience 2012 Student Scholarship Award).
12. Hideyuki Fujita and Masatoshi Arikawa, A User Study of a Map-Based Slideshow Editor, International Journal for Geographic Information and Geovisualization, Cartographica, The University of Toronto Press (UTP), 2011, Vol.46, No.2, pp. 74-82.
13. Ken'ichi Tsuruoka and Masatoshi Arikawa, A Mobile Authoring Environment for User-Generated Location Aware Audio Tours, The Asia GIS 2010 International Conference, Kaohsiung, Taiwan, 05 to 06 November 2010, CD-ROM Proceedings.
14. Akira Mitsuyasu, Masatoshi Arikawa and Hideki Kaji, Proposal of a Web mapping service for managing and sharing drawing data of public works and its design principle in usability, The Asia GIS 2010 Int'l Conference, Kaohsiung, Taiwan, 5 to 6 November 2010, CD-ROM Proceedings.
15. Hideki Kaji and Masatoshi Arikawa, Location-Aware Personal Life Content Manager and Its Privacy Functions, Joint International Conference on Theory, Data Handling and Modelling in GeoSpatial Information Science, Hong Kong, The Hong Kong Polytechnic University, 26-28 May, 2010, CD-ROM Proceedings.
16. Ken'ichi Tsuruoka and Masatoshi Arikawa, "Map-Integrated Audio Tours for Mobile Audio Players with Authoring, Syndication and Aggregation Tools", International Workshop on the Principles and Applications of Spatial Hearing 2009 (IWPASH 2009), USB Proceedings, November 11-13, 2009 in Zao, Japan.
17. Hideyuki Fujita and Masatoshi Arikawa, Spatial sorting function for a map-based slideshow editor, Proceedings of the 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, Seattle, Washington, Poster Session, pp. 520-523, 2009.
18. Masatoshi Arikawa and Hideyuki Fujita, Simple High-dimensional Geocoding by Matching Natural Spatial Descriptions with Sidewalk Network Databases, Chap 19 in "Virtual Geographic Environments", Edited by Hui Lin and Michael Batty, Science Press in Beijing, pp. 259-281, 2009.
19. Morishige Ota, Masatoshi Arikawa, A Curriculum for Geospatial Information Technology and Its Experimental Practice, the 6th International Symposium on Digital Earth (ISDE6), Peking, 2009.
20. Hideki Kaji, Masatoshi Arikawa, pLog: User Generated Media for Personal LBS, Journal of Korea Spatial Information System Society, pp. 57-64, 2009.
21. Masatoshi Arikawa, Tatsuya Kida, Mobile Real-Time Animated Maps for Moving Trains: Mobile JaPOPPO, 2009 International Workshop on Theory and Applications Frontier of Location Based Services, Third International Conference on Multimedia and Ubiquitous Engineering, 4-6 June, 2009, Qingdao, China, IEEE Computer Society Press, pp. 492-495, 2009.

