Preface

Systems analysis and design (SAND) is an evolving field that still represents the point where business and technology intersects. As discussed in (Bajaj, Batra, Hevner, Parsons, & Siau, 2005), SAND represents the core of management information systems (MIS) curricula but is underrepresented in the area of MIS research. The chapters in this book represent the state of the art in several streams that are ongoing in SAND research is Europe and North America. The chapters in this book are largely taken from presentations at the 2007 AIS SIG SAND (Association of Information Systems Special Interest Group on SAND) symposia that are an annual occurrence in both North America and Europe since around 2004. While not exhaustive, these symposia represent on-going work in several different areas of SAND. As such, the papers here discuss work ranging from spatio-temporal data modeling to software project management to user interface generation to empirical evaluation of web based system development methods.

Chapter I, entitled “3SST Model: A Three Step Spatio-Temporal Conceptual and Relational Data Model” by Andreea Sabău, follows three steps: the construction of an entity-relationship spatio-temporal model, the specification of the domain model and the design of a class diagram which includes the objects characteristic to a spatio-temporal application and other needed elements. It describes the implementation of the 3SST spatio-temporal data model on a relational platform.

Chapter II is entitled “An Identity Perspective for Predicting Software Development Project Temporal Success” by Jeff Crawford investigates a project group’s temporal performance through a punctuated equilibrium (PE) lens. It describes a model that considers social and temporal aspects of identity within each group in order to address the varying nature of temporal success.

Chapter III is entitled “Survey of Cardinality Constraints in Snapshot and Temporal Semantic Data Models” by Faiz Currim and Sudha Ram. It highlights the usefulness of cardinality constraints during schema integration, in query transformation for more efficient search strategies, and proposed avenues of future research in this area.

Chapter IV entitled “On the Load Balancing of Business Intelligence Reporting Systems” is co-authored by Leszek Kotulski and Dariusz Dymek. This chapter proposes a formal representation of the information that intersects across different UML diagrams in order to form a cohesive view of the domain.

Chapter V by Angela Mattia and Heinz Roland Weistroffer is entitled “Information Systems Development: Understanding User Participation as a Social Network” attempts to formally study user participation in systems development as a social network, that is, looking at the emergence of social structures and their technological expressions during the user participation process.

Chapter VI is entitled “Solutions to Challenges of Teaching “Systems Analysis and Design” for Undergraduate Software Engineers” and is authored by Özlem Albayrak. It presents implicit assumptions made by software engineers during analysis and also describes suitable item sets in undergraduate SAND courses.
Continuing in the teaching of SAND vein, Chapter VII is entitled “Systems Analysis and Design in Polish Universities Curricula: Structured or Object-Oriented” and is written by Przemyslaw Polak. It compares the curricula of information systems and computer science studies in Polish higher education institutions to the Association for Computing Machinery curricula recommendations and analyzes the prevalence of structured versus object-oriented approaches.

Chapter VIII by Kumar Saurabh, is entitled “Systems Engineering Modeling and Design” highlights the insights afforded by “systems” thinking and offers steps on how to achieve such a mindset in real world contexts.

Chapter IX, entitled “Uml 2.0 in the Modelling of the Complex Business Processes of Reporting and Control of Financial Information System” is by Sebastian Kwapisz. The chapter explores the usage of UML specifications for interagency systems development, using a specific case study.

Chapter X by Stanislaw Wrycza is entitled “The Uml 2 Academic Teaching Challenge: An Integrated Approach”. The author explores the essential components of UML that need to be taught in a University curriculum, based on student surveys.

Chapter XI, entitled by “User Interface Generation from the Data Schema” is co-authored by Akhilesh Bajaj and Jason Knight. It proposes a method to automatically infer a draft interface directly from an extended entity relationship (EER) model schema and lists the interactions that need to take place between the designer and the tool in order to generate the final user interface.

Chapter XII is by Roy Gelbard and is entitled “Decision Rule for Investment in Reusable Code”. The author attempts to determine the parameters, which should be taken into account in decisions relating to degrees of reusability that should be injected into code.

Chapter XIII, entitled “Web-Based Systems Development: An Empirically-Ground Conceptual Framework” is by Michael Lang. This chapter encapsulates the main findings of an in-depth study of Web development practices in Ireland. Using the results of an extended survey, it presents a conceptual framework of Web-based systems development as “situated action”.

The last four chapters are not from SIGSAND symposia; but were included because they represent topics that fit well with the theme of this book. Chapter XIV is entitled “Configurable Reference Modeling Languages” and is authored by Jan Recker, Michael Rosemann, Wil van der Aalst, Monique Jansen-Vullers, and Alexander Dreiling. It motivates the need for conceptual expressiveness for enhancing the configurability of modeling languages.

Chapter XV, by Roman Beck and Jochen Franke is entitled “Designing Reputation and Trust Management Systems”. It utilizes game theory to design a trust based system so as to reduce false complaints filed by customers in high transaction environments.

Chapter XVI, entitled “Seacon: An Integrated Approach to the Analysis and Design of Secure Enterprise Architecture-Based Computer Networks” and is authored by Surya Yadav. It illustrated how SAND principles can be used in the design of secure networks.

The final chapter is entitled “Formal Methods for Specifying and Analyzing Complex Software Systems” and is co-authored by Xudong He, uiqun Yu, and Yi Deng. It summarizes formal methods of system specification and illustrates how these can be used at the architecture stage to test complex software.

Akhilesh Bajaj, University of Tulsa, USA

Stanisław Wrycza, University of Gdansk, Poland
REFERENCES