CONSTRAINT-BASED DESIGN RECOVERY FOR SOFTWARE REENGINEERING

Theory and Experiments

Steven G. Woods
Alexander E. Quilici
Qiang Yang

Constraint Based Design Recovery For Software Reengineering

R R Bowker Publishing

Constraint Based Design Recovery For Software Reengineering:

    Constraint-Based Design Recovery for Software Reengineering Steven G. Woods,Alexander E. Quilici,Qiang Yang,2012-12-06 The great challenge of reverse engineering is recovering design information from legacy code the concept recovery problem This monograph describes our research effort in attacking this problem It discusses our theory of how a constraint based approach to program plan recognition can efficiently extract design concepts from source code and it details experiments in concept recovery that support our claims of scalability Importantly we present our models and experiments in sufficient detail so that they can be easily replicated This book is intended for researchers or software developers concerned with reverse engineering or reengineering legacy systems However it may also interest those researchers who are interested using plan recognition techniques or constraint based reasoning We expect the reader to have a reasonable computer science background i e familiarity with the basics of programming and algorithm analysis but we do not require familiarity with the fields of reverse engineering or artificial intelligence AI To this end we carefully explain all the AI techniques we use This book is designed as a reference for advanced undergraduate or graduate seminar courses in software engineering reverse engineering or reengineering It can also serve as a supplementary textbook for software engineering related courses such as those on program understanding or design recovery for AI related courses such as those on plan recognition or constraint satisfaction and for courses that cover both topics such as those on AI applications to software engineering ORGANIZATION The book comprises eight chapters   **Constraint-Based Design Recovery for Software Reengineering** ,1998   **Intelligent Tutoring Systems in E-Learning Environments: Design, Implementation and Evaluation** Stankov, Slavomir,Glavinic, Vlado,Rosic, Marko,2010-07-31 This book addresses intelligent tutoring system ITS environments from the standpoint of information and communication technology ICT and the recent accomplishments within both the e learning paradigm and e learning systems Provided by publisher

    Fundamental Approaches to Software Engineering Jean-Pierre Finance,2004-01-27 ETAPS 99 is the second instance of the European Joint Conferences on Theory and Practice of Software ETAPS is an annual federated conference that was established in 1998 by combining a number of existing and new conferences This year it comprises ve conferences FOSSACS FASE ESOP CC TACAS four satellite workshops CMCS AS WAGA CoFI seven invited lectures two invited tutorials and six contributed tutorials The events that comprise ETAPS address various aspects of the system velopment process including speci cation design implementation analysis and improvement The languages methodologies and tools which support these tivities are all well within its scope Di erent blends of theory and practice are represented with an inclination towards theory with a practical motivation on one hand and soundly based practice on the other Many of the issues involved in software design apply to systems in general including hardware systems and the emphasis on software is not intended to be exclusive   **Multimedia Software Engineering** Shi-Kuo Chang,2012-12-06 Multimedia has two fundamental characteristics that

can be expressed by the following formula Multimedia Multiple Media Hypermedia How can software engineering take advantage of these two characteristics Will these two characteristics pose problems in multimedia systems design These are some of the issues to be explored in this book The first two chapters will be of interest to managers software engineers programmers and people interested in gaining an overall understanding of multimedia software engineering The next six chapters present multimedia software engineering according to the conceptual framework introduced in Chapter One This is of particular use to practitioners system developers multimedia application designers programmers and people interested in prototyping multimedia applications The next three chapters are more research oriented and are mainly intended for researchers working on the specification modeling and analysis of distributed multimedia systems but will also be relevant to scientists researchers and software engineers interested in the systems and theoretical aspects of multimedia software engineering Multimedia Software Engineering can be used as a textbook in a graduate course on multimedia software engineering or in an undergraduate course on software design where the emphasis is on multimedia applications It is especially suitable for a project oriented course **Experimentation in Software Engineering** Claes Wohlin,Per Runeson,Martin Höst,Magnus C. Ohlsson,Björn Regnell,Anders Wesslén,2012-12-06 It is my belief that software engineers not only need to know software engineering methods and processes but that they also should know how to assess them Conse quently I have taught principles of experimentation and empirical studies as part of the software engineering curriculum Until now this meant selecting a text from another discipline usually psychology and augmenting it with journal or confer ence papers that provide students with software engineering examples of experi ments and empirical studies This book fills an important gap in the software engineering literature it pro vides a concise comprehensive look at an important aspect of software engineer ing experimental analysis of how well software engineering methods methodologies and processes work Since all of these change so rapidly in our field it is important to know how to evaluate new ones This book teaches how to go about doing this and thus is valuable not only for the software engineering stu dent but also for the practicing software engineering professional who will be able to Evaluate software engineering techniques Determine the value or lack thereof of claims made about a software engineer ing method or process in published studies Finally this book serves as a valuable resource for the software engineering researcher Non-Functional Requirements in Software Engineering Lawrence Chung,Brian A. Nixon,Eric Yu,John Mylopoulos,2012-12-06 Non Functional Requirements in Software Engineering presents a systematic and pragmatic approach to building quality into software systems Systems must exhibit software quality attributes such as accuracy performance security and modifiability However such non functional requirements NFRs are difficult to address in many projects even though there are many techniques to meet functional requirements in order to provide desired functionality This is particularly true since the NFRs for each system typically interact with each other have a broad impact on the system and may be subjective To enable developers to systematically deal with a system s diverse NFRs this book

