

## Salvatore J. Stolfo

**Salvatore J. Stolfo** is Professor of Computer Science at Columbia University. He received his Ph.D. from NYU Courant Institute in 1979 and has been on the faculty of Columbia ever since. He has published extensively in the areas of parallel computing, AI knowledge-based systems, data mining and most recently computer security and intrusion detection systems (see [www.cs.columbia.edu/ids](http://www.cs.columbia.edu/ids)). His research has been supported by DARPA, NSF, ONR, NSA, CIA, IARPA, DHS and numerous companies and state agencies over the years while at Columbia.

Among his earliest work, Stolfo developed a large-scale expert data analysis system called ACE for the nation's phone system. In other work related to the "merge/purge" problem, an algorithm developed by him and his colleagues has been used in large-scale commercial systems for data cleansing. The technology was licensed by Informix, a company that was later acquired by IBM. Stolfo designed the architecture of the DADO parallel computer and, along with colleagues in his research group, built a 1023-processor version of the machine in the 1980's that was the first parallel machine providing large-scale commercial speech recognition services. Elements of the DADO architecture have apparently influenced the design of some recently developed massively parallel computers. As few know, a few friends and co-founders developed an internet privacy company with Stolfo that was way ahead of its time called iPrivacy (not to be confused with a more recent company that now owns that name dealing with privacy products to secure personal information). The iPrivacy company developed in the late 90's developed and deployed a complete private surfing, shopping and shipping system that was ready for test in 2001. The company had a contract with the US Post Office, a large commercial bank who signed up over 30,000 customers in Silicon Valley, and a fully fielded system ready for use. The tragic events of 911 made other plans for iPrivacy which soon shut down in the wake of the nation-wide crisis. (The Past Research page points to a number of patents and applications describing iPrivacy's technology.)

Professor Stolfo served as the Acting Chairman of Computer Science at Columbia for one (very stressful) year. Along with colleagues at USC/ISI, he was instrumental in the development of the NSF Digital Government program that established a sizeable research community and conference called dg.o. He also served as the Director of the Center for Advanced Technology and the Digital Government Research Center at Columbia University.

Among his non-academic roles, he was an expert witness in the DOJ versus Microsoft "browser wars" case and served as a member of the Congressional Internet Caucus Advisory Committee, and the Visa 3D Secure Authenticated Internet Payments Vendor Program. He was a consultant to the CTO of Citicorp for several years, and helped organize the Financial Services Technology Consortium, the consortia of the nation's largest banks dealing with the technical infrastructure of the financial services industry.

Professor Stolfo is a member of the editorial boards of IEEE S&P and Data Mining and Knowledge Discovery. He has also served as a consultant to DARPA and other federal agencies. Presently he is a member of the National Academy's Naval Study Board Committee on Information Assurance for Naval Centric Forces. He has chaired, co-chaired and served on the program committees of numerous workshops and conferences in the areas of parallel processing, data mining, computer security, intrusion detection and digital government. His most recent research has been devoted to distributed data mining systems with applications to fraud and intrusion detection in network information systems. His Intrusion Detection System (IDS) lab, established in 1996 and sponsored by DARPA,

pioneered the use of data analysis and machine learning techniques for the adaptive generation of novel sensors and anomaly detectors for a variety of tasks in computer security.

Professor Stolfo has graduated over 25 PhD students and many dozens of Master's students. He has been awarded numerous patents (one joint with Citicorp) in the areas of parallel computing and database inference and computer security. The Columbia IDS lab has produced over a dozen patent applications filed by Columbia University for security and privacy technologies some of which have been licensed to commercial enterprises. Professor Stolfo also was founder or co-founder of and advisor to several startups. His most recent research is devoted to payload anomaly detection for zero-day exploits, secure private querying, automatic bait generation to mitigate the insider threat and new forays into the area of multi-core parallel computing.