Preface

The term "software engineering" was coined at a NATO Software Conference almost 50 years ago. Since then a visible progress has been made in both research and practice in software engineering.

This book is devoted to a synergistic combination of research and practice in software engineering and contains 15 selected contributions. Actually, it is already 19th in the series of books on software engineering prepared under the auspices of Polish Information Processing Society (PIPS). Software Engineering Section of the Committee on Informatics of the Polish Academy of Sciences decided to support these efforts as well. The books are devoted to various topics in software engineering and are addressed to researchers as well as practitioners, engineers, managerial staff from the IT companies and government. To disseminate the results contained in this series, the authors of the chapters (among other researchers and practitioners) present their contributions at KKIO. It provides a forum for presentation of research results, scientific challenges faced by the industry and scientific methods that could address them. It is also a platform to initiate cooperation among researchers and between academia and industry.

The fact that this time it was already 19th edition of the book under the auspices of PIPS shows continuing interest in software engineering.

This year the spectrum of topics was wider and covered also topics concerning real-time systems engineering and education in software engineering. We selected 15 of 43 chapters based on relevance and the value of scientific contribution. This brand-new book, including the selected chapters, was published by Springer in the well-established "Studies in Computational Intelligence" series.

Selected chapters concern:

- languages and tools for software development,
- software development processes,
- modelling and verification,
- education in software engineering.

In the first category, there are seven chapters on topics such as: costs of computing unit redundancy; a domain-specific language for interactive programming

exercises; managing software complexity by similarity patterns; tools for validation of class diagrams and ensuring exception safety; testing of time-dependent, asynchronous code; an automatic processing of dynamic business rules.

In the second category, there are four chapters on: continuous test-driven development and its empirical evaluation in industrial settings; enterprise architecture modifiability analysis; the influence of business analysis techniques on software quality characteristics; female leadership in IT projects.

In the third category, there are three chapters on: modelling and verification of real-time systems; access control model for mobile systems; modelling and simulation of computer networks.

In the last category, there is one chapter on a scrum-based framework for organizing software engineering courses.

There are people who helped in the preparation, publication and dissemination of this book. We would like to thank: authors of the contributions, the referees for helping us in the selection process, and PIPS for continuous support for this series. We would like to express also our gratitude to prof. Janusz Kacprzyk, the editor of the "Studies in Computational Intelligence" series, and Dr. Thomas Ditzinger from Springer for their interest and support.

We sincerely hope that this book will be a valuable reference work in software engineering research and practice.

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