presents the NFR Framework Structured graphical facilities are offered for stating NFRs and managing them by refining and inter relating NFRs justifying decisions and determining their impact Since NFRs might not be absolutely achieved they may simply be satisfied sufficiently satisficed To reflect this NFRs are represented as softgoals whose interdependencies such as tradeoffs and synergy are captured in graphs The impact of decisions is qualitatively propagated through the graph to determine how well a chosen target system satisfices its NFRs Throughout development developers direct the process using their expertise while being aided by catalogues of knowledge about NFRs development techniques and tradeoffs which can all be explored reused and customized Non Functional Requirements in Software Engineering demonstrates the applicability of the NFR Framework to a variety of NFRs domains system characteristics and application areas This will help readers apply the Framework to NFRs and domains of particular interest to them Detailed treatments of particular NFRs accuracy security and performance requirements along with treatments of NFRs for information systems are presented as specializations of the NFRFramework Case studies of NFRs for a variety of information systems include credit card and administrative systems The use of the Framework for particular application areas is illustrated for software architecture as well as enterprise modelling Feedback from domain experts in industry and government provides an initial evaluation of the Framework and some case studies Drawing on research results from several theses and refereed papers this book s presentation terminology and graphical notation have been integrated and illustrated with many figures Non Functional Requirements in Software Engineering is an excellent resource for software engineering practitioners researchers and students   **Software Process Modeling** Silvia T. Acuna,Natalia Juristo,2006-01-27 Software Process Modeling brings together experts to discuss relevant results in software process modeling and expresses their personal view of this field This book focuses on new aspects of software process modeling Specifically it deals with socio technological aspects process modeling for new development types open source software dependability applications etc and organization change management The computer audience is placing growing demands on the software industry today Consumers are looking for more complex products that are at the same time easier to use Software developer organizations are expected to produce higher quality products and deliver them to the public faster In so doing however globally distributed development teams have to cope with understaffing and changing technologies The challenges for the software industry are apparently mounting Over the years a variety of software process models have been designed to structure describe and prescribe the software systems construction process Most recently software process modeling is increasingly dealing with new challenges raised by the tests that the software industry has to stand Software Process Modeling is designed for a professional audience of researchers and practitioners in industry The book is also suitable for graduate level students in computer science   Software Defect and Operational Profile Modeling Kai-Yuan Cai,2012-12-06 also in THE KLUWER INTERNATIONAL SERIES ON ASIAN STUDIES IN COMPUTER AND INFORMATION SCIENCE Volume 1   *Identifying Relevant Information*

for Testing Technique Selection Sira Vegas,Natalia Juristo,Victor R. Basili,2012-12-06 Engineering tasks are supposed to achieve defined goals under certain project constraints Example goals of software engineering tasks include achieving a certain functionality together with some level of reliability or performance Example constraints of software engineering tasks include budget and time limitations or experience limitations of the developers at hand Planning of an engineering project requires the selection of techniques methods and tools suited to achieve stated goals under given project constraints This assumes sufficient knowledge regarding the process product relationships or effects of candidate techniques methods and tools Planning of software projects suffers greatly from lack of knowledge regarding the process product relationships of candidate techniques methods and tools Especially in the area of testing a project planner is confronted with an abundance of testing techniques but very little knowledge regarding their effects under varying project conditions This book offers a novel approach to addressing this problem First based on a comprehensive initial characterization scheme see chapter 7 an overview of existing testing techniques and their effects under varying conditions is provided to guide the selection of testing approaches Second the optimisation of this knowledge base is suggested based on experience from experts real projects and scientific experiments chapters 8 9 and 10 This book is of equal interest to practitioners researchers and students Practitioners interested in identifying ways to organize their company specific knowledge about testing could start with the schema provided in this book and optimise it further by applying similar strategies as offered in chapters 8 and 9

