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IT Eminent Lecture Series

Computational Thinking

Jeanette Wing, National Science Foundation

Coates Hall 152
 March 17, 2010 - 01:00 pm

Abstract:

My vision for the 21st Century: Computational thinking will be a fundamental skill used by everyone in the world. To reading, writing, and arithmetic, we should add computational thinking to every child's analytical ability. Computational thinking involves solving problems, designing systems, and understanding human behavior by drawing on the concepts fundamental to computer science. Thinking like a computer scientist means more than being able to program a computer. It requires the ability to abstract and thus to think at multiple levels of abstraction. In this talk I will give many examples of computational thinking, argue that it has already influenced other disciplines, and promote the idea that teaching computational thinking can not only inspire future generations to enter the field of computer science but benefit people in all fields.

Speaker's Bio:

Dr. Jeannette M. Wing is the President's Professor of Computer Science in the Computer Science Department at Carnegie Mellon University. She received her S.B. and S.M. degrees in Electrical Engineering and Computer Science in 1979 and her Ph.D. degree in Computer Science in 1983, all from the Massachusetts Institute of Technology. From 2004-2007, she was Head of the Computer Science Department at Carnegie Mellon. Currently on leave from CMU, she is the Assistant Director of the Computer and Information Science and Engineering Directorate at the National Science Foundation. Professor Wing's general research interests are in the areas of specification and verification, concurrent and distributed systems, programming languages, and software engineering. Her current focus is on the foundations of trustworthy computing. Professor Wing was or is on the editorial board of twelve journals. She has been a member of many advisory boards, including: the Networking and Information Technology (NITRD) Technical Advisory Group to the President's Council of Advisors on Science and Technology (PCAST), the National Academies of Sciences's Computer Science and Telecommunications Board, ACM Council, the DARPA Information Science and Technology (ISAT) Board, NSF's CISE Advisory Committee, Microsoft's Trustworthy Computing Academic Advisory Board, the Intel Research Pittsburgh's Advisory Board, and the Sloan Research Fellowships Program Committee. She is a member of AAAS, ACM, IEEE, Sigma Xi, Phi Beta Kappa, Tau Beta Pi, and Eta Kappa Nu. Professor Wing is an AAAS Fellow, ACM Fellow, and IEEE Fellow.

