



# Current trends in informatics: an international book review

by Stefan Gruner



Quite often I find myself being asked by non-informaticians, or by beginner students: What is Informatics? What is currently going on in this field of science? An answer can be found – as it is often the case – in the books.

For a really ample and comprehensive overview, I recommend to have a look at the proceedings of the bi-annual Panhellenic Conference on Informatics (PCI) which were until recently published in the LNCS Series by Springer Verlag. The first of these Informatics conferences took place at Athens (1984), the second at Thessaloniki (1988), then Athens again (1991), then Patras (1993), the fifth (1995) as well as the sixth at Athens again (1997), then Ioannina (1999), Nicosia (2001), Thessaloniki (2003), Volos (2005), and most recently (2007) at Patras again. The conferences – and their proceedings books – cover a wide range, indeed almost all contemporary Informatics topics and

subjects, such as: Data Bases, Data Mining, Algorithms, Algorithmic Complexity, Computer and Sensor Networks, Computer Sensor Hardware and Architecture, Operating Systems, Human-Computer Interaction, Graphics, Visualisation, Multimedia, Artificial Intelligence and Knowledge-Bases, Image and Video Processing, Management of Energy Grids, Software Engineering, Computational Science, Signal Processing and Communications, Languages and Speech Processing, Bioinformatics, Grid and Cluster Computing, Information Systems, Wearable and Mobile Computing, Computer Security, Information Retrieval and so on.

The 2005 (10th) Proceedings of "Advances in Informatics" appeared in Volume 3746 of the LNCS: This book contains chapters on Data Bases and Data Mining, Algorithms and Theoretical Foundations, Cultural and Museum Information Systems, Internet Software and Information Systems, Wearable and Mobile Computing, Computer Graphics and Virtual Reality, Artificial Intelligence and Machine Learning, Languages, Text and Speech Processing, Bioinformatics, Software Engineering, Educational Technologies, E-Business,

Computer and Sensor Hardware and Architecture, Computer Security, as well as Image and Video Processing. The 2007 (11th) Proceedings of Advances in Informatics did not appear in the LNCS any longer, but came out as "Current Trends in Informatics" (Volume A, Volume B) by New Technologies Publications.

For a more compact overview of Informatics "in a nutshell", I strongly recommend Pomberger/Rechenberg's excellent Handbuch der Informatik which attempts to provide with German Gründlichkeit a systematic overview of the field of Informatics as a whole. Due to its thorough craftsmanship, this book has been an "evergreen" since its 1st edition, and in 2006 the 4th edition – taking latest developments in the field into account – was published by Hanser Verlag.

Pomberger/Rechenberg systematically categorise the field of Informatics in several larger parts of their handbook, such as: Theoretical Informatics, Data, Technical Informatics, Practical Informatics, Applied Informatics, Economy/Business Informatics, and the like. Each part of the handbook is further divided into several chapters and sub-chapters dedicated to more

particular topics. For example, in the Theoretical Informatics part we find chapters on Logics, Formal Languages, and Automata theory, whereas in the part on Economy/Business Informatics we can find chapters on Information and Communication, Technology Management, Project Management, and so on. Computer Networks, the Internet, Databases, Artificial Intelligence, etc. – all these aspects of Informatics can be found in Pomberger/Rechenberg's both concise as well as comprehensive handbook.

Most of the topic-specific chapters in the Informatics Handbook were not written by Pomberger/Rechenberg themselves (who mainly act as editors), but by a larger number of top experts in their particular field of Informatics: the list of contributors comprises well-known names such as Goos, Floyd, Odersky, Steffen, and so on. Attached to each chapter is an ample list of literature references for further studies.

This useful handbook, gathering almost all aspects of informatics "in a nutshell" in a systematic categorisation, should be a valuable piece of background-reading not only for all students of any IT-related subjects, but also for all industrial IT practitioners

# Book review: The Ten Most Beautiful Experiments

by George Johnson



throughout South Africa, at least if they are able to read German. Because no Informatics Handbook of that kind has yet been produced in the Anglo-Saxon part of the world, an English translation of the German original is said to be in the planning phase: this was privately communicated by editor Pomberger, in a recent e-mail [3 June 2007], to the writer of this review article. ☺

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**George Johnson collects century-old electrical paraphernalia – cathode-ray tubes, high-voltage spark coils, glass cylinders of hydrogen and helium, cascades of wires. They're the relics of an eBay odyssey he undertook to re-create a 1909 experiment by Robert Millikan measuring the charge on a single electron. The science writer now has his own Millikan apparatus, a Plexiglas chamber sandwiched between two brass plates and electrified by a 2,000-volt power supply. But he admits that he failed to replicate the physicist's feat:**

"For me to learn to do the Millikan experiment would be like learning to play the violin."

Johnson collected these "lava lamps of the Victorian age," as he calls the contraptions, in his quest to understand some of the seminal experiments in scientific history — Isaac Newton's refraction of light, Ivan Pavlov's studies of salivating dogs, Galileo's rolling ball analysis of acceleration. As captured in his new book, *The Ten Most Beautiful Experiments*, these obsessive investigators worked mostly alone, often building their own simple tabletop apparatuses. "They were definitely the nerds of their time," Johnson says. "If they'd had digital computers back then, they would all have been Unix geeks."

In many ways, it was their tools – bodkins and prisms, thermometers and interferometers, cloud chambers and cogwheels – that drove the development of science. Today, with vastly more powerful, complex equipment, that do-it-yourself approach has largely disappeared. Johnson laments the passing of a time when "one person working with his own hands was able to figure out an elegant way to address a question to nature and then receive a

crisp, unambiguous reply. That hardly ever happens any more. All the easy stuff has presumably been done, and experiments now require these huge teams of scientists. "Beautiful Experiments, he says, "is an attempt to get back to that early romance of science when one person could really make some basic, fundamental discovery." ☺

Book review by Josie Gladiusz

<http://www.wired.com>