22. Hideki Kaji, Masatoshi Arikawa, Location-aware Personal Life Content Aggregators on Place-enhanced Blogs, 8th International Symposium on Web and Wireless Geographical Information Systems (W2GIS 2008), edited by Michela Bertolotto, Cyril Ray, and Xiang Li, Lecture Notes in Computer Science (LNCS 5373), Springer, pp. 164-177, 2008.
23. Ken'ichi Tsuruoka, Masatoshi Arikawa, An Authoring Tool for Urban Audio Tours with Animated Maps, Int'l Conf on Advances in Computer Entertainment Technology (ACE2008), Yokohama, pp. 330-333, 2008.
24. Hideki Kaji and Masatoshi Arikawa, Personal Location Based Services on Place-enhanced Blog, Short paper, ACM International Conference on Multimedia, pp. 917-920, 2008.
25. Hideyuki Fujita and Masatoshi Arikawa, Animation of Mapped Photo Collections for Storytelling, Special Section on Human Communication III - Papers - Interface Design , IEICE Transactions on Information and Systems, E91-D(6), pp.1681-1692, 2008.
26. Masatoshi Arikawa, Ken'ichi Tsuruoka, Hideyuki Fujita, and Akihiro Ome, Place-tagged Podcasts with Synchronized Maps on Mobile Media Players, Cartography and Geographic Information Science (CaGIS), Vol. 34, No. 4, pp. 293-303, 2007.
27. Masatoshi Arikawa, Kouzou Noaki, Geocoding Walking Directions using Sidewalk Network Databases, in Location Based Services and TeleCartography, Edited by Georg Gartner, William Cartwright, Michael P. Peterson , Lecture Notes in Geoinformation and Cartography(LNG&C), Springer, pp. 217-229, 2007.
28. Arikawa, Masatoshi, Konomi, Shin'ichi, and Ohnishi, Keisuke. NAVITIME: Supporting Pedestrian Navigation in the Real World, IEEE Pervasive Computing, Special Issue on Urban Computing, Vol.6, No.3, pp. 21-29, 2007.
29. Hideyuki Fujita, Masatoshi Arikawa, Creating Animation with Personal Photo Collections and Map for Storytelling, the EATIS 2007 - Euro American Conference on Telematics and Information Systems, The ACM Digital Library, 2007.
30. Yoh Shiraishi, Masatoshi Arikawa, Takeshi Sagara, and Yasushi Asami,, Spatial Document Management System for Ubiquitous Mapping, International Journal of Urban Sciences, Institute of Urban Sciences, Vol.10, No.2, pp.106-114, 2006
31. Masatoshi Arikawa, Toru Hayashi and Kaoru Sezaki, Weblog-based Egocentric Mapping with Track Backs on Spatial Relations, AMT2006, IEEE, Brisbane, June 2006, pp. 150-155.
32. Hideyuki Fujita and Masatoshi Arikawa, Spatial Label Sharing and Development among Photographs, AMT2006, IEEE, Brisbane, June 2006, pp. 156-161.
33. Hiroya Tanaka, Masatoshi Arikawa, Ryosuke Shibasaki and Yuki Konagaya, A Tool for Creating Pseudo-3D Spaces with Hyperphoto - an Application in Ethnographic Studies -, in Chap 2, GIS-based Studies in the Humanities and Social Sciences, edited by Atsuyuki Okabe, CRC Press , pp. 19-33, 2006.

