



Beijing China 2008
10th International Conference on Software Reuse

ICSR



PROGRAM

May 25 - 29, 2008



Sponsored by



Institute of Software

Key Laboratory of High Confidence Software Technologies, MoE

SIEMENS

Program						
MH: Meeting Hall B7: Building 7						
Sunday 25, May	09.00-12.30	Tutorial 1 (MH-Room 101)	Doctoral Symposium (MH-Room 102)		Workshop I (MH-Room 103)	Workshop II (MH-Room 104)
	12.30-14.00	Break				
	14.00-17.30	Tutorial 1 (MH-Room 101)	Tutorial 2 (MH-Room 102)	Workshop IV (MH-Room 103)	Workshop II (MH-Room 104)	Workshop III (MH-Room 105)
Monday 26, May	09.00-09.30	Welcome and Conference Information (B7- Room 1)				
	09.30-10.30	Keynote Speech 1 (B7- Room 1)				
	10.30-11.00	Tool Demonstration 1		Break		
	11.00-12.30	Session S1 (B7- Room 1)				
	12.30-14.00	Lunch				
	14.00-15.30	Session S2A (B7- Room 4)		Session S2B (B7- Room 5)		
	15.30-16.00	Tool Demonstration 2		Break		
	16.00-17.30	Session S3A (B7- Room 4)		Session S3B (B7- Room 5)		
	19:00	Welcome Reception (Ju Xiu Yuan restaurant in Friendship Palace)				
Tuesday 27, May	09.00-10.30	Keynote Speech 2 (B7- Room 1)				
	10.30-11.00	Tool Demonstration 3		Break		
	11.00-12.30	Session S4 (B7- Room 1)				
	12.30-14.00	Lunch				
	14.00-15.30	Session S5A (B7- Room 4)		Session S5B (B7- Room 5)		
	15.30-16.00	Tool Demonstration 4		Break		
	16.00-17.30	Session S6A (B7- Room 4)		Session S6B (B7- Room 5)		
	20:00	Banquet (QUANJUDE Roast Duck Restaurant) Start at 17:40 -> Sightseeing at Tian'an Men Square -> QUANJUDE				
Wednesday 28, May	09.00-10.30	Session S7 (B7- Room1)				
	10.30-11.00	Tool Demonstration 5		Break		
	11.00-12.30	Session S8A (B7- Room 1)		Session S8B (B7- Room 5)		
	12.30-13:00	Tool Demonstration 6				
	13:00-14.00	Lunch				
	14.00-17.30	Tutorial 3 (B7- Room 4)		Tutorial 4 (B7- Room 5)		
Thursday 29, May	09.00-12.30	Tutorial 5a (B7- Room 4)				
	12.30-14.00	Break				
	14.00-17.30	Tutorial 5b (B7- Room 4)				

ICSR 2008 Program

Monday, May 26, 2008

9:00-9:30 Welcome and Conference Information (B7 - Room 1)

Conference Welcome: *Juan Llorens*, University Carlos III of Madrid, Spain

9:30-10:30

Keynote speech 1 (B7 - Room 1)

A Systematic Approach to Software Reuse: Research and Practice, Prof. *Jian Lu*, Nanjing University, China

Chaired by: *Juan Llorens*

10:30-11:00 Break

11:00-12:30 Session S1: Architecture & Reuse (B7 - Room 1)

Chair: *Yanxiang He*

- *Introducing Architecture-Centric Reuse into a Small Development Organization*, *Hans-Jörg Beyer*, *Dirk Hein*, *Clemens Schitter*, *Jens Knodel*, *Dirk Muthig*, *Matthias Naab*
- *An architectural style for data-driven systems*, *Reza Mahjourian*
- *Architectural Analysis Approaches: A Component-Based System Development Perspective*, *Novia Admodisastro*, *Gerald Kotonya*

12:30-14:00 Lunch

14:00-15:30 Parallel Sessions

Session S2A: Product Line (B7 - Room 4)

Chair: *Bill Frakes*

- *Combining Different Product Line Models to Balance Needs of Product Differentiation and Reuse*, *Juha Savolainen*, *Juha Kuusela*, *Mike Mannion* and *Tuomo Vehkomäki*
- *Feature Implementation Modeling based Product Derivation in Software Product Line*, *Xin Peng*, *Liwei Shen*, *Wenyun Zhao*
- *Feature-Oriented Analysis and Specification of Dynamic Product Reconfiguration*, *Jaejoon Lee*, *Dirk Muthig*

