Biographical Sketch for Shashi Shekhar

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Professional Preparation

Indian Institute of Technology, Kanpur (India)	Computer Science	B. Tech., 1985
University of California, Berkeley	Computer Science	M.S. 1987
University of California, Berkeley	Business Administration	M.S. 1987
University of California, Berkeley	Computer Science	Ph.D. 1989

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 Closely Related Products

1. Spatiotemporal change footprint pattern discovery: an inter-disciplinary survey, Wiley Interdisciplinary Review: Data Mining and Know. Discovery 4(1): 1-23, 2014. (w/ X. Zhou & R. Ali).

2. A K-Main Routes Approach to Spatial Network Activity Summarization, IEEE Transactions on Knowledge & Data Eng., 26(6), June 2014. (w/ D. Oliver, J. Kang, R. Laubscher, et al.)

3. Focal-Test-Based Spatial Decision Tree Learning: A Summary of Results, Accepted with major revision for *IEEE Trans. On Knowledge & Data Eng.* (Preliminary results appeared in Proc. IEEE Intl Conf. on Data Mining (ICDM), 2013: 320-329). (w/ Z. Jiang, J. Knight, J. Corcoran).

4. Discovering Interesting Sub-paths in Spatiotemporal Datasets: A Summary, Accepted with major revision for *IEEE Trans. On Knowledge & Data Eng.* (Preliminary results appeared in Proc. ACM Intl. Conf. on Adv. In Geographic Info. Systems, 2011) (w/ X. Zhou et al.).

5. Spatial big-data challenges intersecting mobility and cloud computing, *Proc. ACM SIGMOD MobiDE Workshop*, 2012: 1-6. (w/ V. Gunturi, M. Evans, K. Yang).

Five Other Significant Products

1. Cascading Spatio-Temporal Pattern Discovery, *IEEE Trans. Knowl. Data Eng.*, 24(11): 1977-1992, 2012. (w/ P. Mohan, J. Shine, J. Rogers). (A Summary in 2010 SIAM Data Mining Conf.).

2. 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.).

3. Encyclopedia of GIS, Springer, 2008, isbn 978-0-387-30858-6. (Co-Ed. w/ H. Xiong).

4. Discovering Spatial Co-location Patterns from Spatial Datasets: A General Approach*, IEEE Transactions on Knowledge and Data Eng.*, 16(12), Dec. 2004 (A summary appeared in the Seventh Int'l Symposium on Spatial and Temporal Databases, 2001).

5. A Tour of Spatial Databases, Prentice Hall, 2003, isbn 013-017480-7. (w/ S. Chawla).

Synergistic Activities

- Curriculum Development: Developed one of the first courses on Spatial Databases; Co-authored a popular textbook on Spatial Databases (Prentice Hall, 2003); co-edited an Encyclopedia of GIS (Springer, 2008), which was recommended highly by a review in ACM Computing Reviews (Nov. 2008); Presented tutorials on spatial data mining in conferences and other meetings; Led a NSF

IGERT on interdisciplinary graduate education (2007-2012); Chaired curriculum committee of Computer Sc. & Eng. department at the University of Minnesota (1998-2000); Served as a Computer Sc. representative on UCGIS curriculum committee (1998-99); Served on IEEE-Computer Society Computer Sc. and Eng. Practices Publication Board (1995-97).

- Active participation in broadening the participation of groups underrepresented in science via supervising over two dozen undergraduate (UG) students from historically black colleges in Expedition and Army High Performance Computing Research Center annual summer workshops (1997-2006), NSF Research Experience for UGs, and UG Research Opportunity Program.

- 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.

- Serving as a member of the Computing Community Consortium Council (2012-2015) and as a co-Editor-in-Chief of Springer Geo-Informatica: An International Journal on Advances in Computer Sc. for GIS. Served as a member of National Academies committees (e.g., Geo-targeted Alerts & Warnings (2012), GEOINT Workforce (2011), Mapping Science Committee (2003-9), Priorities for GEOINT Research (2006), etc.) and the Board of Directors of University Consortium of Geographic Information Systems (UCGIS) for 2003-2004. Also served as a program co-chair for international conference on geographic information science (2012), and a general co-chair for the Symposium on Spatial and Temporal Databases (2011), etc.

- 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). Invited plenary speaker on spatial big data, spatial computing and spatial data mining at many forums, e.g., GeoComputation (2015), NIST Data Science Conference (2014), NIH/NCI Surveillance Program (2013), ACM 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 & Temporal Databases (2005), ISPRS Symp. Spatial Data Mining (2005), Intl. Conf. Geo. Info. Sc. (2004), SAS data mining conf. (2003), etc.

Collaborators and Other Affiliations

- Collaborators in past 48 months include 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. S. 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).

- Advisees: Prof. T. A. Yang (U. of Houston), Prof. B. Hamidzadeh (Boeing), Prof. D. R. 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. H. Xiong (Rutgers U), Dr. B. Kazar (Oracle), Dr. P. Zhang (Microsoft), Dr. Q. 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. P. Mohan (SAS), Dr. M. Evans (Microsoft), Dr. D. Oliver (ESRI), Prof. X. Zhou (UIowa).

- 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).