Computer Science in Perspective

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Preface

This collection of contributions from leading German and international computer scientists celebrated Prof. Dr. Thomas Ottmann's 60th birthday in 2003. The title of the volume, *Computer Science in Perspective*, and the topics of these high-quality papers are indicative of the respect which Thomas Ottmann enjoys within the *Informatics* community as a leading researcher and devoted teacher.

German computer science ("Informatik") has a strong theoretical touch and has never denied its heritage from mathematics. In this vein is the love for rigorous proofs, the longing for brevity and efficiency of algorithms, and the admiration for a surprising solution. Unlike pure mathematics, *Informatics* can embody this beauty of thought in zeroes and ones and let them come to life on the computer screen.

Step-by-step theory influences practical tasks and forms the basis for application systems and commercial success. Quite often, the public underestimates the time-span in which the transfer of these technological processes happens. Although computer science is highly innovative, fundamental theories and basic results often take 20 or more years to become fully appreciated and reach the market. Edgar F. Codd (relational theory), Robert Metcalfe (Ethernet), Doug Engelbart (interactive graphical interface), Ole-Johan Dahl and Kristen Nygaard (Simula and object-orientation), and Claude Shannon (information theory) are but a few scientists to mention who shaped the industry decades ago.

Communicating the need for a sound theory to students and fellow scientists through well-written textbooks, computer-supported courses, or simply through teaching material placed onto the Web is another strong point of computer science. Hardly any other science can compete with such a large body of textbooks, most of it going well beyond simple handbooks or "cooking almanacs." Modern forms of teaching and advanced techniques for collaboration were first designed, developed, and applied in computer science.

Having outlined this view of *Informatics* as a science with deep theoretical roots and far-reaching consequences for very practical applications, we feel that Thomas Ottmann is a prototypical example of a scientist who can span this spectrum. It is thus not a pure coincidence that the well-known phrase "nothing is as practical as a good theory" – attributed to Kurt Lewin (1890–1947) – is often cited by him.

Educated as a mathematician specializing in logic and formal languages, he joined Hermann Maurer's Institute in Karlsruhe which in itself was (and is) an example of the bridge between theory and practice.

Soon after his appointment as a research assistant he decided to switch from formal languages to algorithms and data structures where he quickly accumulated a large number of outstanding publications. With the emerging field of computational geometry he widened his knowledge even more and added further highly respected results with applications to VLSI design to his curriculum vita.

The community recognized this and voted him into the DFG refereeing committee, asked him to chair the DFG-Schwerpunktprogramm (research focus) "data structures and efficient algorithms" and made him several offers of chairs in computer science which, after accepting in Karlsruhe first, eventually led him to

Freiburg where he continues to pursue – among other topics – his eLearning projects, in particular the authoring-on-the-fly development.

His experience in applying eLearning concepts to university education, visible through projects like VIROR and ULI, has made him an authority in the CAL field in Germany and has led, for example, to membership in the steering committee of the Swiss Virtual Campus. Needless to say he is a sought-after expert for advising on and evaluating new teaching projects in the academic world.

In all projects and proposals Thomas Ottmann strives for rigorous clarity and preciseness. At the same time he emphasizes the need to continuously promote the field and to change one's own interests at long intervals. Those who had the luck to have him as supervisor or referee – like ourselves – will fondly remember his advice to change one's own research topic after the Ph.D. or Habilitation, and so most of us did.

What he has to referee he examines with a scientific furor and what he manages to unmask as a weak or even false result is stamped "rubbish" and returned to the sender without mercy. Many a thesis has improved considerably under this scrutiny and those who have witnessed this strict "parental guidance" will try to pass it down to their own "Ph.D. and diploma" children.

On the other hand, Thomas Ottmann is quick to acknowledge a brilliant idea and to include it, with proper reference, into the next edition of his books or lectures. He will praise a young talent and whoever asks him for a judgement gets a straight answer, which is rare in the academic tar pits.

All in all it is probably fair to say that computer science in Germany today owes Thomas Ottmann a lot for keeping up the standards and seeing to it that the industry's tendency to fall for "vaporware" does not carry over to its scientific promoters.

If Thomas Ottmann perfectly represents computer science at its best, then so should the papers in this volume. They span the spectrum from formal languages to recent results in algorithms and data structures, from topics in practical computer science like Software Engineering or Database Systems to applications of Web Technologies and Groupware. Not surprisingly, eLearning assumes a prominent place. We hope they are a fitting tribute to an extraordinary scientist, teacher, and a personal friend to many.

Our sincere thanks go to all authors who spontaneously agreed to contribute to this collection. Maybe it is another proof of the rigorousness Thomas Ottmann instills in his followers that none of the authors who initially promised to submit bailed out in the end. At the same time we gladly acknowledge the support from Ms. Mariele Knepper who did the editorial polishing and handled the administrative tasks. A special thanks goes to Mr. Ziad Sakout for handling the TeXnicalities. Finally, we are grateful to Springer-Verlag for help and advice in preparing this special volume.

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