Process Improvement in Practice Tore Dybå,Torgeir Dingsøyr,Nils Brede Moe,2006-05-02 Faster better and cheaper are challenges that IT companies face every day The customer s expectations shall be met in a world where constant change in environment organization and technology are the rule rather that the exception A solution for meeting these challenges is to share knowledge and experience use the company s own experience and the experience of other companies Process Improvement in Practice A Handbook for IT Companies tackles the problems involved in launching these solutions Process Improvement in Practice A Handbook for IT Companies is designed for small IT companies who wish to start with systematic improvement The methods and techniques in this handbook are tried in practice and have proven to be easy to use and scalable for local needs Managers and developers will discover useful tips to initiate improvement work efficiently This practical handbook is based on the authors improvement work in a range of companies since the mid nineties Process Improvement in Practice A Handbook for IT Companies is designed for a professional audience composed of researchers and practitioners in industry This book is also suitable for graduate level students in software process improvement and software engineering Intelligent Help Systems for UNIX Stephen J. Hegner,Paul Mc Kevitt,Peter Norvig,Robert L. Wilensky,2012-12-06 In this international collection of papers there is a wealth of knowledge on artificial intelligence AI and cognitive science CS techniques applied to the problem of providing help systems mainly for the UNIX operating system The research described here involves the representation of technical computer concepts but also the representation of how users

conceptualise such concepts The collection looks at computational models and systems such as UC Yucca and OSCON programmed in languages such as Lisp Prolog OPS 5 and C which have been developed to provide UNIX help These systems range from being menu based to ones with natural language interfaces some providing active help intervening when they believe the user to have misconceptions and some based on empirical studies of what users actually do while using UNIX Further papers investigate planning and knowledge representation where the focus is on discovering what the user wants to do and figuring out a way to do it as well as representing the knowledge needed to do so There is a significant focus on natural language dialogue where consultation systems can become active incorporating user modfelling natural language generation and plan recognition modelling metaphors and users mistaken beliefs Much can be learned from seeing how AI and CS techniques can be investigated in depth while being applied to a real test bed domain such as help on UNIX **The Cumulative Book Index** ,1998 A world list of books in the English language **Proceedings** ,2001 *The British National Bibliography* Arthur James Wells,1999 *26th Annual International Computer Software and Applications Conference* IEEE Computer Society,2002 Collects the 172 papers presented during the August 2002 conference with the theme of Prolonging software life development and redevelopment The main subjects of the 38 sessions are component based software development software process quality control testing software evolution web based sy *Engineering Software for Modern Challenges* Dayang Norhayati A. Jawawi,Imran Sarwar Bajwa,Rafaqut Kazmi,2022-11-15 This volume constitutes selected papers presented at the First International Conference on Engineering Software for Modern Challenges ESMoC 2021 held in Johor Malaysia in October 20 21 2021 The 17 papers presented were thoroughly reviewed and selected from the 167 submissions They are organized in the topical sections on software engineering intelligent systems software quality Software Engineering Nasib Singh Gill, Each and every chapter covers the contents up to a reasonable depth necessary for the intended readers in the field The book consists in all about 1200 exercises based on the topics and sub topics covered Keeping in view the emerging trends in newly emerging scenario with new dimension of software engineering the book specially includes the following chapters but not limited to these only This book explains all the notions related to software engineering in a very systematic way which is of utmost importance to the novice readers in the field of software Engineering **Fundamental Approaches to Software Engineering** ,1999 **American Book Publishing Record Cumulative 1998** R R Bowker Publishing,1999-03

Constraint Based Design Recovery For Software Reengineering Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has are more apparent than ever. Its power to stir emotions, provoke thought, and instigate transformation is actually remarkable. This extraordinary book, aptly titled "**Constraint Based Design Recovery For Software Reengineering**," compiled by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we shall delve to the book is central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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