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Soft-Ware 2002: Computing in an Imperfect World

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Proceedings

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Preface

This was the first conference of a new series devoted to the effective handling of *soft* issues in the design, development, and operation of computing systems. The conference brought together contributors from a range of relevant disciplines, including artificial intelligence, information systems, software engineering, and systems engineering. The keynote speakers, Piero Bonissone, Ray Paul, Sir Tony Hoare, Michael Jackson, and Derek McAuley have interests and experience that collectively span all of these fields.

Soft issues involve information or knowledge that is uncertain, incomplete, or contradictory. Examples of where such issues arise include:

- requirements management and software quality control in software engineering,
- conflict or multiple sources information management in information systems,
- decision making/prediction in business management systems,
- quality control in networks and user services in telecommunications,
- traditional human rationality modeling in artificial intelligence,
- data analysis in machine learning and data mining,
- control management in engineering.

The concept of *dealing with uncertainty* became prominent in the artificial intelligence community nearly 20 years ago, when researchers realized that addressing uncertainty was an essential part of representing and reasoning about human knowledge in intelligent systems. The main methodologies that have emerged in this area are *soft computing* and *computational intelligence*.

It was also about 20 years ago that the notion of *hard* and *soft systems thinking* emerged from the systems community, articulated by Checkland in his seminal work on *Soft Systems Methodology*[1]. This work has influenced information system research and practice and is beginning to have an impact on systems and software engineering.

The conference gave researchers and practitioners with an interest in soft issues an opportunity to learn from each other to identify ways of improving the development of complex computing systems.

The conference had a strong industrial focus. In particular, all of the keynote speakers had both industrial and academic experience, and the conference concluded with a session taking an industrial perspective on soft issues. Also, the first day of the conference was integrated with the *2nd European Workshop on Computational Intelligence in Telecommunications and Multimedia*, organized by the Technical Committee C of EUNITE, the European Network on Intelligent Technologies for Smart Adaptive Systems. This has a significant industrial membership. There were two EUNITE keynote speakers: Ben Azvine, chairman

[1] Peter Checkland, *Systems Thinking, Systems Practice*, Wiley, 1981

of the Technical Committee C, and John Bigham who has many years' experience in applying computational intelligence in telecommunications.

The SS Titanic was chosen as a visual image for the conference because it represents the uncertainty associated with any engineering endeavor and is a reminder that the Titanic was built in Belfast – indeed just beside the conference venue. Coincidentally, the conference took place between the date the Titanic first set sail, 2 April 1912, and its sinking on 15 April 1912. Fortunately, the organizing committee is not superstitious!

A total of 24 papers were selected for presentation at the conference. We are very grateful to all authors who submitted papers and to the referees who assessed them.

We also thank Philip Houston and Paul McMenamin of Nortel Networks (Northern Ireland) whose participation in a collaborative project with the University of Ulster provided initial support and encouragement for the conference. The project, Jigsaw, was funded by the Industrial Research and Technology Unit of the Northern Ireland Department of Enterprise, Trade, and Investment. Further support for the conference was provided by other industry and government collaborators and sponsors, especially Des Vincent (CITU-NI), Gordon Bell (Liberty Technology IT), Bob Barbour and Tim Brundle (Centre for Competitiveness), Dave Allen (Charteris), and Billy McClean (Momentum).

Internally, the organization of the conference benefitted from contributions by Adrian Moore, Pat Lundy, David McSherry, Edwin Curran, Mary Shapcott, Alfons Schuster, and Kenny Adamson. Adrian Moore deserves particular mention for his imaginative design and implementation of the Web site, building on the Titanic theme. We are also very grateful to Sarah Dooley and Pauleen Marshall whose administrative support and cheery manner were invaluable throughout. Finally, we thank Rebecca Mowat and Alfred Hofmann of Springer-Verlag for their help and advice in arranging publication of the conference proceedings.

February 2002

Dave Bustard
Weiru Liu
Roy Sterritt

Organization

SOFT-WARE 2002, the 1st International Conference on Computing in an Imperfect World, was organized by the Faculty of Informatics, University of Ulster in cooperation with EUNITE IBA C: Telecommunication and Multimedia Committee.

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- Nortel Networks, Belfast Labs.
- IRTU - Industrial Research and Technology Unit
- Liberty IT
- INCOSE
- British Computer Society
- Momentum
- Centre for Competitiveness
- Charteris
- CSPT - Centre for Software Process Technologies

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