

# Challenges and New Approaches to Program Analysis

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## Abstract

Program analysis, originally developed for code optimization, have recently been used to automate parallelization, debugging, security vulnerability detection, and program comprehension. These more complex tasks require that deep global knowledge, such as pointer alias analysis and path-sensitive information, be extracted across whole programs. This talk discusses the challenges we face and some new approaches to these problems.

## Biography

Monica Lam is a Professor of Computer Science at Stanford University. She received a Ph.D. in computer science from Carnegie Mellon University

in 1987 and a B.S. from University of British Columbia in 1980. Her current research interests are in improving software productivity and usability of computers. Professor Lam led the SUIF parallelizing compiler project, which produced a widely used compiler infrastructure known for its memory hierarchy optimizations and interprocedural parallelization. Many of the compiler techniques she developed have been adopted by the industry. Honors for her research work at Stanford include an NSF Young Investigator award, an ACM Most Influential Programming Language Design and Implementation Paper Award, and an ACM SIGSOFT Distinguished Paper Award.