You are invited to join the Software Cybernetics Special Interest Group (SC-SIG)

Definition

Modern systems such as Services Computing and Web Services require sophisticated control strategies to operate. Software cybernetics explores the interplay between software/systems behavior, and control. The fundamental question of interest is how to adapt software behavior, software processes, or software systems to meet basic and expanded objectives in the presence of a changing environment. Changes are due to disturbances, faults, or revised requirements? This emerging and interdisciplinary area addresses issues and questions on:

- Formalization and quantification of feedback and self-adaptive control mechanisms in software;
- Adaptation of control theory principles to software processes and systems
- Application of software engineering principles and theories to control systems and processes
- Integration of the theories of software engineering and control engineering

The Software Cybernetics SIG is open to anyone interested in these issues and questions.

Topics of interest

- Models and use of feedback mechanisms in software processes, simulation, and systems
- Feedback control in software test process and fault-tolerant computing
- Robust feedback policies for software security
- Robust software evolution using adaptive feedback control and statistically designed experiments
- Self-adaptive, self-managing, and learning software
- Adaptive testing; fault detection and localization for self-correction in software and software processes
- Control of software rejuvenation; adaptive rejuvenation
- Relationship between simulations and controllability
- Application of supervisory control principles to software synthesis and safety control
- Software architectures for control systems
- Proactive and autonomic computing
- Software-enabled control
- Quality of Service Adaptive Mechanisms
- Adaptive Systems Design
- Adaptive Software Architectures
- Component-Based Adaptive Systems

Application Areas

- Software testing
- Embedded Systems
- Adaptive Systems
- Self-healing systems
- Security systems
- Data center control
- Context aware systems
- Software Architecture

How to Join the SC-SIG

Go to http://www.linkedin.com/e/vgh/2189748/ to join the Software Cybernetics- Special Interest Group.

Related Conferences/Workshops

The key venue for software cybernetics is the International Workshop on Software Cybernetics (IWSC) which has been traditionally collocated with COMPSAC. The 2009 IWSC was in its sixth edition http://www.utdallas.edu/~cangussu/site/IWSC09/

Other venues with potential interest in software cybernetics include:

- NASA/ESA Conference on Adaptive Hardware and Systems (AHS-2009)
- IEEE Real-Time and Embedded Technology and Applications Symposium (IEEE RTAS 2010)