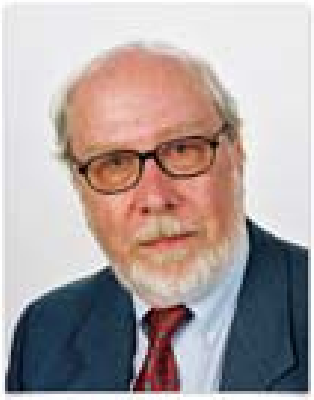
Niklaus Wirth

Born February 15, 1934, Winterthur, Switzerland, early Promoter of good programming practices; developer of the programming languages Pascal, Modula-2, and Oberon; recipient of the 1984 ACM Turing Award.



Education: undergraduate studies at ETH Zurich, Dept. of Electrical Engineering, 1954-1958; diploma, Electronics Engineer ETH, 1959; MSc, Laval University, Quebec, Canada, 1960; PhD, electrical engineering, University of California, Berkeley, 1963.

Professional Experience: assistant professor of computer science, Stanford University, 1963-1967; assistant professor of computer science, University of Zurich, 1967-1968; professor of computer science, University of Zurich and ETH Zurich, 1968-1972; professor of computer science, ETH Zurich, 1972-present; sabbatical leaves, Xerox Palo Alto Research Center, 1977 and 1985; head of Department of Computer Science, ETH Zurich, 1982-1984 and 1988-1990; head of Institute of Computer Systems, ETH Zurich, 1990-present.

Honors and Awards: ACM Programming Systems and Languages Paper Award for "Towards a Discipline of Real-Time Programming," 1978; honorary doctorate, University of York, England, 1978; honorary doctorate, Ecole Polytechnique Federale, Lausanne, Switzerland, 1978; Computer Design, Hall of Fame Award, 1982; Emanuel R. Piore Award, IEEE, for "achievement in the field of Information Processing contributing to the advancement of science and the betterment of society," 1983; A.M. Turing Award, ACM, "for developing a sequence of innovative computer languages Euler, Algol-W, Pascal, and Modula. Pascal has become pedagogically significant, and has provided a foundation for future computer languages, systems, and architectural research," 1984; ACM-SIGCSE Award, "for outstanding contributions to computer science education," 1987; honorary doctorate, Laval University, Quebec, Canada, 1987; IEEE Computer Society Pioneer Award, 1987; Computer Pioneer Award, IEEE Computer Society, 1988; Prix Max Petitpierre, Bern, 1988; IBM Europe Science and Technology Prize 1988, "recognition of outstanding work in the field of computer science," 1989; Marcel Benoist Preis, "in Anerkermung der von ihm geschaffenen Computer-Sprachen, die neuartige Konzepte der strukturierten Programmierung verwirklichen und den vielseitigen Einsatz von Rechnern weltweit und auf allen Wissensgebieten nachhaltig beeinflusst haben," 1990; distinguished alumnus, University of California, Berkeley, 1992; foreign associate, US Academy of Engineering, 1993; fellow, ACM, 1994.

Professor N. Wirth received the degree of electronics engineer from the Swiss Federal Institute of Technology (ETH) in Zurich in 1958. Thereafter he studied at Laval University in Quebec, Canada, and received the MSc degree in 1960. At the University of California at Berkeley he pursued his studies, leading to the PhD degree in 1963. Until 1967 he was assistant professor at the newly created Computer Science Department at Stanford University, where he designed the programming languages PL360 and (in conjunction with the IFIP Working Group 2.1) Algol W. In 1967 he became assistant professor at the University of Zurich, and in 1968 he joined ETH Zurich, where he developed the languages Pascal between 1968 and 1970 and Modula-2 between 1979 and 1981.

Further projects include the design and development of the personal computer Lilith, a high-performance workstation, in conjunction with the programming language Modula-2 (1978-1982), and the 32-bit workstation

computer Ceres (1984-1986). His most recent works produced the language Oberon, a descendant of Modula-2, which served to design the operating system with the same name (1986-1989). He was chairman of the Division of Computer Science (Informatik) of ETH from 1982 until 1984, and again from 1988 until 1990. Since 1990 he has been the head of the Institute of Computer Systems of ETH.

In 1978 Professor Wirth received honorary doctorates from York University, England, and the Federal Institute of Technology at Lausanne, Switzerland, in recognition of his work in the fields of programming languages and methodology. In 1983 he was awarded the Emanuel Priore prize by the IEEE, in 1984 the A.M. Turing Prize by the ACM, and in 1987 the Award for Outstanding Contributions to Computer Science Education by ACM. The ACM Turing Award cited Wirth for "developing a sequence of innovative computer languages Euler, Algol-W, Modula, and Pascal. Pascal has become pedagogically significant, and has provided a foundation for future computer language, systems, and architectural research." In 1987 he was awarded an honorary doctorate by the Université Laval, Canada, and in 1988 he was named a Computer Pioneer by the IEEE Computer Society.

In 1989 Professor Wirth was awarded the Max Petitpierre Prize for outstanding contributions made by Swiss noted abroad, and he received the Science and Technology Prize from IBM Europe. He was awarded the Marcel Benoist Prize in 1990. In 1992 he was nominated Distinguished Alumnus of the University of California at Berkeley. He is a member of the Swiss Academy of Technical Sciences and a Foreign Associate of the US Academy of Engineering.

QUOTATIONS

Regarding Pascal: "In the interest of increased quality of software products, we may be well advised to get rid of many facilities of modern, baroque programming languages that are widely advertised in the name of 'user-orientation,' 'scientific sophistication,' and 'progress. '"

In introducing Professor Wirth to present his Turing Award Lecture in 1984, ACM president Adele Goldberg commented: "In Europe he is called by name-Wirth (pronounced virt), while in America we know him by value-Wirth (pronounced worth)!"

BIBLIOGRAPHY

Significant Publications

Wirth, N., "The Programming Language Pascal," *Acta Informatica,* Vol. 1, June 1971, pp. 35-63.

Hoare, C.A.R., and N. Wirth, "An Axiomatic Definition of the Programming Language Pascal," *Acta Informatica,* Vol. 2, 1973, pp. 335-355.

Wirth, N., *PASCAL-User Manual and Report* (with Kathy Jensen), Springer-Verlag, Berlin, 1974.

Wirth, N., *Algorithms, Data Structures, Programs,* Prentice-Hall, Englewood Cliffs, NJ., 1975.

Wirth, N., *Programming in Modula-2,* Springer-Verlag, Heidelberg, New York, 1982.

Wirth, N., "The Programming Language Oberon," *Software-Practice and Experience,* Vol. 18, No. 7, 1985, pp. 671- 690.

Wirth, N., *Programming in Oberon* (with M. Reiser), Addison-Wesley, Reading, Mass., 1992.

Wirth, *N., Project Oberon* (with J. Gutknecht), Addison-Wesley, Reading, Mass., 1992.

UPDATES

Portrait added (MRW, 2013)