

Biography for Louiqa Raschid

December 2013

Louiqa Raschid is a professor at the University of Maryland where she holds appointments in the Institute of Advanced Computer Studies, the Smith School of Business and the department of Computer Science. She has over two decades of experience in data science, a computational paradigm with the potential to fundamentally change the way we exploit data driven decision making to support a broad range of human activities. Raschid has made pioneering contributions towards meeting data integration, data management and data mining challenges in multiple non-traditional domains. Her multidisciplinary research spans the fields of computer science to business information systems, with a strong link to important data science applications including the life sciences and health sciences, humanitarian disaster relief applications, human behavior modeling within social streams, and the modeling and management of financial ecosystems. She has been a ACM Distinguished Scientist since 2008.

Raschid was invited by the National Science Foundation to lead a multidisciplinary team of computer scientists, economists and finance researchers, to develop the next generation of financial cyberinfrastructure based on open ontologies, information interoperability, data management and data integration, and semantic technologies. She has been the intellectual leader in this area, with a deep understanding of the computational, data management and modeling challenges. She organized NSF and CRA CCC sponsored workshops on these research challenges in 2010 and 2012; these workshops as well as a report from the National Academies lead to the establishment of the NSF CIFRAM program in July 2013. She is PI on an NSF grant to develop community financial cyberinfrastructure; this is collaboration with multiple academic and industry partners. She has founded the Karsha open source project and she has been a prominent data science for finance evangelist. Her multidisciplinary expertise has also been applied to the life science domain where she has collaborated with computer science researchers in algorithms, machine learning and information retrieval, and with biologists, to develop tools to mine patterns from Linked Data resources and rich domain ontologies. This work has the distinction of being published in the leading venues for bioinformatics, algorithms, data mining and semantic Web research. Similarly, her research on human behavioral modeling and prediction in social media data streams has been published in both computer science and business conferences and journals.

Her research on tools for semi-automatic information extraction and mediation from Web accessible sources in the late 1990's was one of the first projects to recognize the importance of these non-traditional information sources. She also initiated projects in 2000 on cost-based semantic query rewriting for Web sources with limited query answering capabilities and developing wide area cost models for efficient query evaluation on the Web. These projects extended traditional database query optimization and evaluation technology to the Web and the cost model was the first to show that time and day variations as well as network topological features could be learned using query feedback and exploited to construct a Catalog and prediction tool to predict access latencies. Both projects are highly cited (among the most cited papers of the VLDB Journal) and were in the vanguard of almost a decade of research as well as system prototype development. The results of this research on wide area optimization and heterogeneous cost models have eventually been incorporated into industrial products such as the IBM DB2 II information integration solution.

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She has published approximately 150 papers in the leading conferences and journals in databases, scientific computing, Web data management, bioinformatics, artificial intelligence and logic programming. Her research has received multiple awards including over 30 grants from the NSF and DARPA. Papers that she co-authored have been nominated for or won best paper awards at the 1996 International Conference on Distributed Computing Systems, the 1998 International Conference on Cooperative Information Systems, the 2008 International Conference on Data Integration in the Life Sciences and Best Student Paper (advisor and co-author), International Conference on Data Engineering, 2009.

She is the Editor in Chief for the ACM Journal on Data and Information Quality. She has chaired or served on multiple IEEE and ACM and AAAI program committees and the editorial boards of the VLDB Journal, ACM Computing Surveys, INFORMS Journal of Computing and IEEE TKDE. She has also organized working groups on information mediation and biological data management for the NIH and DARPA, served as Area Editor for the Springer Encyclopedia on Data Base Systems and has been the editor of 10 special issues in the leading journals. She has advised and mentored over 30 Ph.D. or post-doctoral researchers including many women and minority students and she has over 125 co-authors or co-editors. She has played a key role in the Sahana FOSS project for disaster information management including serving as database architect, member of the Sahana Software Foundation, and Founding Chair of the Sahana Board (2007-2009). Sahana is the only comprehensive product for disaster information management. Sahana is an outgrowth of the 2003 tsunami and it has since been deployed for multiple disasters.

Her goal is to draw upon her multidisciplinary research expertise, and on her experience in creating communities that can solve research grand challenges, to serve the computing research community to realize a vision for data science research and education, as collaboration between academia and industry.

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