Session S2B: Component Selection & Reuse Repository (B7 – Room 5)

Chair: *Juan Llorens*

- *Recommending Typical Usage Examples for Component Retrieval in Reuse Repositories*, *Yan Li*, *Liangjie Zhang*, *Ge Li*, *Bing Xie*, *Jiasu Sun*
- *A Reuse Repository System: From Specification to Deployment*, *Vanilson Arruda Burégio*, *Eduardo Santana de Almeida*, *Daniel Ludrédio*, *Silvio Lemos Meira*
- *COTS Selection Best Practices in Literature and in Industry*, *Rikard Land*, *Laurens Blankers*, *Michel Chaudron*, *Ivica Crnkovic*

15:30-16:00 Break

16:00-17:30 Parallel Sessions

Session S3A: Product Line (B7 - Room 4)

Chair: *Xin Peng*

- *Integrating Component and Product Lines Technologies*, Elder Cirilo, Uirá Kulesza, Roberta Coelho, Carlos J. P. de Lucena, Arndt von Staa
- *Managing Large Scale Reuse Across Multiple Software Product Lines*, N. Ilker Altintas, Semih Cetin
- *Managing Variability in Reusable Requirement Models for Software Product Lines*, Hassan Gomaa, Erika Mir Olimpiew

Session S3B: Programming & Reuse (B7 – Room 5)

Chair: *Jianjun Zhao*

- *SAM: Simple API for Object-Oriented Code Metrics*, Adam Edelman, William Frakes, Charles Lillie
- *Leveraging Source Code Search for Reuse*, Hans-Jorg Happel, Thomas Schuster, Peter Szulman
- *Collective Reuse of Software Components Speeds-up Reliability*, Iaakov Exman, Guy Zohar, Yehuda Hassin

19:00 Welcome Reception (Ju Xiu Yuan restaurant in Friendship Palace)

Tuesday, May 27, 2008

9:30-10:30 Keynote Speech 2 (B7 - Room 1)

Starting and Managing Software Reuse Programs: Lessons Learned in the Trenches, Wayne C. Lim, Infosys Technologies Ltd., USA

Chaired by: *Hong Mei*

10:30-11:00 Break

11:00-12:30 Session S4: SOA (B7 - Room 1)

Chair: *Alberto Sillitti*

- *An Approach to Domain-Specific Reuse in Service-Oriented Environments*, Jianwu Wang, Jian Yu, Paolo Falcarin, Yanbo Han, Maurizio Morisio
- *View-Based Reverse Engineering Approach for Enhancing Model Interoperability and Reusability in Process-Driven SOAs*, Huy Tran, Uwe Zdun, Schahram Dustdar
- *A Lightweight Approach to Partially Reuse Existing Component-Based System in Service-Oriented Environment*, He Yuan Huang, Hua Fang Tan, Jun Zhu, Wei Zhao

12:30-14:00 Lunch

14:00-15:30 Parallel Sessions

Session S5A: Component & Service (B7 - Room 4)

Chair: *Iaakov Exman*

- *Refinement of Component Model Standards and Conventions*, Hazleen Aris, Siti Salwah Salim
- *Towards Variable Service Compositions using VxBPEL*, Chang-ai Sun, Marco Aiello
- *Abstract Reachability Graph for Verifying Web Service Interfaces*, Du Xutao, Xing Chunxiao, Zhou Lizhu
- *Reuse: from Components to Services*, Alberto Sillitti, Giancarlo Succi

Session S5B: Domain Analysis (B7 – Room 5)

Chair: *Cornelia Boldyreff*

- *A BDD-Based Approach to Verifying Clone-Enabled Feature Models' Constraints and Customization*, Wei Zhang, Hua Yan, Haiyan Zhao, Zhi Jin
- *Performing Domain Analysis for Model-Driven Software Reuse*, Daniel Lucrédio, Renata P. de M. Fortes, Eduardo S. de Almeida, Silvio
- *Exploiting COTS-Based RE Methods: An Experience Report*, Nan Niu, Steve Easterbrook

15:30-16:00 Break

16:00-17:30 Parallel Sessions

Session 6A: Reuse Approaches and Models (B7 - Room 4)

