

IOWA STATE UNIVERSITY

Department of Computer Science

2011 Robert Stewart Distinguished Lecture



Alfred Aho, Columbia University

Thursday April 14, 2011

3:40pm, Howe Hall

Alliant Energy Lee Liu Auditorium

Computational Thinking in Language Design

Designing and implementing a programming language is an exercise in computational thinking. This talk looks at how computational thinking pervades the process of designing and implementing programming languages. Having teams of students create and implement their own innovative language provides students with a wonderful opportunity to learn computational thinking.

Alfred V. Aho is Lawrence Gussman Professor in the Computer Science Department at Columbia University. He served as Chair of the department from 1995 to 1997, and in the spring of 2003. Professor Aho has a B.A.Sc in Engineering Physics from the University of Toronto and a Ph.D. in Electrical Engineering/Computer Science from Princeton University. Professor Aho won the Great Teacher Award for 2003 from the Society of Columbia Graduates.

Professor Aho has won the IEEE John von Neumann Medal and is a Member of the U.S. National Academy of Engineering and the American Academy of Arts and Sciences. He received honorary doctorates from the Universities of Helsinki and Waterloo, and is a Fellow of the American Association for the Advancement of Science, ACM, Bell Labs, and IEEE.

Professor Aho is well known for his many papers and books on algorithms and data structures, programming languages, compilers, and the foundations of computer science. His book coauthors include John Hopcroft, Brian Kernighan, Monica Lam, Ravi Sethi, Jeff Ullman, and Peter Weinberger.

Professor Aho is the "A" in AWK, a widely used pattern-matching language; "W" is Peter Weinberger and "K" is Brian Kernighan. (Think of AWK as the initial pure version of perl.) He also wrote the initial versions of the string pattern-matching programs egrep and fgrep that first appeared on UNIX. Professor Aho's current research interests include programming languages, compilers, algorithms, software engineering, and quantum computers.

ALL SCIENCE IS COMPUTER SCIENCE