Preface

I am extremely pleased to have been able to organize the assembly of the set of papers contained in this special issue of the International Journal of Software and Informatics, honoring the career of Prof. Barry W. Boehm. The papers contained in this special issue were all contributed by friends, colleagues, and admirers of Prof. Boehm, and were presented during a special Symposium held in Beijing, China on April 26 and 27, 2011, under the sponsorship of the Institute of Software, Chinese Academy of Sciences and the International Journal of Software and Informatics.

The range of the subjects of these papers matches the extraordinary breadth of interests and influences of Prof. Boehm and his work. The natures of the papers range from those that make very specific technical contributions to those that are conceptual and analytical, to those that are visionary. The subject matter of the papers addresses software measurement, software management, specific software development phases, and software processes, among other topics. All cite the specific influences, inspirations, and contributions of Prof. Boehm to the work, thereby serving as documented testimony to the far ranging influence that Prof. Boehm has had upon software engineering thought and software development practice.

In "Measuring Agility and Architectural Integrity", a paper that focuses on measurement, a longstanding interest of Prof. Boehm's, Walker Royce tackles the difficult issue of how to quantify agility that nevertheless does not jeopardize the structural integrity of software. Ross Jeffery's paper, "Software Development Cost Modeling and Estimation Through a UNSW Lens", focuses on the measurement and estimation of a different software issue, namely cost, an area in which Prof. Boehm has made some of his most fundamental and long-lasting contributions (e.g. with his COCOMO models). Neil G. Siegel's paper, "Organizing Projects Around the Mitigation of Risks Arising from System Dynamic Behavior", shows how appropriate use of software measurement can help to mitigate risk. Risk mitigation is another issue that has been a strong and central focus of Prof. Boehm and his work, as it is a core issue behind his famous Spiral Model of software development.

Another set of papers addresses the ways in which Prof. Boehm and his ideas have been broadly inspirational. In my own paper, "A Process Programmer Looks at the Spiral Model: A Tribute To the Deep Insights of Barry W. Boehm", I demonstrate how Prof. Boehm, through the Spiral Model, elucidates some profound insights about the fundamental nature of software and its development. The paper suggests that the community may have only scratched the surface of the important implications that could be drawn from the ideas behind the Spiral Model. Lori A. Clarke, in

her paper, "Environment Support for Improving Software Development Processes: A Vision Influenced by the Work of Barry W. Boehm", similarly indicates how papers and ideas presented by Prof. Boehm have provided inspiration and foundations for her own work in the development and integration of software analysis tools. The application of these tools to new software domains, such as process software, is further evidence of the far-reaching impact of Prof. Boehm's work.

Two papers provide further development of Prof. Boehm's long-held interest in the importance of software and system requirements and the difficulty of eliciting them. In "Attentiveness: Design for Reactivity at Scale", Gregory S. Hartman and William L. Scherlis explore these themes. Their paper suggests that better, more complete requirements specifications might result from focusing on attentiveness, a type of requirement whose importance has been overlooked. In "On 'The Right' Software", Dines Bjørner presents a rigorous approach to developing software and system requirements tied directly to a correspondingly rigorous approach to domain specification. Bjørner draws a strong and important parallel to Prof. Boehm's own insights about requirements, thereby strengthening both views, and attesting to the profundity of Prof. Boehm's views on this crucial area of software engineering.

Finally, two papers take philosophical and visionary views of software engineering, each in its own way, indicating how Prof. Boehm's ideas and work stimulated and nourished the visionary thinking. Dieter Rombach's paper, "Empirical Software Engineering Models: Can They Become the Equivalent of Physical Laws in Traditional Engineering?" suggests the possibility of developing a solid conceptual foundation for software engineering. He suggests that this more solid conceptual foundation could derive from a focus on empirical software models, an area pioneered by Prof. Boehm. In "Polyphonic Aspects of Software Process: Looking for Philosophical Foundation of Software Engineering", Kouichi Kishida's thoughts range broadly across Western and Eastern literature and philosophy in search of the proper philosophical foundation for software engineering. Along the way Kishida touches often upon how Prof. Boehm's ideas helped to provide guidance for his search. This paper is an eloquent treatise on how effectively grappling with deep and difficult problems, as Prof. Boehm has done, can lead to improvements in practice, the discovery of deeper issues and truths, and to stimulating the imaginations and visions of others.

Ultimately, this volume can only hint and suggest at the breadth and depth of the ideas and work of our colleague, Prof. Barry W. Boehm. It is offered in the hope that the papers themselves will educate and stimulate, but also in the hope that they will also encourage the reader to follow the many references in these papers to explore in more depth the work of Prof. Boehm.

I would like to thank the authors of these papers for their excellent contributions to this Special Issue of the International Journal of Software and Informatics. In addition I would like to express my sincere thanks to Prof. Ruqian Lu, the Editor-in-Chief of the International Journal of Software and Informatics, for giving me the great honor of serving as the Editor of this Special Issue. I would also like to express my very sincere thanks to Ms. Mei Fang for her outstanding leadership of the editorial work

needed to prepare these papers for publication, which has allowed the publication of this volume on a very demanding schedule.

Finally, on behalf of a very grateful software engineering community, I would like to thank our friend, colleague, and leader, Prof. Barry W. Boehm, for his tireless work and amazing contributions to the formation, nurturing, and maturation of our community. This Special Issue is a small, but very earnest measure of our esteem for Prof. Boehm and his work.

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