

1 Results from Prior Support

Dr. Shashi Shekhar's work has been supported by multiple NSF grants [21, 23, 18, 14, 15, 16, 17, 19, 24, 22]. His most recent grant relating to spatio-temporal network databases was "NSF: III-CXT: Spatio-temporal Graph Databases for Transportation Science" [21]. This helped in designing scalable algorithms evacuation planning in emergency management systems. This project resulted in 2 Ph.D. dissertations, journal articles [6, 13, 11] and several conference papers [7, 9, 12, 4, 8, 10].

In another related grant, "Databases for Spatial Graph Management" (IRI-9631539, 8/1996-7/1999), the objective was to develop, evaluate and implement a set of network storage and access methods and network analysis algorithms. This project resulted in one Ph.D. thesis, several journal papers and conference papers [20].

In a spatial data mining grant [23], Dr. Shekhar and his research team developed novel approaches for spatial association mining, namely co-occurrence mining and semi-supervised learning algorithms which were used by the Jane Goodall Institute to analyze chimpanzee behavior observations. The research resulted in 2 Ph.D. dissertations, journal articles [28, 26, 27], and conference papers [2, 3, 1, 5, 25, 29].

Prof. Shekhar was also the P.I. of an IGERT [22] training grant, which brings together scholars of ecology, civil engineering, and the earth sciences to study the interplay between landscape changes and ecosystem processes across a wide range of spatial and temporal scales and across interfaces, with an emphasis on non-equilibrium dynamics. This project has led to a new interdisciplinary curriculum to help engineers consider environmental constraints in addition to economic constraints, and helped ecologists to understand effects of physical processes and materials transport on ecosystem dynamics. Five Ph.D. theses have resulted, with 13 other Ph.D. students currently in progress.

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