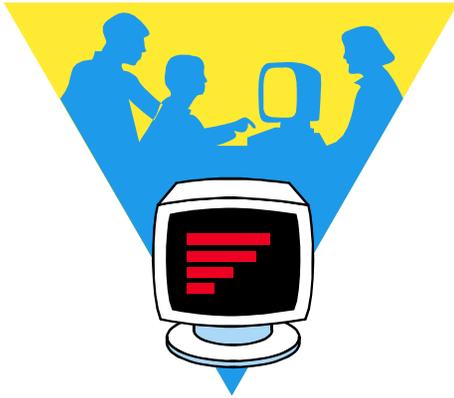


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IT Seminar Series



Automated Software Enhancement and Reengineering by Program Transformation

by

Dr. Ira D. Baxter
CTO, Semantic Designs

Tuesday, July 31, 2001
2:00 – 3:00 P.M.
Conf. Room 180-101

Software modification and maintenance account for nearly eighty percent of the cost of a software system over its lifetime. Much of that cost is invested in rediscovery of lost design information, and carrying out complex changes. The Design Maintenance System (DMS) is a set of practical tools for automating large-scale software changes. The vision is based on a unique model of design derived from transformational synthesis and reuse of domain-specific knowledge implemented via program transformations. The tool is focused on performing practical tasks on large software systems (millions of lines of code), while building the necessary infrastructure to support the vision. In this talk, Dr. Baxter will sketch the DMS vision, discuss how the DMS model of design differs fundamentally from conventional software designs, and illustrate the meaning of a DMS domain. He will describe the current state of the DMS reengineering toolkit, covering Java and IBM VS COBOL II domains, transformations, and its implementation in a parallel language. He will discuss possible applications of DMS, including quality enhancement reengineering and optimization. Lastly, he will explore briefly the idea of modifying source code to manage run-time power consumption.

In 1990, Dr. Baxter received a Ph.D. in Computer Science from the University of California at Irvine. Afterwards, he worked at Schlumberger developing a PDE-solver generator for CM-2 supercomputers (Sinapse) and consulted for Rockwell International on industrial automation software engineering tools. In 1995, he founded Semantic Designs. Dr. Baxter is the principal architect of Semantic Designs' DMS and the principal designer and implementer of PARLANSE, a parallel programming language compiler. He has co-chaired the International Conference on Software Reuse and Working Conferences on Reverse Engineering. He frequently provides tutorials on transformation system technologies at software engineering conferences, such as the International Conference on Software Engineering.