

## Richard J. Marciano

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### Professional Preparation

1992 Ph.D. Computer Science, University of Iowa, *Parallelizing Compilers*  
1989 M.S. Computer Science, University of Iowa  
1986 B.S. Electrical Engineering & Avionics, National School of Civil Aviation, Toulouse, France

### Appointments

2000-present Staff Scientist, Data Intensive Computing Environments Group, SDSC, UC San Diego  
1996-2000 Associate Research Scientist, Enabling Technologies Group, SDSC, UC San Diego  
1995-1996 Computational Environmental Scientist, Science Group, SDSC, UC San Diego  
1994-1995 Computational Scientist, National Supercomputing Center for Energy & the Environment (NSCEE), UNLV, Las Vegas, Nevada  
1993-1994 Research & Development Consultant, Supercomputing & Parallel Processing Lab, Geography Department, University of Iowa  
1986-1992 IBM Fellow, Supercomputing Consultant, Parallel Programming Instructor, University of Iowa.

### Related Publications

- “Towards Self-Validating Knowledge-Based Archives”, B. Ludäscher, R. Marciano, R. Moore, *11th Workshop on Research Issues in Data Engineering (RIDE)*, Heidelberg, Germany, IEEE Computer Society, April 2001 (<http://www.sdsc.edu/~ludaesch/Paper/ride01.html>).
- “Generating Query Evaluation Plans within a Spatial Mediation Framework”, A. Gupta, I. Zaslavsky, R. Marciano, Proceedings of the 9<sup>th</sup> International Symposium on Spatial Data Handling, August 2000, pp. 8a18 – 8a31.
- “Collection-Based Persistent Digital Archives”, Reagan Moore, Chaitan Baru, Arcot Rajasekar, Bertram Ludäscher, Richard Marciano, Michael Wan, Wayne Schroeder, and Amarnath Gupta, *D-Lib Magazine*, March & April 2000, Volume 6 Number 3 & 4, [<http://www.dlib.org/dlib/march00/moore/03moore-pt1.html>] and [<http://www.dlib.org/dlib/april00/moore/04moore-pt2.html>].
- “XML-based Spatial Data Mediation Infrastructure for Global Interoperability”, I. Zaslavsky, A. Gupta, R. Marciano, C. Baru, Proceedings of the 4th Global Spatial Data Infrastructure Conference, March 2000. (Available from <http://www.gsdi.org/capetown/program.htm>).
- “Integrating GIS and Imagery through XML-Based Information Mediation”, A. Gupta, R. Marciano, I. Zaslavsky, C. Baru., 1999. In P. Agouris and A. Stefanidis (Eds.) *Integrated Spatial Databases: Digital Images and GIS*, Lecture Notes in Computer Science, Vol. 1737 (<http://www.npaci.edu/DICE/Pubs/isd99.pdf>), (initially presented at NSF International, June 14-16, 1999, Portland, Maine)

### Other Significant Publications

- “XML-Based Information Mediation with MIX”, C. Baru, A. Gupta, B. Ludäscher, R. Marciano, Y. Papakonstantinou, P. Velikhov, A. Yannakopoulos, Proceedings of the SIGMOD'99.
- "Analysis of HPSS Performance Based on Per-File Transfer Logs", W. Schroeder, R. Marciano, J. Lopez, M. Gleicher, G. Kremenek, C. Baru, R. Moore, Procs. Seventh NASA Goddard Conference on Mass Storage Systems & Technologies, and Sixteenth IEEE Mass Storage Systems Symposium, March 15-18, 1999, San Diego, CA.

**"Rear-Projecting Virtual Data onto Physical Terrain"**, D. Clark, R. McKeon, R. Marciano, M. Bailey, IEEE Visualization '98, Oct. 18-23, 1998, Research Triangle Park, N.C.

**"Massively Parallel Strategies for Local Spatial Interpolation"**, M. Armstrong, R. Marciano, Spatial Data Handling, International Symposium on Spatial Data Handling, Vancouver, Canada, July 12-15, 1998.

