



IT Eminent Lecture Series

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Lawrence Gussman Professor, Columbia University, Winner of IEEE John von Neumann medal

Life Sciences Building Annex Auditorium

June 01, 2005 - 02:00 pm

Abstract:

In the 1940s Claude Shannon showed how we can achieve reliable communication over a noisy channel by using error detecting and correcting codes, and in the 1950s John von Neumann showed how we can create reliable hardware from unreliable components by using redundancy. Today, error detecting and correcting codes and redundancy are used routinely in practice. This talk examines why no one has yet written the analogous paper for software, and what efforts the software community is currently taking to create more reliable software.

Speaker's Bio:

Alfred Aho is Lawrence Gussman Professor and Vice Chair for Undergraduate Education in the Computer Science Department at Columbia University. Prior to this appointment, he was Vice President of the Computing Sciences Research Center at Bell Laboratories, Lucent Technologies. Inventions of this center include the UNIX operating system and the C and C++ programming languages. Dr. Aho was also General Manager of the Information Sciences and Technologies Research Laboratory at Bellcore (now Telcordia). Dr. Aho received a B.A.Sc. in Engineering Physics from the University of Toronto and a Ph.D. in Electrical Engineering/ Computer Science from Princeton University. Dr. Aho's research is currently focused on programming languages and compilers, algorithms, and quantum computing. He has published ten textbooks that are used throughout the world in computer science research and education. He created the Unix pattern matching tools egrep and fgrep, and is a coinventor of the AWK programming language. Dr. Aho is a member of the National Academy of Engineering and of the American Academy of Arts and Sciences. He has received the IEEE John von Neumann medal. He is a Fellow of the American Association of the Advancement of Science, ACM, Bell Laboratories, and the IEEE. He has received honorary doctorates from the University of Helsinki and the University of Waterloo for his contributions to computer science research. Dr. Aho is active on a number of national and international advisory boards and committees. He is Chair of the Advisory Committee for the Computer and Information Sciences and Engineering Directorate of the National Science Foundation, and of the ACM Turing Award Committee. He has also been Chair of ACM's Special Interest Group on Algorithms and Computability Theory and a member of the Computer Science and Telecommunications Board of the National Research Council.