Chair: *Sidney Bailin*

- *Balancing Quantification and Obliviousness in the Design of Aspect-Oriented Frameworks*, Linda Seiter
- *Lightweight, Semi-automated Enactment of Pragmatic-Reuse Plans*, Reid Holmes, Robert J. Walker
- *Towards Constructing Flexible Application Servers with Off-the-Shelf Middleware Services Integration Framework*, Yan Li, Minghui Zhou, Donggang Cao, Lu Zhang

Session 6B: Reuse Approaches and Patterns (B7 - Room 5)

Chair: *Chao Liu*

- *Conquering Fine-Grained Blends of Design Patterns*, L. Sabatucci, A. Garcia, N. Cacho, M. Cossentino, S. Gaglio
- *Pattern-Based Transformation Rules for Developing Interaction Models of Access Control Systems*, Dae-Kyoo Kim, Lunjin Lu
- *Active Binding Technology: A Reuse-Enabling Component Model*, Anmo Jeong, Seungnam Jeong, Yoonsun Lim, Myung Kim

20:00 Banquet (QUANJUDE Roast Duck Restaurant)

Wednesday, May 28, 2008

9:00-10:30 Session S7: High Confidence (B7 - Room 1)

Chair: *Gregory Kulczychi*

- *High Confidence Subsystem Modeling for Reuse*, Birgit Penzenstadler, Dagmar Koss
- *A Trustable Brokerage Solution for Component and Service Markets*, Colin Atkinson, Daniel Brenner, Oliver Hummel, Dietmar Stoll
- *Quality Assessment in Software Product Lines*, Leire Etxeberria, Goiuria Sagardui

10:30-11:00 Break

11:00-12:30 Parallel Sessions

Session S8A: Component & Reuse (B7 - Room 1)

Chair: *Wei Zhao*

- *Component-Based Abstraction and Refinement*, Juncao Li, Xiuli Sun, Fei Xie, Xiaoyu Song
- *An Empirical Comparison of Methods for Reengineering Procedural Software Systems to Object-Oriented*

Systems, William B. Frakes, Gregory Kulczyk, Natasha Moodliar

• *An Experimental Evaluation of Documentation Methods and Reusability, Martin Blom, Eivind J. Nordby, Anna Brunstrom*

Session S8B: Component & Reuse (B7 - Room 5)

Chair: *Maurizio Morisio*

Identifying and Improving Reusability Based on Coupling Patterns, Andrea Capiluppi, Cornelia Boldyreff

Mining Open Source Component Behavior for Reuse Evaluation, Ji Wu, Chun Wang, Xiao-xia Jia, Chao Liu

Towards Reusable Automation System Components, Thomas Aschauer, Gerd Dauenhauer, Wolfgang Pree

13:00-14:00 Lunch

ICSR 2008 Tutorials

May 25 – 29, 2008

Tutorial 1: Variability Management for Product Lines with a Generative Technique: Reuse Beyond Components by Exploiting Software Similarity Patterns

May 25 09:00-12:30, 14:00-17:30 (MH-Room 101)

Stan Jarzabek

Associate Professor, Department of Computer Science, School of Computing, National University of Singapore (NUS)

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Hongyu Zhang

Assistant Professor, School of Software, Tsinghua University, Beijing, China

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Abstract:

In this tutorial, we show how much higher levels of reuse can be achieved by applying XVCL (<http://xvcl.comp.nus.edu.sg>) that supports not only aspects, but also other powerful mechanisms for handling variability in software, such as change propagation and generic design. XVCL approach can reduce the complexity of a PLA (Product Line Architecture), and simplify its evolution by orders of magnitude as compared to conventional component-based PLAs. The approach works for common services such as aspects, as well as at application domain layers of user interfaces or business logic, which are particularly difficult to componentize for reuse.

Example of PL problems we address in the tutorial: Industrial SPLs may involve thousands of features. Features are often inter-dependent in complex ways, affecting many components in a PLA. Such variability requires a mechanism to manage one-to-many, complex mappings between variant features and affected components. Other problems include: the difficulty to reuse already implemented features when deriving new SPLC members, difficulty to enhance existing products with product-specific features without disconnecting them from the PLA, and difficulty to propagate upgrades of the PLA to SPL members without losing product-specific customizations.

In the tutorial, we show how the above problems can be tackled by complementing architecture/component approaches with a generative technique of XVCL. The idea of the approach is to build generic, adaptable software structures, with explicit record of customizations required to accommodate variant features in their legal combinations into SPL members.