**"Towards the Interoperability of Web, Database, and Mass Storage Technologies for Petabyte Archives"**, R. Moore, R. Marciano, M. Wan., T. Sherwin, R. Frost, *Procs. Fifth NASA Goddard Space Flight Center Conference on Mass Storage Systems and Technologies (MSS'96)*, March 1996.

### Synergistic Activities

- (1) **E-records Preservation Education:** I am developing innovative collaborative curricula with archivists and information science professionals in the area of metadata, XML standards, and electronic records preservation. Experiences include: XML workshops for Supercomputing 2000, professional archivists meetings, presentations for State IT professionals, and work on several grants from the National Historical Preservation and Records Commission (\$300K and \$150K with the State of Minnesota).
- (2) **Visual Arts and Computing:** collaborations include, over a three year period:
  - ◆ *"Most Artistic" Award* in the 1998 Map Gallery Contest at the ESRI GIS User Conference, with a map entitled: "Regional Urban Change Analysis: Adding Temporal Data to GIS Collections." San Diego, California (integrating 150 years of land-use data for a neighborhood of San Diego), with Rosemarie McKeon, digital artist, UC San Diego.
  - ◆ *"Tolerance Zones"*, a Touring Art Exhibit, from Jan. 2000 to Apr. 2000, starting at the San Diego Main Public Library, and traveling to local community branch libraries (creating and showcasing the integration of demographic, economic, and historical data), with Rosemarie McKeon, Midi Cox (economist), Poyin Tse (artist), Carrol Waymon (community activist), and Lynn Whitehouse (San Diego Public Library curator).
- (3) **Community Outreach and Education:** co-Chair of the May 12, 1999, *"Tribal History and New Technology" conference* <http://visarts.ucsd.edu/grad/tribal/tribal.html>, a workshop looking at "Tools for Preserving American Indian Culture", and meant at promoting dialogue between American Indian researchers and the local community. Planning work was conducted in conjunction with the UCSD Center for the Humanities, UCSD Center for the Study of Race and Ethnicity, Ethnic Studies Dept., Visual Arts Dept. - UCSD American Indian Faculty Staff Association, Leaders from San Diego's American Indian Community. Four panels tackled issues of: (1) native landscapes in geographic information systems, (2) strategies for communication and language regeneration, (3) recording tribal archives and history through interactive technology, (4) telemedicine and educational proposals.
- (4) **Knowledge Linking and Sustainable Development:** *Regional Workbench (RWB) Program*, 1999-present <http://regionalworkbench.org> with Ilya Zaslavsky (San Diego Supercomputer Center) and Keith Pezzoli (Urban Studies & Planning, UC San Diego). The RWB program is a collaborative web-based network of researchers and community partners dedicated to creating knowledge and linking that knowledge to action for sustainable development. University students and faculty, together with community partners, build the RWB's web site. Students gain hands-on experience in a manner that emphasizes civic-minded workforce development as well as multidisciplinary scholarship.
- (5) **Computational Geography:** 1990-1998, developed innovative curricula in parallel programming methods, consulted and taught workshops and classes to urban planners and geographers. First Prize winner in the 1992 MasPar Supercomputing Challenge, March 1993, an international supercomputing programming contest organized by MasPar Corporation, Sunnyvale, California.

### Recent Collaborators

Marc Armstrong (Geography/University of Iowa), Chaitanya Baru (SDSC/UCSD), Amarnath Gupta (SDSC/UCSD), Bertram Ludäscher (SDSC/UCSD), Reagan Moore (SDSC/UCSD), Keith Pezzoli (Urban Studies & Planning/UCSD), Ilya Zaslavsky (SDSC/UCSD).

### Graduate Advisors

Teodor Rus, Steve Bruell, Sukumar Ghosh, Computer Science, University of Iowa.  
Victor Camillo, Mathematics, University of Iowa.