34. Hideyuki Fujita and Masatoshi Arikawa, A Photo Vector Field Model for Mapping Photographs, Maps, and Cyberspaces to Each Other, The 2005 International Conference on Active Media Technology, IEEE Computer Society, pp. 495-496, 2005.
35. Hideyuki Fujita, Masatoshi Arikawa, A Ubiquitous Photo Mapping Considering Users' Lines of Sight, International Workshop on Ubiquitous Data Management (UDM2005), Cooperated with ICDE2005, In Memoriam Prof. Yahiko Kambayashi, IEEE Computer Society, pp. 71-77, 2005.
36. Masatoshi Arikawa, Kouzou Noaki, Geocoding Natural Route Descriptions using Sidewalk Network Databases, International Workshop on Challenges in Web Information Retrieval and Integration (WIRI2005), IEEE Computer Society, pp. 136-144, 2005.
37. Kouzou Noaki, Masatoshi Arikawa, A geocoding method for natural route descriptions using sidewalk network databases, The 4th International Workshop on Web and Wireless Geographical Information System 2004, Lecture Notes in Computer Science, Volume 3428, Springer-Verlag, pp. 38-52, 2005.
38. Yoh Shiraishi and Masatoshi Arikawa, Incremental Spatial Aggregation for Interactive Browsing and Mapping of Distributed Sensor Data, GIScience2004, Maryland University Conference Center, pp.207-210, 2004.
39. Masatoshi Arikawa, Fumio Fujimori, Takashi Morita, A Tool for Improving Graphic Relations in SVG Maps, GIScience2004, Maryland University Conference Center, pp.251-254, 2004.
40. Hiroya Tanaka, Masatoshi Arikawa, Ryosuke Shibasaki, World-Wide Gallery for Pseudo-3D Photo Collage, ACM SIGGRAPH2003, Web Graphics, San Diego, 2003.7.27-31.
41. Masatoshi Arikawa, Fumio Fujimori, Takashi Morita: A Tool for Checking Graphic Logic in SVG Maps, the 21st International Cartographic Conference, 2003.
42. Akira Hiyamizu, Koji Okamura, Masatoshi Arikawa: Internet Camera Selections in Response to Location-Based Requests from Multiple Users, in "Information Networking, Networking Technologies for Enhanced Internet Services", Edited by Hyun-Kook Kahng, Lecture Notes in Computer Science 2662, 2003.
43. Masatoshi Arikawa: Spatio-temporal Browsing for Video Databases, chap 8 in "Nontraditional Database Systems", Edited by Y. Kambayashi, M. Kitsuregawa, A. Makinouchi, S. Uemura, K. Tanaka and Y. Masunaga, TAYLOR & FRANCIS, 2002.
44. Hiroya Tanaka, Masatoshi Arikawa, Ryosuke Shibasaki: Pseudo-3D Photo Collage, ACM Siggraph2002, Web Graphics, ACM, San Antonio, 2002.
45. Hideyuki Fujita, Masatoshi Arikawa, Koji Okamura: A Photo Vector Field Model for Visual Integration between Real-World, Maps and Cyberspaces, GIScience2002, Boulder, USA, 2002.
46. Takashi Kiriya, Mihoko Otake, Hiroya Tanaka, Junichi Tokuda, Haruka Tanji, Takeshi Matsushita, Masatoshi Arikawa, Ryosuke Shibasaki: Exploring Exhibit Space in a Personal Perspective: An Interactive Photo Collage of a Folk Crafts Museum, Designing Interactive Systems 2002, ACM CHI, London, 2002.

47. Hiroya Tanaka, Masatoshi Arikawa, Ryosuke Shibasaki: Extensive Pseudo 3-D Spaces with Superposed Photographs, Vo. 4672, Proc. SPIE, Internet Imaging III, Edited by Giordano B. Beretta and Raimondo Schettini, IS&T/SPIE Symposium, San Jose, USA, 2002.
48. Hiroya Tanaka, Masatoshi Arikawa, Ryosuke Shisazaki: A 3D photo collage system for spatial navigations, Digital Cities II: Computational and Sociological Approaches, Lecture Notes in Computer Science, No.2362, Springer-Verlag, 2002.
49. [Invited Talk] Masatoshi Arikawa, Takeshi Sagara: "CSIS Clearinghouse for Academic Research Communities in Japan", Proc. of Int'l Conf. on Dublin Core and Metadata Applications 2001, Tokyo, Japan, 2001.
50. Takeshi Sagara, Masatoshi Arikawa, Masao Sakauchi: Spatial Document Management System Using Spatial Data Fusion, Third International Conference on Information Integration and Web-based Applications & Services, Edited by W.Winiwarter, St.Bressan, I.K.Ibrahim, Linz, Austria, 2001.
51. Koji Okamura, Masatoshi Arikawa, Yasuhiko Yoshimura, Michihiro Murao: Virtual Video Frameworks for Generic Video Applications on Internet, in the proc. of the 2001 Symp. on Applications and the Internet - Workshops (SAINT 2001 Workshops), Co-Sponsored by IEEE Computer Society and Information Processing Society of Japan, San Diego, California, USA, 2001.
52. [Invited Talk] Masatoshi Arikawa, Koichi Kubota: A Standard XML Based Protocol for Spatial Data Exchange - its Capabilities and Real Applications, Proc. of Int'l Workshop on Emerging Technologies for Geo-Based Applications, Ascona, Switzerland, 2000.
53. [Invited Talk] Shojiro Nishio, Katsumi Tanaka, Yasuo Arika, Shinji Shimojo, Masahiko Tsukamoto, Masatoshi Arikawa, Keishi Tajima, Kaname Harumoto, An Advanced Processing Environment for Managing the Continuous and Semistructured Features of Multimedia Content, 2000 ADBIS-DASFAA Symposium on Advances in Databases and Information Systems, Enlarged Fourth East-European Conference on Advances in Databases and Information Systems, Prague, Czech Republic, 2000.
54. Masatoshi Arikawa, Takeshi Sagara, Koji Okamura: Spatial Media Fusion Project, Proc. of the 2000 Kyoto International Conference on Digital Library: Research and Practice, IEEE Computer Society Press, Kyoto Japan, 2000.
55. Takeshi Sagara, Masatoshi Arikawa, Masao Sakauchi: A Spatial Data Acquisition System from Japanese WWW Pages, GIScience2000, First Int'l Conf. on Geographic Information Science, Savannah, Georgia, USA, 2000.
56. Masatoshi Arikawa, Koji Okamura, Michihiro Murao: Networked Spatial Video Hypermedia, GIScience2000, First Int'l Conf. on Geographic Information Science, Savannah, Georgia, USA, 2000.