Tutorial 2: Managing Software Reuse: A Case-Based Tutorial

May 25 14:00-17:30 (MH-Room 102)

Wayne C. Lim

Infosys Technologies Ltd, USA

Abstract:

Utilizing the case method, attendees will be provided an overview and analysis of effective methods in several key areas. Specifically, they will learn:

- How to initiate a reuse program, reuse adoption and institutionalization models, the possible roles of a corporate

reuse program, and how to select pilot projects.

- How to investigate reuse, what the benefits and costs of software reuse are, how to conduct a cost/benefit analysis for reuse, and some economic results from applying the cost/benefit model in several organizations.
- How to plan for reuse, how to organize and staff the reuse program, how to fund a reuse program, and why organizations should measure.
- How to implement the reuse plan: technology transfer and change management issues and choosing a conversion strategy.

This tutorial is an interactive, case-based seminar on establishing a software reuse program for your organization. Prior to the seminar, attendees are asked to read a case of an organization attempting to implement reuse.

Tutorial 3: Mapping Product Line Requirements to a Product Line Architecture

May 28 14:00-17:30 (B7 – Room 4)

Mike Mannion

Professor, School of Computing & Mathematical Sciences, Glasgow Caledonian University, Glasgow

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<http://www.gcal.ac.uk/cms/global/contactmaps/staff/mmannion/index.html>

Juha Savolainen

Nokia Research Center, Helsinki

Juha.Savolainen@nokia.com

Abstract:

In the consumer product market space a commercial challenge is to offer personalization of products and services for individual customers at a mass production price. Product line development is a compromise between customer requirements, existing product line architectural constraints and commercial needs. Managing variability is the key to a successful product line development. As a product line evolves selections of requirements for new products are often constrained by the design of the existing product line architecture and the cost of making these changes. We present a set of rules that map the selection constraint values of requirements on to the selection constraint values of architectural assets. The impact of changes made to either set of selection constraint values can be seen and evaluated in the other set. We examine the challenges of these techniques, present results of using them for real-world applications, and describe some software tools that can be used to support them.

Tutorial 4: Metrics and Strategy for Reuse Planning and Management

May 28 14:00-17:30 (B7 – Room 5)

Bill Frakes

Associate Professor, Department of Computer Science, Virginia Tech.

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<http://frakes.cs.vt.edu/>

John Favaro

Consulenza Informatica, Italy.

john@favaro.net

<http://www.favaro.net/john/home/index.html>

Abstract:

Key to planning and managing a systematic reuse program is the formulation and evaluation of a competitive strategy, and subsequent monitoring and measurement of progress against the goals elucidated by that strategy. This tutorial provides a succinct introduction to software reuse metrics, and principles of strategic planning and economic evaluation of reuse-oriented investments. The two parts of the course: Metrics for Managing with Reuse and Value-Based Software Reuse Investment provide a comprehensive overview of current practice and recent developments in reuse project planning and management. Topics include an introduction to management of reuse projects, basic concepts and terminology in reuse measurement, principles of strategy, and fundamentals of economic evaluation of proposed investments in reuse.

Tutorial 5: Designing Software Product Lines with UML 2.0: From Use Cases to Pattern-Based Software Architectures

May 29 09:00-12:30, 14:00-17:30 (B7 – Room 4)

Hassan Gomaa

Chair and Full Professor, Department of Computer Science, George Mason University, Fairfax, Virginia, USA

hgomaa@gmu.edu

<http://mason.gmu.edu/~hgomaa>

Abstract:

This tutorial addresses how to develop object-oriented requirements, analysis, and design models of software product lines using the Unified Modeling Language (UML) 2.0 notation. During requirements modeling, kernel, optional, and alternative use cases are developed to define the functional requirements of the system. The feature model is then developed to capture product line requirements and how they relate to the use case model. During analysis, static models are developed for defining kernel, optional, and variant classes and their relationships. Dynamic models are developed in which state-charts define the state dependent aspects of the product line and interaction models describe the dynamic interaction between the objects. The tutorial is illustrated by means of several examples.

This tutorial is intended for a wide audience of academic and industrial professionals including researchers, academic faculty, graduate students, software developers, systems analysts, software designers, and project managers. Some basic knowledge of object-oriented concepts is expected.

