Editorial

Software Engineering plays an omnipresent and crucial role in the current world of technology. It permeates the design of new software artifacts and manifests very ostensibly when it comes to legacy code, reusability and portability of existing products. Software Engineering is highly knowledge-intensive and human-centric. The knowledge intensity of Software Engineering is not surprising at all: software systems are the most complex developments we have ever designed (and the limits of complexity of these constructs are still challenged). Software Engineering is also human-centric in the sense its developments and usage are driven by humans. In this sense the synergies between Software Engineering and Computational Intelligence (CI) are inevitable with an anticipation of high long-term return and short-term tangible benefits. There have already been some signs of research synergies that resulted in panel discussions at conferences (like the one at the IFSA-NAFIPS World Congress in Vancouver in 2000). The specialized and highly focused workshops on Soft Computing and Software Engineering (SCASE) have played an important role in bringing the two research communities of CI and Software Engineering together and building essential synergistic linkages.

This issue brings a snapshot of the current activities that occur at the junction of Software Engineering and Computational Intelligence. We have been fortunate to receive an enthusiastic response from the community. The papers included in this special issue are a reflection of the most evident and successful tendencies in the area and build a healthy mix between concepts and practice of Software Engineering as well as combine its qualitative and quantitative facets of software design, processing, and verification.

The organization of this issue is more or less done in a top-down fashion. We start with some general and fundamental studies and afterwards proceed with more specific and numerically rich case studies. The paper by J. Jahnke concentrates on the important topic of software reengineering and shows how its cognitive support can be realized on a basis of fuzzy reasoning nets. The study authored by Loia et al. looks at the rapidly growing area of software agents and elaborates on the development methodology including similarity-based reasoning nicely illustrated by an interesting case study of e-mail services. The role of fuzzy logic and object-oriented methods aimed at the reduction of quantization error and contextual bias is discussed in study authored by Marcelloni and Aksit. The second group of contributions is in the realm of detailed software modeling. Software metrics (measures) have always played a dominant role in quantitative Software Engineering. Along this vein, S. Dick et al., discuss a data mining approach to software metrics concentrating on their understanding and intimate relationships to software quality. Likewise, the study by Reformat et al. exploits the ideas of fuzzy logic modeling (more specifically fuzzy neurons) used towards building a software experience factory. Software cost estimation has always been a challenging research pursuit...
and a vital practical quest. Along this line, the paper authored by Xu and Khoshgoftaar concentrates on the development of fuzzy models of software cost estimation. The study by Oh et al., approaches fuzzy models of software data by studying a class of self-organizing neurofuzzy networks.

It is our hope that this special issue will be of interest and help to the researchers as well as raise a general awareness about diversity and richness of the new territory of CI and Software Engineering.

We would like to express our thanks to the reviewers who generously donated their expertise and time and provided with a constructive criticism and numerous helpful suggestions. Our thanks go to the Editors-in-Chief, Didier and Henri who enthusiastically embraced the idea and supported us throughout the entire project until its successful fruition.

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Guest Editors