57. Michihiro Murao, Masatoshi Arikawa, Koji Okamura: Networked Augmented Spatial Hypermedia System on Internet", 5th IFIP 2.6 Working Conference on Visual Databases, Edited by Hiroshi Arisawa and Tiziana Catarci, Kluwer Academic Publishers, Fukuoka, Japan, 2000.
58. Masatoshi Arikawa, Michihiro Murao, Koji Okamura: Augmented/Restricted Reality Hypermedia Systems based on Spatial Databases, in Advances in Databases and Multimedia for the New Century - A Swiss/Japanese Perspective -, Edited by Y. Masunaga and S. Spaccapietra, Advanced Database Research and Development Series, Vol. 10, World Scientific Publishing, 2000.
59. Masatoshi Arikawa, Takashi Maesako, Takashi Sueda: Spatio-Temporal LoD for Browsing Video Databases, the 1999 International Symposium on Database Applications in Non-Traditional Environments, IEEE Computer Society, 1999.
60. Masatoshi Arikawa, Shinji Shimojo, Araki Amano, Kaori Maeda, Reiji Aibara, Kouji Nishimura, Kaduo Hiraki, Kazutoshi Fujikawa: "Real-Time Spatial Data Management for Scalable Networked Augmented Virtual Spaces", the IEICE Transactions on Information and Systems, Special Issue on New Generation Database Technologies, Vol.E82-D, No.1, 1999.
61. Shunsuke Uemura, Hiroshi Arisawa, Masatoshi Arikawa, Yasushi Kyoki: On Digital Media Information Base", the IEICE Transactions on Information and Systems, Special Issue on New Generation Database Technologies, Vol.E82-D, No.1, 1999.
62. Masatoshi Arikawa, Tetsu Kamiyama: Spatial Browsing for Video Databases, Proc. of the 1st Int'l Conf. on Advanced Multimedia Contents Processing, Edited by Shojiro Nishio and Fumio Kishino, Springer-Verlag, Lecture Notes in Computer Science, LNCS 1554, Osaka, Japan, 1998.
63. Masatoshi Arikawa: Spatial Hypermedia as Augmented Reality Based on Spatial Information Bases, Advanced Database Research and Development Series - Vol. 9, Advanced Database Systems for Integration of Media and User Environment '98, Edited by Y. Kambayashi, A. Makinouchi, S. Uemura, K. Tanaka, Y. Masunaga, World Scientific Publishing Co. Pte. Ltd., 1998.
64. Takashi Kuroda, Hiroki Takakura, Masatoshi Arikawa, Yahiko Kambayashi: Use of Object Co-Existence Relationships for Generation of Virtual Hypermedia Maps, Advanced Database Research and Development Series - Vol. 8, Digital Media Information Base, Proceedings of the International Symposium, World Scientific. An International Publisher, Nara, Japan, 1997.
65. Seiwoong Oh, Daisuke Kado, Kazutoshi Fujikawa, Toshio Matsuura, Shinji Shimojo, Masatoshi Arikawa: QoS mapping for networked Virtual Reality System, Proc. of SPIE Conference on Performance and Control of Network Systems, Dallas TX. USA, 1997.
66. Ken'ichi Horikawa, Masatoshi Arikawa, Hiroki Takakura and Yahiko Kambayashi: Dynamic Map Synthesis Utilizing Extended Thesauruses and Reuse of Query Generation Process, 5th ACM Workshop on Geographic Information systems, Las Vegas, Nevada, USA, 1997.