ICSR 2008 Workshops

Sunday, May 25, 2008

Workshop I : DSADR: Workshop on Domain Specific Analysis and Design for Reuse (MH-Room 103)

Chair: Wenyun Zhao, Fudan University, China

Organizers: Haiyan Zhao, Peking University, China; Seok-Won Lee, University of North Carolina at Charlotte, USA; Yijun Yu, Open University, UK; Xin Peng, Fudan University, China; Wei Zhang, Peking University, China

URL: <http://www.se.fudan.sh.cn/DSADR2008.htm>

09:00-09:10 Welcome and Workshop Information

09:10-10:10 Keynote Speech: *Towards Domain-specific Software Component Models*

Dr. Kung-Kiu Lau from University of Manchester, UK

Abstract:

A software component model defines components and their composition mechanisms, and thus provides the basis for a component-based approach to software development. For domain-specific applications, we believe it is best to use a domain-specific component model. Moreover, we believe such models can and should be derived from domain models. In this talk, we will outline our ideas along these lines.

10:10-10:40 *Using Responsibilities for Early Identification of Frozen and Hot Spots Reused in Frameworks Modeling*

MATOS Simone N.¹⁺, FERNANDES Clovis T.²

1. UTFPR and ITA (Department) of Computer Science, University, Ponta Grossa 84016210, Brazil

2. ITA (Department) of Computer Science, University, São José dos Campos 12228-900, Brazil

Abstract:

Most approaches for the development of domain frameworks usually determine frozen and hot spots from class diagrams of the domain concrete examples. As a result, a delay at the understanding of which spots should be kept stable or flexible occurs during the framework modeling. This work presents a responsibility-driven method aiming to identify frozen and hot spots in the analysis phase. Its purpose is to allow the designer to have an earlier domain understanding, as well as give the opportunity of reusing as many software artifacts as possible from the domain concrete examples, thus increasing the consistence at the framework modeling level. The proposed method has a supporting tool and has been illustrated with the elaboration of a framework for Car Racing Games domain.

10:40-11:00 Break

11:00-11:30 *Software Reuse to Support Earth Science*

MARSHALL James J.¹⁺, DOWNS Robert R.², SAMADI Shahin¹, GERARD Neil S.¹, WOLFE Robert E.³

1. Innovim / NASA Goddard Space Flight Center, Mailstop 614.9, Greenbelt, MD, 20771, USA

2. Columbia University, Center for International Earth Science Information Network (CIESIN), 202 Geosciences, Lamont-Doherty Earth Obs., Palisades, NY, 10964, USA

3. NASA Goddard Space Flight Center, Mailstop 614.5, Greenbelt, MD, 20771, USA

Abstract:

Earth science relies on software to prepare, distribute, access, manipulate, and analyze data. Scientific replication often requires reuse of the original software. Similarly, efficiently distributing, accessing, or analyzing scientific data often requires software reuse. Recognizing the value of software reuse, the Earth science software development community has encouraged and fostered reuse within the community. The NASA Earth Science Data Systems (ESDS) Software Reuse Working Group (WG) was established to support software reuse among members of the community. The WG developed the software reuse portal to inform the community about reuse issues and available resources and educate the community on improving software reuse practices. Requirements for a Reuse Enablement System (RES) have been developed and are being used to implement a prototype system to provide access to software for potential reuse. Reuse Readiness Levels are being developed to document criteria and improve capabilities for evaluating and selecting software for potential reuse.

11:30-12:00 Feature-Oriented Software Product Line Design and Implementation Based on Adaptive Component Model

Yiming Yang, Xin Peng, Wenyun Zhao

Computer Science and Engineering Department, Fudan University, Shanghai 200433, China

Abstract:

In current feature-oriented methods for SPL development, requirement-level variability analysis, representation and application-oriented customization have been well understood and supported. However, it is still difficult to map customization and tailoring on requirement level (feature model) to implementation level (architecture and components). In this paper, we propose an SPL development method based on the feature-oriented adaptive component model proposed in our previous work. The adaptive component model introduces feature-based domain model as the semantic basis of component ports (including internal and external ports). On the other hand, the adaptive component model has a micro control structure within the component, which enables the adaptation of the component behavior, including inter-component interactions, interaction sequence and style. In order to implement the feature-oriented customization on the program level, an in-component control center is separated to enforce the customized behavioral protocol and port semantics for each component according to the mapping specification. This separation of component coordination and computation facilitates the application-oriented customization on component behaviors. Then, in application development, requirement-level feature customization can be mapped to architecture- and component-level adaptations on architectural structure and component behaviors.

