

*The University of Alabama
Department of Computer Science
Colloquium Series Speaker*

**Dr. Byron Marshall
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Cross-jurisdictional Law Enforcement Data Sharing and Analysis

**Friday, February 23, 2007
11:00a.m., Houser 108**

Abstract:

Cross-jurisdictional law enforcement data sharing and analysis is of vital importance because law breakers regularly operate in multiple jurisdictions. Agencies continue to invest massive resources in various sharing initiatives despite several high-profile failures. Key difficulties include: privacy concerns, administrative issues, differences in data representation, and a need for better analysis tools. This work presents a methodology for sharing and analyzing investigation-relevant data and is potentially useful across large cross-jurisdictional data sets. The approach promises to allow crime analysts to use their time more effectively when creating link charts and performing similar analysis tasks. Many potential privacy and security pitfalls are avoided by reducing shared data requirements to labeled relationships between entities. Our importance flooding algorithm helps extract interesting networks of relationships from existing law enforcement records using user-controlled investigation heuristics, spreading activation, and path-based interestingness rules. In our experiments, several variations of the importance flooding approach outperformed relationship-weight-only methods in matching expert-selected associations. We found that accuracy was not substantially affected by reasonable variations in algorithm parameters and demonstrate that user feedback and additional, case-specific information could be usefully added to the computational model.

Dr. Marshall's Bio:

Byron Marshall is an Assistant Professor of Information Management at Oregon State University, in the College of Business Department of Accounting, Finance, and Information Management. His research interests emphasize the re-use of organizational data in informal node-link knowledge representations to support analysis tasks. Previous work includes applications in bioinformatics, business intelligence, digital library, law enforcement, and education. He received a Ph.D. in Management Information Systems from the University of Arizona in May, 2005; an MBA degree with emphasis in Accounting from California State University, Fresno in 1995; and a BA in Business Administration-Computer Applications and Systems from California State University, Fresno in 1988. Byron has 13 years of dynamic industry experience designing, creating, and using computer systems in the cotton industry.