TROY UNIVERSITY

Presents the Eighth Annual
Computer Science Colloquium on Information Technology

Automating Software Evolution through Model-Driven Engineering
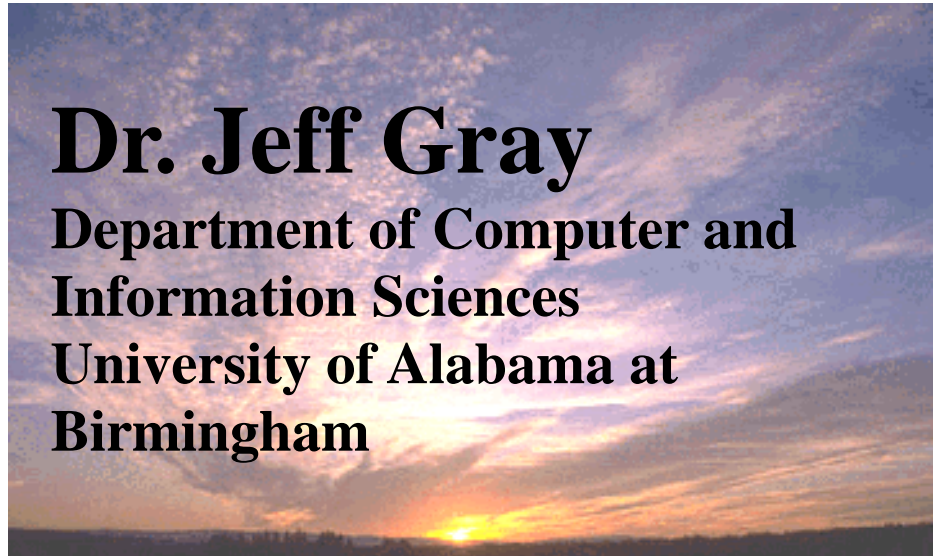
Tuesday, April 3, 2007
5:30 - 6:30 p.m.
Troy University
Rosa Parks Library and Museum Auditorium
Montgomery Campus
(Reception to follow)

Model-Driven Engineering (MDE) represents a design approach that enables description of the essential characteristics of a problem in a manner that is decoupled from the details of a specific solution space (e.g., dependence on specific middleware or programming language). Domain-Specific Modeling (DSM) is an MDE methodology that generates customized modeling languages and environments from metamodels that define a narrow domain of interest. From these models, other artifacts of software development (e.g., source code or configuration files) can be generated by model translators.

The interest and adoption of DSM over the past decade has surged. Strong support for basic research has been committed by the large European Union ModelWare project ($30M Euros). Metamodeling tools that support DSM continue to emerge from both commercial and open source projects (e.g., Microsoft's DSL Toolkit and the Eclipse Modeling Project), as well as numerous academic research projects (e.g., Vanderbilt's Generic Modeling Environment). Initial success stories from industry adoption of DSM have been reported, with perhaps the most noted being Saturn's multi-million dollar cost savings associated with timelier reconfiguration of an automotive assembly line driven by domain-specific models.

This presentation will provide a general introduction to MDE with a specific focus on the capability to evolve software artifacts through model transformation and program transformation. The benefits of MDE will be showcased through case studies taken from models supporting different domains (e.g., avionics mission computing).

Dr. Jeff Gray
Department of Computer and Information Sciences
University of Alabama at Birmingham

Dr. Jeff Gray is an assistant professor in the Department of Computer and Information Sciences at the University of Alabama at Birmingham (UAB) where he directs research in the Software Composition and Modeling (SoftCom) laboratory. He received his Ph.D. in May 2002 from the Electrical Engineering and Computer Science department at Vanderbilt University, where he also served as a research assistant from 1999-2002 at the Institute for Software Integrated Systems (ISIS).

Dr. Gray's research interests include model-driven engineering, aspect-oriented software development and generative programming. He has recently published on these topics in *Communications of the ACM* and *IEEE Computer*. In the past, his research was supported by DARPA and an IBM Eclipse Innovation grant. He currently is supported by two NSF grants, including a 2006 NSF CAREER award.

Dr. Gray is currently the chair of the Alabama IEEE Computer Society. He has served on over 90 organizing and programming committees and was a recent guest editor for three different journal special issues. He is a cofounder of the Domain-Specific Modeling series of workshops at OOPSLA and serves on the organizing committees of the upcoming MODELS and GPCE conferences.

More information about his research and publications can be found at (http://www.cis.uab.edu/gray).

For additional information, please contact Dr. Mehmet Sahinoglu, Eminent Scholar and Professor, Department of Computer Science, Troy University at (334) 832-7289 or E-mail (mesa@troy.edu).

The Colloquium is supported by the Troy University Department of Computer Science, College of Arts and Sciences and The Graduate School.
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