12:00-12:30 Multi-View based Customization of Feature Models

Haiyan Zhao, Wei Zhang, Hong Mei

Key Laboratory of High Confidence Software Technology, Ministry of Education of China

School of Electronics Engineering and Computer Science, Peking University

Abstract:

Feature models have been widely used to capture reusable requirements in a specific software domain. Through customizing a feature model, customers can specify their own products according to different application context. However, the customization of feature models usually involves many stakeholders and each of them may be only interested with parts of the feature model. Different stakeholders' concerns are often intermixed together and scattered in the entire feature model, which results in the difficulty in customization for stakeholders. To address this problem, we propose a multi-view based approach to facilitating the customization of feature models. The underlying idea is to cluster information scattered in a feature model into separate views according to different stakeholders' viewpoints, so that stakeholders can customize the feature model on their own views. We demonstrate the feasibility

of our approach through a case from ATM domain.

Workshop II : KREUSE: First Workshop on Knowledge Reuse (MH-Room 104)

Organizers: Rubén Prieto-Díaz, James Madison University, USA; Anabel Fraga, Carlos III of Madrid University, Spain; José Miguel Fuentes, Director of The Reuse Company, Spain; Juan Llorens, Carlos III of Madrid University, Spain

URL: <http://www.kr.inf.uc3m.es/KREUSE2008.htm>

9:00-9:45 Winner-take-all Dynamics upon Metadata: Knowledge Acquisition for Reuse

Iaakov Exmon

Bar-Ilan University Jerusalem College of Engineering

Abstract:

Knowledge is widely believed to be more than organized data. But, knowledge has eluded precise definition. This work proposes that knowledge acquisition has a semantic winner-take-all nature. Operationally, after delimiting the relevant search space, one acquires knowledge by a two-function interplay: sharpen the respective metadata, by means of a cyclic winner-take-all selection. It is argued that, contrary to static metadata alone, the dynamic winner-take-all knowledge procedure has the potential of being truly reusable.

9:45-10:30 A Collaborative Problem Solving Method for A Software Engineering Project Course and Its Environment

Hazeyama

Department of Technology and Information Science, Tokyo Gakugei University

Abstract:

Software development is knowledge intensive work. Developers face many problems and solve them by interactions with various resources. This paper proposes a collaborative problem solving method that integrates knowledge sharing and collaboration by Q&A with reflection for a software engineering project course in a university and provides an environment that facilitates the method. Some preliminary results are shown from its application.

10:30-11:00 Break

11:00-11:45 Enabling Knowledge Reuse through Total Traceability in the context of Software Development

Héctor García

Technical University of Madrid. Ctra. de Valencia Km. 7, E-28031 Madrid, Spain

Abstract:

Software traceability management does not consider most of the assets created before requirements elicitation. This fact results in a knowledge loss. An appropriated use of traceability, in order to manage underlying knowledge to these assets, could provide a significant benefit. We discuss how traceability exploitation of these assets could bridge the gap between traceability costs and benefits in the context of knowledge reuse.

11:45-12:30 Universal Knowledge Reuse: anything, anywhere, and anybody

Anabel Fraga

Universidad Carlos III de Madrid, Departamento de Informática, Av. Universidad 30, Leganés, 28911 Madrid, Spain

Abstract:

Although reuse is considered a good practice within software engineering, several problems dissuade its industrial application, and a new viewpoint of reuse is needed. This paper enlightens a new perspective of reuse, it is shown for improving retrieval techniques, dropping the investments costs needed in systematic reuse, including traceability in the process, and reducing the chaos of ad-hoc reuse. This new perspective, called Universal Knowledge Reuse (UKR), is fully integrated into the software development process, it incorporates activities that deals with the problems showed by systematic and ad-hoc reuse. UKR copes also with the fact that reuse nowadays must be independent of the kind of information to reuse, the context where it must be reused, or even the user that demands the need.

