

Colloquium d'Informatique de l'UPMC Sorbonne Universités

Computer Science: All Questions Answered

Donald Knuth

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Would computer science be recognized as a mature discipline when it had 1,000 deep algorithms? And what is the current state? Why would you think the design of efficient algorithms to be the core of computer science? What is the connection between mathematics and computer programming viewed as an art? Will we have intelligent machines sometime in the future? Should we have them? Any question on any subject, such as the above questions, or software patents, or distraction about fonts on restaurant menus, will get an answer from Donald Knuth, who "has made as great a contribution to the teaching of mathematics for the present generation of students as any book in mathematics proper in recent decades" (statement from the AMS Steele Prize for Exposition in 1986).

Donald Knuth is Professor Emeritus of The Art of Computer Programming at Stanford University. His work is distinguished by its integration of theoretical analyses and practical real-world concerns. Prof. Knuth has been called the father of the analysis of algorithms: he contributed to the development of the rigorous analysis of the computational complexity of algorithms and systematized formal mathematical techniques for it. He also made fundamental contributions to the subfields of compilers, string matching, term rewriting systems, literate programming, and typography. Over twenty books are authored by Prof. Knuth, among which the critically acclaimed multi-volume work *The Art of Computer Programming*, an ongoing series since 1962. In the publishing process he created TeX and METAFONT which are now largely accepted as standards for electronic typesetting and font rendering. Prof. Knuth received the first ACM Grace Murray Hopper Award in 1971. He has received various other awards including the Turing Award, the National Medal of Science, the John von Neumann Medal, and the Kyoto Prize.

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