67. Seiwoong Oh, Hiroyuki Sugano, Kazutoshi Fujikawa, Toshio Matsuura, Shinji Shimojo, Masatoshi Arikawa, Hideo Miyahara: A Dynamic QoS Adaptation Mechanism for Networked Virtual Reality, IWQOS'97, IFIP 1997, Published by Chapman and Hall, 1997.
68. Masatoshi Arikawa, Akira Amano, Kaori Maeda, Reiji Aibara, Shinji Shimojo, Yasuaki Nakamura, Kaduo Hiraki, Kouji Nishimura, Mutsuhiro Terauchi, Kitsutaro Amano: Management of QoS for Real-Time Shared Three Dimensional Virtual Spaces, International Symposium on Cooperative Database Systems for Advanced Applications (CODAS'96), Kyoto, Japan, 1996.
69. Masatoshi Arikawa, Akira Amano, Kaori Maeda, Reiji Aibara, Shinji Shimojo, Yasuaki Nakamura, Kaduo Hiraki, Kouji Nishimura, Mutsuhiro Terauchi: QoS Management for Live Videos in Networked Virtual Spaces, Proc. of International Conference on Virtual Systems and Multimedia (VSMM96), Gifu, Japan, 1996.
70. Masatoshi Arikawa, Akira Amano, Kaori Maeda, Reiji Aibara, Shinji Shimojo, Yasuaki Nakamura, Kaduo Hiraki, Kouji Nishimura, Mutsuhiro Terauchi: Dynamic LoD for QoS Management in the Next Generation VRML, IEEE, Proc. of the International Conference on Multimedia Computing & Systems, Hiroshima, Japan, 1996.
71. Masatoshi Arikawa, Ken'ichi Horikawa, Yahiko Kambayashi: Cooperative Query Formulation for Geographic Databases, the IEICE Transactions on Information and Systems, Special Issue on Advanced Database Technologies, Vol. E78-D, No. 11, 1995.
72. Masatoshi Arikawa, Ken'ichi Horikawa, Yahiko Kambayashi: Inferential Support of Query Formulation for Map Generation from Geographic Databases, Proceedings of International Symposium on Advanced Database Technologies and Their Integration (ADTI'94), Nara, Japan, 1994.
73. Masatoshi Arikawa: Personal Dynamic Maps Based on Distributed Geographic Information Servers, Proceedings of International Conference on Vehicle Navigation and Information Systems (VNIS'94), IEEE CATALOG #94CH35703, Yokohama, Japan, 1994.
74. Masatoshi Arikawa, Hideyo Kawakita, Yahiko Kambayashi: Dynamic Maps as Composite Views of Varied Geographic Database Servers, Proceedings of the First International Conference on Applications of Databases (Witold Litwin, Tore Rische Eds.), Vadstena, Sweden, Lecture Note in Computer Science 819, Springer-Verlag, 1994.
75. Masatoshi Arikawa, Yahiko Kambayashi: Dynamic Maps as Views of Geographic Databases, Proceedings of the First International Workshop on Mobile Multimedia Communications (MoMuC-1), Tokyo, December 1993.
76. Masatoshi Arikawa: A Framework for Using ad hoc Queries to Geographic Databases as Visual Components of Interactive Maps, Proceedings of the 3rd International Conference on Database and Expert Systems Applications, Valencia, Spain, Springer-Verlag, 1992.
77. Masatoshi Arikawa, Yahiko Kambayashi: Dynamic Name Placement Functions for Interactive Map Systems, The Australian Computer Journal, Vol.23, No.4, 1991.