12:30-14:00 Break

14:00-14:45 *SMORE - A Semantic Model Repository*

Martin Gebauer and Axel-Cyrille Ngonga Ngomo

University of Leipzig, Institute for Computer Science, Business Information Systems Group Johannsgasse 26, Leipzig D-04103, Germany

Abstract:

Software development is a knowledge-intensive process. In order to improve the reuse of software assets, the knowledge about these assets has to be efficiently retrievable and disseminable. In this paper, we propose a concept for a novel repository that can be used in the context of model-driven software development. It captures the interdependencies between all assets and offers traceability throughout the assets' life cycle. The combination of model management with both semantic retrieval and pro-active dissemination promises a significant increase of knowledge reuse in model-driven software development.

14:45-15:30 *Large-Scale Knowledge Sharing for NASA Exploration Systems*

Sidney Bailin

Knowledge Evolution, Inc., 1221 Connecticut Ave NW, Suite 3B, Washington DC 20036, USA.

Abstract:

NASA exploration initiatives encompass many disciplines within multiple organizations. Exchanging information without loss of meaning is a critical challenge. Differences in vocabularies are embedded in the variety of tools and systems used. This paper describes a large-scale project called NASA Exploration Initiative Ontology Models (NExIOM), which is meeting the challenge through a semantic approach to knowledge reuse.

15:30-16:00 Break

16:00-16:45 *Creating and Reusing Metric Graphs for Evaluating Agent Performance in the Supply Chain Management Domain*

Christos Dimou

Electrical and Computer Engineering Dept., Aristotle University of Thessaloniki, GR541 24, Thessaloniki, Greece

Abstract:

The overwhelming demand for efficient agent performance in Supply Chain Management systems, as exemplified by numerous international competitions, raises the issue of defining and using generalized methods for performance evaluation. Up until now, most researchers test their findings in an ad-hoc manner, often having to re-invent existing evaluation-specific knowledge. In this position paper, we tackle the key issue of defining and using metrics within the context of evaluating agent performance in the SCM domain. We propose the Metrics

Representation Graph, a structure that organizes performance metrics in hierarchical manner, and perform a preliminary assessment by instantiating an MRG for the TAC SCM competition, one of the most demanding SCM competitions currently established. We envision the automated generation of the MRG, as well as appropriate contribution from the TAC community towards the finalization of the MRG, so that it will be readily available for future performance evaluations.

16:45-17:30 *Applying Ontologies and Intelligent Text Processing in Requirements Reuse*

Mónica Marrero

Computer Engineering Department, University Carlos III of Madrid Av. De la Universidad 30, 28911 Leganés (Madrid), Spain

Abstract:

Requirements reuse plays a decisive role in order to get benefits in the software industry. The reuse process implies a retrieval of stored requirements, but these requirements are generally expressed in natural language. In order to obtain an effective but flexible system, we need a natural language retrieval system supported by a knowledge model. The knowledge of the requirements engineering area is modeled by the Requirements Engineering Ontology (REOntology), which includes lexical-syntactic patterns in order to capture the semantic of the relationships in the domain. The approach takes advantage of both techniques: domain models and natural language processing. Furthermore, it supports an incremental reuse methodology, as new requirements are semi-automatically processed in order to improve the REOntology by means of adding specific application domain knowledge step by step.

Workshop III: MoRSe: 2nd International Workshop on Model Reuse Strategies (MH-Room 105)

Organizers: Michal Smialek, Warsaw Univ. of Tech., Poland; Kizito Mukasa, Fraunhofer IESE, Germany; Markus Nick, Fraunhofer IESE, Germany; Juergen Falb, Vienna Univ. of Tech., Austria

URL: <http://www.iem.pw.edu.pl/morse08/>

14:00-14:10 *Opening remarks, discussion topics*

14:10-15:10 Paper presentation 1

Can Precise Requirements Models Drive Software Case Reuse?

Albert Ambroziewicz, Jacek Bojarski, Wiktor Nowakowski, and Tomasz Straszak

Warsaw University of Technology, Poland

Abstract:

A crucial issue for approaches towards software reuse is the formulation of artifacts to be reused. It is necessary to introduce appropriate formalisms for organizing artifact sets and artifact structure in order for the reuse process to become effective. This includes also the possibility to reuse partial artifacts thus enabling their easier adaptation to the current problem and merging with the newly built system. This paper introduces the notion of software cases which define coarse structures for software artifacts linked through MDA style mappings. Software cases can be sliced thus offering partial artifacts with fine grained structure of individual models expressed through appropriate languages. The presented approach is highly requirements driven - all the slices originate in requirements artifacts which are traced to other layers: architecture, design and code.

