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Formal Aspects of Software Engineering

J.UCS Special Issue in Honor of Professor Peter Lucas

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The present special issue of J.UCS is a collection of papers presented at the colloquium *Formal Aspects of Software Engineering* which took place on the 18th and 19th of May 2001 in Graz, Austria. The colloquium was held to mark the retirement of Professor Peter Lucas from his chair in *Software Technology* at the Graz University of Technology.

The subject of the colloquium is the central area of research of Peter and his institute. In scientific talks, several of Peter's colleagues and friends have presented their view on the past, present and future of formal development methods in software engineering. The topics cover a broad range of the field, such as re-engineering using algebraic methods, testing based on abstraction techniques, modeling in category theory, development tools, parallel computing, and education.

Peter graduated from the Technical University of Vienna in 1959. He joined the Vienna research group under Prof. Zemanek and did all the systems programming for the Mailüfterl. In the course of building an Algol 60 compiler he did original research whose main contribution is known as recursive descent parsing. In late 1961 the research group joined IBM to form the nucleus of the IBM laboratory in Vienna. In the following years he did original research in formal semantics of programming languages and compiler correctness proofs. The most visible result of this period is probably the formal definition of PL/I.

In the 1970's Peter continued research in semantic compiler design but changed the focus to program development in general. In 1972 he was the first to propose the axiomatic definition of abstract data types (which were called software devices at this time). In the late 70s he became interested in new ways of programming applications by highly parameterizing the procedural code and using rules for representing factual information.

In 1978 Peter moved to the IBM research center in Yorktown Heights where he joined an experimental compiler project. A year later he moved to the research center in San Jose where he became active in Rules Technology. From 1986 to 1987 he worked with Steve Zilles on data stream and graphics interfaces and among other projects developed a family of completely functional data types for graphic objects. In 1988 he joined the functional programming project around John Backus and participated in the definition and implementation of the functional language FL. Since October 1993 he is full time professor for software technology at the Graz University of Technology in Austria. Since 1994 he is the chairman of FME (Formal Methods Europe).

He obtained the IBM Outstanding Contribution Award for the formal specification of PL/I in 1968 and together with Kurt Walk the ACM best paper award in 1969. Furthermore he is Senior Member of the IEEE, Honorary Professor at Johannes Kepler University of Linz since 1987, and a corresponding member of the Austrian Academy of Sciences since 1994.

Peter is also a great teacher. During the 9 years in Graz he held numerous courses and supervised 6 Ph.D. and about 70 M.Sc. students. The editors of this issue are current and former assistants and Ph.D. students of Peter.

Thank you, Peter, and good luck for your next career!

Bernhard K. Aichernig, Brigitte Fröhlich, and Andreas Kerschbaumer
Guest Editors
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