

Biographical Sketch for Shashi Shekhar

Shashi Shekhar is currently a Distinguished McKnight University Professor of Computer Science at the University of Minnesota, Minneapolis, MN, USA. He received the IEEE-CS *Technical Achievement Award* (2006) and was elected an *IEEE fellow* (2003) as well as an *AAAS Fellow* (2008) for contributions to spatial database storage methods, data mining, and geographic information systems (GIS). He co-edited an Encyclopedia of GIS (Springer, 2008, isbn 978-0-387-30858-6), co-authored a textbook on Spatial Databases (Prentice Hall, 2003, isbn 0-13-017480-7) as well as over 230 research papers in peer-reviewed journals, books, conferences, and workshops. He is a co-Editor-in-Chief of *Geo-Informatica: An Intl. Journal on Advances in Computer Sc. for GIS* and a member of the Mapping Science Committee of the National Academy National Research Council. He served on the Board of Directors of University Consortium of UCGIS (2003-2004), the editorial boards of *IEEE Trans. on Knowledge and Data Engineering* and the IEEE-CS Computer Science & Engineering Practice Board. He also served as a co-chair of the IEEE ICDM *Workshop on Spatial and Spatio-temporal Data Mining* (2007, 2008), and ACM Intl. Workshop on Advances in Geographic Information Systems (1996). Shekhar's recent research accomplishments include co-location patterns for mining spatial databases, and scalable routing algorithms for evacuation planning. Earlier his group developed, CCAM, one of the most efficient storage methods for large road maps and scalable algorithms for computing shortest paths. More details at <http://www.cs.umn.edu/~shekhar>.

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Professional Preparation

1990	Ph.D., Computer Science	University of California, Berkley
1989	M.S., Business Administration	University of California, Berkeley
1987	M.S., Computer Science	University of California, Berkley
1985	B.S., Computer Science	Indian Inst. of Tech., Kanpur, India

Appointments

2005 -	Distinguished Univ. Professor, Univ. of Minnesota, Minneapolis, MN
2001 -	Professor, University of Minnesota, Minneapolis, MN
1995-2000	Assoc. Professor, University of Minnesota, Minneapolis, MN
1989-1995	Asst. Professor, University of Minnesota, Minneapolis, MN

Research Interests:

Data and knowledge engineering, spatial database management, spatial data mining, and geographic information systems.

Five Related Publications

1. Incremental and General Evaluation of Reverse Nearest Neighbors (w/ J. M. Kang, M. Mokbel, T. Xia, D. Zhang), To appear in *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2009 (A summary of results appeared in *Proc. IEEE ICDE*, 2007).
2. Spatio-temporal Network Databases and Routing Algorithms: A Summary of Results (w/ B. George and S. Kim), In proceedings of International Symposium on Spatial and Temporal Databases (SSTD'07), Boston, July, 2007.
3. Efficient Join Index Based Join Processing: A Clustering Approach (w/ C.T. Lu, S. Chawla, S. Ravada) *IEEE Transactions on Knowledge and Data Engineering*, 15(1), 2003.

4. Processing Object-orientation-based Direction Queries, (w/ X. Liu and S. Chawla) In IEEE Transaction of Knowledge and Data Engineering, 15(2), 2003 (A summary of results appeared in ACMGIS 2000).
5. CCAM: A Connectivity-Clustered Access Method for Networks and Network Computations, (w/ D. R. Liu), In IEEE Trans. on Knowledge and Data Engineering, Vol. 9, No. 1, Jan. 1997. Csci TR 93-78.

Five Other Publications

1. Encyclopedia of GIS, (Co-Ed. with H. Xiong), Springer, 2008, isbn 978-0-387-30858-6.
2. Contraflow Transportation Network Reconfiguration for Evacuation Route Planning, (with S. Kim et al), *Transactions on Knowledge & Data Eng.*, IEEE, 20(8), 2008. (A summary of results in ACM Intl. Conf. on Geographic Info. Systems (ACMGIS), 2006.)
3. Mining Mixed-drove Spatio-temporal Co-occurrence Patterns, (with M. Celik et al.) *Transaction on Knowledge and Data Eng (TKDE)*, IEEE, 20(10), 2008, (A summary of results in IEEE Intl. Conf. on Data Mining, 2006).
4. A Tour of Spatial Databases (with S. Chawla), Prentice Hall, 2003, isbn 013-017480-7.
5. Spatial Databases: Accomplishments and Research Needs, (with S. Chawla et al.), *IEEE Transactions on Knowledge and Data Eng.*, 11(1), January 1999.

Synergistic Activities

- Invited speaker on spatial data mining at many forums, e.g. IBM T.J. Smarter Planet summit (2009), IEEE ICDM Workshop on Spatio-temporal Data Mining (2006), Intl. Symp. on Spatial and Temporal Databases (2005), ISPRS Intl. Symp. on Spatial Data Mining (2005), Intl. Conf. on Geo. Info. Sc. (2004), and SAS data mining conf. (2003);
- AAAS Fellow, IEEE-CS Fellow, IEEE Technical Achievement Award, Member of the Mapping Science Committee (National Academies NRC, 2003-9) and Board of Directors of University Consortium of Geographic Information Systems (UCGIS) for 2003-2004;
- Active participation in broadening the participation of groups underrepresented in science via supervising over two dozen undergraduate (UG) students from historically black colleges in Army High Performance Computing Research Center annual summer workshops (1997-2006), NSF Research Experience for UGs, and UG Research Opportunity Program (UROP).

Collaborators and Other Affiliations

- In past 48 months I have collaborated with Prof. B. Thuraisingham and Prof. L. Khan (U. T. Dallas); Dr. B. Bhaduri and Dr. M. Arjun (ORNL); Prof. A. Tripathi, Prof. M. Mokbel, Prof. J. Srivastava, and Prof. L. Terveen (U. of Minnesota);
- Thesis advisors: Prof. C. V. Ramamoorthy and Prof. L. A. Zadeh (U. C. Berkeley).
- Supervised the Ph.D. thesis of Prof. T. A. Yang (U. of Houston), Prof. B. Hamidzadeh (Boeing), Prof. Duen Ren Liu (Taiwan), Dr. Mark Coyle (Oracle), Dr. Siva Ravada (Oracle Spatial), Dr. Ms. Xuan Liu (IBM TJ Watson), Dr. C. T. Lu (Virginia Tech), Dr. Ms. Weili Wu (UT Dallas), Dr. Ms. Huang Yan (U North Texas), Dr. Hui Xiong (Rutgers U), Dr. Baris Kazar (Oracle), Dr. Pusheng Zhang (Microsoft), Dr. QingSong Lu (Microsoft), Dr. R. Vatsavai (ORNL), Prof. Ms. J. Yoo (IUPU), Dr. S. Kim (ESRI), Dr. M. Celik (Erciyes U, Turkey), Dr. Ms. B. George (Oracle).
- Supervised post-doctoral work of Dr. S. Chawla (University of Sydney). Following individuals visited my research laboratory for 3-weeks to a year: Prof. P. Ranjan (DA-IICT, India), Prof. Sungwon Jung (Seoul National U), Prof. C. Eick (U Houston), Dr. Ms. Vania Bogorny (Brazil), Prof. B. Y. Hwang (Korea), Prof. Ms. H. Diwakar (Pune U., India), Dr. F. Polat (Bilkent U., Turkey), Prof. I. Singh (India).