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), and co-authored a textbook on Spatial Databases (Prentice Hall, 2003, isbn 0-13-017480-7) as well as over 250 research papers in peer-reviewed journals, books, conferences, and workshops. He is serving as a co-Editor-in-Chief of *Geo-Informatica: An International Journal on Advances in Computer Sc. for GIS,* a member of the National Research Council (NRC) GEOINT Workforce committee (2011-12) and a member of the Computing Community Consortium Council (2012-2015). He served as a program co-chair for Intl.l conference on geographic information science (2012), a general co-chair for the Intl. Symposium on Spatial and Temporal Databases (2011), and on the NRC Mapping Sciences Committee (2003-2009) of the National Academy, 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 & Eng. Practice Board. 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. Experiences with evacuation route planning algorithms. International Journal of Geographical Information Science 26(12): 2253-2265, 2012. (w/ K. S. Yan et al.).
2. A Dartboard Network Cut Based Approach to Evacuation Route Planning: A Summary of Results. Proc. Intl. Conf. on GIScience 2012, Springer LNCS 7478. (w/ K. S. Yang, V. Gunturi).
3. Shashi Shekhar: Evacuation Planning: A Spatial Network Database Approach. IEEE Data Eng. Bull. 33(2): 26-31, 2010. (w/ X. Zhou et al.).
4. Contraflow Transportation Network Reconfiguration for Evacuation Route Planning. IEEE Trans. Knowl. Data Eng. 20(8): 1115-1129, 2008.. (w/ S. Kim, M. Kim). (A summary appeard in Proc. ACM Intl. Conf. on Advances in Geographic Information Systems, 2005).
5. Capacity Constrained Routing Algorithms for Evacuation Planning: A Summary of Results, Proc. Symposium on Spatial and Temporal Databases, Springer LNCS 3633, 2005. (w/ Q. Lu, et al.)

Five Other Products

1. Spatial big-data challenges intersecting mobility and cloud computing, Proc. ACM SIGMOD MobiDE Workshop, 2012: 1-6. (w/ V. Gunturi, M. Evans, K. Yang).
2. Spatial Databases - Accomplishments and Research Needs. IEEE Trans. Knowl. Data Eng. 11(1): 45-55, 1999, (w/ S. Chawla, S> Ravada, X. Liu, C. T. Lu).
3. Identifying patterns in spatial information: A survey of methods.,Wiley Interdisciplinary Review: Data Mining and Know. Discovery 1(3), 2011. (w/ M. Evans et al.).
4. Encyclopedia of GIS, Springer, 2008, isbn 978-0-387-30858-6. (Co-Ed. w/ H. Xiong).
5. A Tour of Spatial Databases, Prentice Hall, 2003, isbn 013-017480-7. (w/ S. Chawla).

Synergistic Activities

- Capacity constrained route planner was used by Minnesota Department of Transportation for evacuation route planning for Twin-cities metropolitan area. It was presented at UCGIS Congressional breakfast on GIS and Homeland Security (2004). It received recognition for significant impact on transportation by the Center of Transportation Studies at Univ. of Minnesota.
- Curriculum Development: Developed one of the first courses on and co-authored a popular textbook on Spatial Databases; (Prentice Hall, 2003); co-edited an Encyclopedia of GIS (Springer, 2008); Presented tutorials on spatial data mining in conferences and other meetings; Led a NSF IGERT on interdisciplinary graduate education (2007-2012).
- 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).
- K-12 Outreach: Served as a judge for Computer Science projects at 2012 national finals of the Siemens Competition in Math, Science & Technology for high school seniors.
- Invited plenary speaker on spatial big data, spatial computing and spatial data mining at many forums, e.g., SIG-Spatial Big-Spatial Workshop (2012), SIGMOD MoBiDE Workshop (2012), ESRI Space-Time Modeling Workshop (2010), 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);

Collaborators and Other Affiliations

- Collaborators in past 48 months include Prof. B. Thuraisingham & Prof. L. Khan (U. T. Dallas); Prof. N. Samatova, & Prof. F. Semmazi (N. C. State U); Prof. A. Ganguli (Northeastern U); Prof. A. Choudhury & Prof. W. Liao (Northwestern U); Prof. A. Homafar (NCAT State U); Prof. H. Liu, Prof. C. Paola, Prof. M. Hondzo, Prof. R. Hozalsky, Prof. J. Finley, Prof. A. Tripathi, Prof. M. Mokbel, Prof. S. Ruggles, Prof. V. Interrante, Prof. S. Manson, Prof. J. Srivastava, Prof. V. Kumar, Prof. A. Banerjee, Prof. S. Chatterjee, Prof. J. Foley, Prof. J. Knight, & Prof. P. Snyder (U. of Minnesota);
- Thesis advisors: Prof. C. V. Ramamoorthy and Prof. L. A. Zadeh (U. C. Berkeley).
- Supervised 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), Prof. C. T. Lu (Virginia Tech), Prof. Ms. Weili Wu (UT Dallas), Prof. Ms. Huang Yan (U North Texas), Prof. 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), Prof. M. Celik (Erciyes U, Turkey), Dr. Ms. B. George (Oracle), Dr. J. Kang (USDOD-NGA), Dr. Pradeep Mohan (SAS).
- Supervised post-doctoral work of Dr. S. Chawla (University of Sydney). Following individuals visited my research laboratory for 3-weeks to a year: Daniel Cintra Cugler (Unicamp – Brazil), Rafal Angryk (Montana State University, USA), Ayman Taha (Cairo U, Egypt), Abdulvahit Torun (METU, Turkey), Prof. Zhanquan Wang (East China UST, Shanghai, China), 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).