78. Masatoshi Arikawa: A View Environment to Reuse Class Hierarchies in an Object-Oriented Database System, Proceedings of the Second International Symposium on Database Systems for Advanced Applications, Tokyo, World-Scientific, 1991.
79. Yahiko Kambayashi, Masatoshi Arikawa: Semantic Overview Functions for Geographic Databases, Proceedings of the Far-East Workshop on Future Database Systems, Melbourne, 1990.
80. Yahiko Kambayashi, Masatoshi Arikawa: Generalized Object Oriented Data Model for Multi-Media Data, Proceedings of Symposium on Mathematical Methods in Software Science and Engineering, Research Institute for Mathematical Science, Kyoto University, 1987.

[Books]

1. Virtual Reality, Chapter 7.2.9 Geographic Information System. Virtual Reality Society of Japan, Corona Publishers, 2011, pp. 297-311 (in Japanese).
2. Technology of GIS, Chapter 2 Spatial Databases. Asakura Shoten Publishers, 2009, pp. 92-122 (in Japanese).
3. GIS and Spatial Recognition - Evolution of Map Sciences -, Chapter 3 Egocentric Mapping. Kokon Shoin Publishers, 2008, pp. 43-57 (in Japanese).
4. Introduction to Modeling for GIS, Softbank Creative Inc., 280pages, 2007. (in Japanese).
5. GIS-based Studies in the Humanities and Social Sciences, Chapter 2 A Tool for Creating Pseudo-3D Spaces with Hyperphoto - an application in Ethnographic Studies -, CRC Press, pp. 19-33, 2006.
6. Nontraditional Database Systems, Chapter 8. Spatio-temporal Browsing for Video Databases, Taylor & Francis, pp.114-129, 2002.
7. Data Warehousing and Knowledge Discovery, Fourth International Conference, DaWaK 2002 Aix-en-Provence, France September 4-6, 2002 Proceedings, 339 pages. Springer Verlag; Lecture Notes in Computer Science Vol. 2454. .
8. Information Processing for Image and Space, Chapter 4. Spatial Information Processing, Iwanami Shoten Publishers, Nov. 2000, pp. 199-274 (in Japanese).
9. Representation of Information, Chapter 4. Representation of Structured Documents, Iwanami Shoten Publishers, Oct. 2000, pp. 155-211 (in Japanese).
10. Hypermedia and Object-Bases, Chapter 6. Multimedia Databases, Kyoritsu Shuppan Co., Nov. 1995, pp. 170 - 197 (in Japanese).



Letter of intent for candidate of the Vice-President of ICA (Masatoshi Arikawa)

I am a professor of Center for Spatial Information Science (CSIS) of the University of Tokyo. I am also the director of the division of Joint-Use and Research, which is responsible for leading and supporting the research community of Geographic Information Science and Technology in Japan. CSIS is providing the academic spatial data infrastructure, including governmental and commercial spatial data and big data of people's movement, to the universities that have special contracts with related organizations for only research uses. I am the chair of the board of directors of Japan Cartographers Association (JCA). JCA was established in 1962, and has been the National Member of ICA for more than 50 years. Japan was one of the founding members and has contributed to almost every activity of ICA, including national reports, international cartographic exhibition and the Barbara Petchenik Children's Map Competition. I am now the chair of the Commission of Ubiquitous Mapping, and have organized several workshops and symposiums to discuss and reveal the essence of Cartography for the age of ubiquitous computing from the viewpoint of Semiotics and GI Science and Technology.

