

Alexander Brodsky - Biographical Sketch

Dr. Alex Brodsky is Professor in the Department of Computer Science, Volgenau School of Engineering, at George Mason University. Alex's current research interests include Decision Support, Guidance and Optimization (DSGO) systems, and DSGO applications, including to Energy, Power, Manufacturing, Sustainability and Supply Chain. He teaches classes in Database Management and Decision Guidance Systems, and advises PhD students, of whom 15 have earned, and four are currently pursuing, their degree. Alex earned his Ph.D. and prior degrees in Computer Science and/or Mathematics from the Hebrew University of Jerusalem.

While Decision Support systems are broad in scope, Decision Guidance (DG) systems are geared toward making actionable recommendations on how to move a complex system toward desirable outcomes. They may need to mine large amounts of data, learn deterministic or stochastic models, elicit user preferences and objectives, perform optimization, present and justify actionable recommendations to users, and solicit their feedback for continuous improvement.

Alex's DG research focuses, broadly, on building DG languages, algorithms, tools and models that will make the development of DG systems and applications much easier, similar to building database applications using SQL and DBMS. Over 115 of his papers, including five that received Best Paper Awards, have been published in scholarly peer-reviewed journals, books and conference/workshop proceedings. He also co-edited a Springer LNCS volume on Constraint Databases and Applications and edited a special issue of the International Journal on Artificial Intelligence Tools.

For his research work related to DSGO systems, Alex received a National Science Foundation (NSF) CAREER Award, NSF Research Initiation Award, and awards from the Office of Naval Research (ONR), National Aeronautics and Space Administration (NASA), National Institute of Standards and Technology (NIST), and Dominion Virginia Power.

Alex served as Program Chair of IEEE International Conference on Tools with Artificial Intelligence (ICTAI-2013); Program Co-chair of the IEEE ICDE workshop on Data-Driven Decision Guidance and Support Systems (DGSS 2012, and DGSS 2013); General Vice Co-chair of the IEEE International Conference on Data Engineering (ICDE 2012); Conference Chair of the Fifth International Conference on Principles and Practice of Constraint Programming (CP99); and PC Co-chair of a number of workshops, including CP96 Constraints and Databases, CDB98, and ILPS95 workshop on Constraints, Databases and Logic Programming.

In 1999, Alex founded AdaptiveTrade Inc., a start-up company based on the technology of optimization-based B2B markets, which he had invented. He led R&D of Adaptive Enterprise Optimization (AEO) Server and Studio, and a number of AEO-based solutions, including AEO Strategic Sourcing, which is commercially deployed and used by Fortune 500 companies, and AEO Gas Pipeline Optimizer, used by El-Paso Energy, the largest gas pipeline operator in North America, both leading to significant cost savings.

Alex served as President and CEO of AdaptiveTrade from 1999 until 2001, through technology commercialization, and two rounds of private and venture capital funding. He then continued to serve, on a part-time basis, as CTO and Chairman of the Board of Directors' Executive Committee, through the company's acquisition by B2eMarkets in 2004. Prior to joining George Mason University, Alex worked at IBM T.J. Watson Research Center, at Israel Aircraft Industries and was an R&D officer in the Computer Division of Communications, Electronics and Computer Corps, Israel Defense Forces. He is a member of ACM, IEEE, INFORMS and INSTICC.