

COMPUTER SCIENCE
SEMINAR

*Application of Software Development Methods for Biological
and Scientific Research*

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Abstract: The application of software development methods for scientific and biological research tools has been considered a desirable approach. Through a number of examples, we illustrate the advantages of applying such methods in terms of software development, maintenance, and addition of new functionality. Specifically, we describe our current experience with Predictive Health Initiative, a collaboration between Emory University and Georgia Tech, to explain the application of modern software development methods for data and system integration. For example, we use domain-specific code generation to integrate data from heterogeneous and evolving data sources. In addition, we apply concepts and techniques from event processing and services computing to implement required functionality that would have been prohibitively expensive without them.

Short Biography of Calton Pu:

Calton Pu was born in Taiwan and grew up in Brazil. He received his PhD from University of Washington in 1986 and served on the faculty of Columbia University and Oregon Graduate Institute. Currently, he is holding the position of Professor and John P. Imlay, Jr. Chair in Software at the College of Computing, Georgia Institute of Technology. He has worked on several projects in systems and database research. His contributions to systems research include program specialization and software feedback in the Synthesis, Synthetix, and Infosphere projects. His contributions to database research include extended transaction models and their implementation such as Epsilon Serializability and Reflective Transaction Framework. His recent research has focused on event processing (Continual Queries over the Internet), automated system management (Elba project) and services computing (dependable systems software). His collaborations include applications of these techniques in scientific research on macromolecular structure data, weather data, environmental data, and health care. He has published more than 50 journal papers and book chapters, 150 conference and refereed workshop papers, and served on more than 100 program committees, including the co-PC chairs of SRDS'95, ICDE'99, COOPIS'02, SRDS'03, DOA'07, and co-general chair of ICDE'97, CIKM'01, ICDE'06, DEPSA'07, and CEAS'07.

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