I received Ph.D. from Computer Science from Kyushu University, Japan in 1992. My dissertation, titled "View Functions for Geographic Databases", has proposed, developed and evaluated a software architecture and its related algorithms for integrating the three concepts, those are, views defined by queries to databases, views in MVC (Model-View-Controller) architecture for GUI (Graphic User Interfaces), and computer generalization for visualizing geographic databases depending on the scale of mapping. I met the book titled "Elements of Cartography" in late 1980 when I was researching on computer generalization. The book strongly influenced and led me to Cartography from Computer Science. My current research interests include human-centered design for location-based services, generalization for interactive three-dimensional geovisualization and geographic natural language processing for real-time risk management.

If I am chosen as a vice-president of ICA, I will contribute mainly in the following points.

(1) Redefinition of Cartography for ubiquitous computing environments

The current mobile mapping is convenient and generated automatically by computers with less effort from cartographers. It results in only a tool for retrieving

and visualizing geospatial information as part of search engines. Mapping can be served in more rich and diverse ways as human-created content connecting to digital media, such as newspapers, TV programs and social media. I want to resolve the redefinition of Cartography for the modern ubiquitous IT society for more people in new fields to understand the core concept and significance of Cartography for producing better maps and mapping.

(2) Inviting ICC to Japan in 2019

The year 2019 marks the 150th Anniversary of the very first national land survey in Japan conducted in 1869. Going back 50 years from it, Tadataka Inō, a Japanese surveyor and cartographer, completed the first map of Japan, using modern surveying techniques, which had already applied the idea of longitude and latitude. For many years since then, the maps and land surveys developed in Japan were all based on the Inō maps, known for its high precision and quality. The year 2018 is the 200th Anniversary of Inō's death. The Japan Local Bid Committee is highly motivated to celebrate the two memorable years with our fellow members of the International Cartographic Association (ICA). I am the vice-chair of the bid committee of Japan.

Tokyo was selected as the site for the 2020 Olympic and Paralympic Games, and is now seeing a rapid advancement in the City's infrastructure. In welcoming the increasing number of international visitors, maps and signage in multiple languages are common all over Tokyo and are being improved further. ICC 2019 will be a great opportunity for cartographers to see and test the usability of the printed maps and original mobile applications prepared for the Olympic and Paralympic Games. ICC delegates are invited to give their feedback on their feasibility during the Conference.

(3) Contribution to the core activity of ICA

Maps and mapping are significant in many fields, but low level of knowledge and technology of Cartography has led less use of maps and resulted in inappropriate decisions made in many fields. Cartography should be considered as a core interdiscipline like Statistics. Particularly, Cartography is important in Japan, a nation challenged by frequent natural disasters such as tsunamis and typhoons. We have high-level knowledge and technology in creating maps for disaster management. Cartography is not only used for rescue actions but also applied for disaster prevention and prediction. In addition, the human-centered design of location-based services should be done using the knowledge and technology of Cartography. It is a great honor for me to contribute to all activities of ICA and the

outreach activities of Cartography.

Masatoshi Arikawa

Chair of Commission of Ubiquitous Mapping, of Int'l Cartographic Association (ICA)

Chair of the board of directors of Japan Cartographers Association (JCA)

Professor and Director of the division of Joint-Use and Research,

Center for Spatial Information Science,

The University of Tokyo

5-1-5, Kashiwanoha, Kashiwa City,

Chiba 277-8568, Japan

TEL. +81-04-7136-4291

FAX. +81-7136-4292

Email. [arikawa@csis.u-tokyo.ac.jp](mailto:arikawa@csis.u-tokyo.ac.jp)