

## Biomedical and Health Informatics Lecture Series

Tuesday, January 19, 2010  
12:00 - 12:50 p.m., Room T-663

### Wolfgang Gatterbauer, PhD

Research Associate and Postdoctoral Scholar  
Database Research Group, Computer Science & Engineering  
University of Washington, Seattle

#### “Integrating and Ranking Uncertain Scientific Data”

Mediator-based data integration systems help users explore multiple databases by joining data across different sources. In the presence of uncertainties, such multiple expansions across different databases can quickly lead to spurious connections and incorrect results. The BioRank project – a collaboration between the departments of Medical Education and Biomedical Informatics (MEBI) and Computer Science and Engineering (CSE) - investigates formalisms for modeling uncertainty during scientific data integration and for ranking uncertain query results. This talk will give an overview of the project and will cover four motivating topics: 1) How can we model and deal with uncertainty in a general-purpose data integration system? 2) What is the resulting increase in computational complexity that results from managing such uncertainty explicitly and how can the overhead be reduced? 3) How well, how fast and how robust do such systems actually perform compared to their deterministic counterparts on real biological data? And 4) What are some more general conclusions from a database research point of view? How can we generalize some ideas to general query evaluation in probabilistic databases?

Based on past joint work with Landon Detwiler, Brent Louie, Dan Suciu, and Peter Tarczy-Hornoch, and current work with Abhay Jha and Dan Suciu.

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Dr. Gatterbauer is Postdoctoral Research Associate in the database group of Computer Science and Engineering at University of Washington. His general research interest is in data management and centers around developing data models that can handle inconsistency or uncertainty, and that can explain causal relations in databases. He received his PhD in Computer Science from Vienna University of Technology working on web information extraction, a M.Sc. in Mechanical Engineering from Graz University of Technology working on alternative thermodynamic cycles, and a dual M.Sc. in Electrical Engineering & Computer Science and Technology & Policy from MIT working on optimizing electricity production in deregulated power markets.