A Requirement Modeling Approach Based on Reusable User Interfaces

Semih Cetin and N. Ilker Altintas, Cybersoft, Turkey

Abstract:

Requirements modeling should identify the issues in problem domain and link them with design decisions to the solution domain. Systematic reuse in requirements modeling needs effective techniques and tools to supervise the software development process. Putting user requirements at the center, reusable user interfaces can help model other software requirements in a coordinated way. This paper puts forward such an approach to gather and elicit the software requirements for Rich Internet Applications. The proposed approach based on reusable user interfaces can assist the crosschecking of entire requirements set comprising business processes, services, rules, and data models. The approach has been elaborately used in enterprise applications such as core banking and results have been discussed in the paper, too.

Determining Similarity of Model-based and Descriptive Requirements by Combining Different Similarity Measures

Katharina Wolter, Thorsten Krebs, and Lothar Hotz, HITeC, University of Hamburg, Germany

Abstract:

RSL is a requirements specification language that was developed in the ReDSeeDS project. The language allows requirements specifications using both model-based and descriptive representations. In this paper we tackle the problem of determining similarity of requirements that use both types of representations. We argue that in this case a combination of similarity measures is needed. In order to confirm this claim we assess similarity measures from different research areas with respect to their suitability for comparing requirements specifications written in RSL.

15:10-15:30 Break

15:30-16:10 Paper Presentation 2

Using the TGraph Approach for Model Fact Repositories

Daniel Bildhauer, Juergen Ebert, Volker Riediger, and Hannes Schwarz, University of Koblenz-Landau, Germany

Abstract:

Nowadays models, being abstract representations of software artifacts such as architecture descriptions, test cases, or source code fragments, play an important role in software technology. This paper shows how graph-based repositories can be used to keep these models together with their interconnections. One of the possible, and implemented, applications is the identification and retrieval of artifacts which are potentially reusable in an ongoing development project. The abstract representation retained in a repository allows for employing querying technology to precisely find those artifacts suiting this specific purpose.

Transition from Precisely Defined Requirements into Draft Architecture as an MDA Realisation

Jacek Bojarski, Tomasz Straszak, Albert Ambroziewicz, and Wiktor Nowakowski

Warsaw University of Technology, Poland

Abstract:

Automation and reuse are two elements which introduced into the software development process can significantly improve chances for success. Automation can be achieved by defining and using certain automatic transformations between artifacts (models and code) produced during the software lifecycle. These transformations encapsulate certain important knowledge that can be reused in future projects. In this paper we describe a method for combining automatic MDA style transformations with their reuse. An important factor is that this combination is

introduced even from the highest level of abstraction which is expressed through requirements. Precisely (yet understandably for “ordinary people”) defined requirements can be transformed automatically into draft architectural models. The rules of this transformation contain certain decisions on the target architectural framework. This paper presents ways to reuse these decisions on the basis of only the current requirements model.

16:10-17:30 Discussion, final remarks

Workshop IV: RESAFE: International Workshop on Software Reuse and Safety (MH-Room 103)

Organizers: John Favaro, Senior Consultant, Italy; Bill Frakes, Virginia Tech, USA

URL: <http://www.favaro.net/john/RESAFE2008/RESAFE2008Call.htm>

14:00 – 17:30

Safety work in the Automotive-SPIN Workshops in Europe

John Favaro (Consulenza Informatica)

Presentation of thesis proposal on software safety

Bill Frakes (Virginia Tech.)

Presentation of wrapper and contracts technology

Greg Kuczinski (Virginia Tech.)

Construction of written response to thesis proposal as concrete output of workshop

All

ICSR 2008 Doctoral Symposium

Sunday, May 25, 2008

Room MH-102

9:30 - 9:45 Introductions

9:45 - 10:15 *Formal Refinement and Verification for Component-oriented High Trust System*

Jiankun Wu

10:15 - 10:45 *ERP Software Requirement Elicitation with Reference Models*

Juntao Gao

10:45 - 11:00 Break

11:00 - 11:30 *A Reusability Assessment Framework for Software Components*

Saeed Araban

11:30 - 12:00 *The Development of Composable Run-time Components to Promote COSD Application in Software Development*

Hazleen Aris

12:00 - 12:30 *Theory and Tools for Evaluating Agent Performance*

Christos Dimou

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