

ISTeC



**Colorado
State
University**

The Information Science & Technology Center

ISTeC.ColoState.edu

**Colorado State University's
Information Science and Technology Center (ISTeC)
presents two lectures by**



William Pugh

Professor Emeritus,
Department of Computer Science,
University of Maryland

**ISTeC Distinguished Lecture
in conjunction with the
Electrical and Computer Engineering Department and
Computer Science Department Seminar Series**

**“Innovations in Teaching Software
Development Skills”**

Monday, January 28, 2013

Reception: 10:30 a.m.

Lecture: 11:00 – 12:00 noon

Location: Computer Science Building, Room 130



Department of Computer Science Lecture

Sponsored by ISTE C

“Research and Engineering challenges in FindBugs”

Wednesday, January 30, 2013

Lecture: 11:00 a.m. – 12:00 noon

Location: Computer Science Building, Room 130

ABSTRACTS

“Innovations In Teaching Software Development Skills”

Educators have been looking at various ways to improve the classroom experience, incorporating ideas such as active learning, on-line lectures, and various communications technologies. However, the way in which programming and software development is taught has not changed much at many schools.

I'll be talking about various approaches being developed at Maryland to improve the way we teach programming and software development. Much of this has evolved through the Marmoset project, which is a web based framework for handling student project submission and evaluation. Marmoset, also known as the submit server, accepts student project submissions and provides students with limited access to test results before the project deadline. It provides various incentives for students to start work on projects early and practice test driven development. It also provides students with access to tools such as static analysis and code coverage data, and supports web-based code reviews. Code reviews include instructional code reviews (where TA's or faculty review student code), peer code reviews (where each student reviews code by two other students), and canonical code reviews (where all students are asked to review one specific code example, perhaps something from a standard library). Marmoset is open source, and used in most CS programming courses at UMD and by several other universities.

“Research and Engineering challenges in FindBugs”

I'll talk about some of the research and engineering issues in FindBugs, a static analysis tool for finding errors in Java programs (and other languages that compile to Java byte code). FindBugs has been downloaded more than a million times, incorporated into all major commercial static analysis tools, and is used tens of thousands of times a day worldwide. After a brief review of FindBugs, I'll talk about the design of the type qualifier analysis built into FindBugs, the challenges of annotation-driven frameworks, the null dereference analysis used by FindBugs, and new ideas about how FindBugs could be made user extensible.

SPEAKER BIOGRAPHY

Bill Pugh received a Ph.D. in Computer Science (with a minor in Acting) from Cornell University. He was a professor at the University of Maryland for 23.5 years, and in January 2012 became professor emeritus to start new adventure somewhere at the crossroads of software development and entrepreneurship.

Bill Pugh is a Packard Fellow, and invented Skip Lists, a randomized data structure that is widely taught in undergraduate data structure courses. He has also made research contributions in techniques for analyzing and transforming scientific codes for execution on supercomputers, and in a number of issues related to the Java programming language, including the development of JSR 133 - Java Memory Model and Thread Specification Revision. Professor Pugh's current research focus is on developing tools to improve software productivity, reliability and education. Current research projects include FindBugs, a static analysis tool for Java, and Marmoset, an innovative framework for improving the learning and feedback cycle for student programming projects.

Professor Pugh has spoken at numerous developer conferences, including JavaOne, Goto/Jao in Aarhus, the DevOxx conference in Antwerp, and CodeMash. At JavaOne, he received six JavaOne RockStar awards, given to the speakers that receive the highest evaluations from attendees.

Professor Pugh spent the 2008-2009 school year on sabbatical at Google, where, among other activities, he learned how to eat fire.

To arrange a meeting with the speaker, please contact **Prof. Jim Bieman** at James.M.Bieman@ColoState.EDU or (970) 491-7096.

ISTeC (Information Science and Technology Center) is a university-wide organization for promoting, facilitating, and enhancing CSU's research, education, and outreach activities pertaining to the design and innovative application of computer, communication, and information systems. For more information please see ISTeC.ColoState.edu.