



WCRE 2007
14th Working Conference on
Reverse Engineering

28-31 October 2007 – Vancouver, BC, Canada



Conference Program

Sponsored by



Reengineering Forum
<http://reengineer.org/>

In cooperation with



IEEE Computer Society - TCSE
Technical Council on Software Engineering



RCOST
Research Centre on Software Technology

Gesellschaft für Informatik

IG Software Reengineering

Software Reengineering (SRE) Interest Group
of the German Society of Computer Science



Modelsoft Corporation



Kent State University



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Schedule Overview (Oct 27-29)

Day	Hour	Nelson Room	Denman Room
Oct. 27	7:30pm - 10:00pm	Welcome Reception Registration (Barclay/Gilford Room)	
	8:00am - 8:45am	Registration	
Oct. 28	8:45am - 9:00am	WCRE Opening - Program Overview	
	9:00am - 10:30am	Paper Session I - Program Analysis	
	10:30am - 11:00am	Coffee break	
	11:00am - 12:15pm	Keynote I - Ira Baxter	
	12:15pm - 1:45pm	Lunch (Comox Room)	
	1:45pm - 3:15pm	Paper Session II - Program Comprehension	
	3:15pm - 3:45pm	Coffee break	
	3:45pm - 4:30pm	Tool presentations	
	4:30pm - 6:00pm	Paper Session III - Mining Software Repositories	
	7:30pm - 11:00pm	Tournament time: Table Tennis, Reverse and Buffet (Denman Ballroom)	
Oct. 29	7:45am - 8:15am	Registration	
	8:15am - 9:45am	Paper Session IV - Data Reverse Engineering	
	9:45am - 10:30am	Tool presentations	
	10:30am - 11:00am	Coffee break	
	11:00am - 1:00pm	Keynote II - Don Reifer	
	1:00pm - 2:00pm	Lunch (Comox Room)	
	2:00pm - 2:30pm	Tool demonstrations	
	2:30pm - 4:00pm	Workshop PCoDA	Tutorial Intellectual Property
	4:00pm - 4:30pm	Coffee break	
	4:30pm - 6:00pm	Workshop PCoDA	Tutorial Intellectual Property (cont.)



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Schedule Overview (Oct 30-31)

Day	Hour	Nelson Room	Denman Room
Oct. 30	7:30am - 8:00am	Registration	
	8:00am - 11:30am	Industry and Application Forum	Doctoral Symposium
	9:30am - 10:00am	Coffee break	
	10:00am - 11:30am	Industry and Application Forum	Doctoral Symposium
	11:30am - 1:00pm	Lunch (Comox Room)	
	1:00pm - 2:30pm	Paper Session V - Visualization & Understanding	
	2:30pm - 2:45pm	Coffee break	
	2:45pm - 4:15pm	Paper Session VI - Software Clones	
	4:15pm - 4:30pm	Coffee break	
	4:30pm - 6:00pm	Paper Session VII - Reengineering Interfaces	
	7:00pm - 11:00pm	Halloween Costume Party (35th Floor Suites Evergreen through CityView Rooms)	
	8:00am - 8:30am	Registration	
Oct. 31	8:30am - 10:00am	Workshop CoBaSSA	Workshop PERE
	10:00am - 10:30am	Coffee Break	
	10:30am - 12:00pm	Workshop CoBaSSA	Workshop PERE
	12:00pm - 1:30pm	Lunch (Comox Room)	
	1:30pm - 3:00pm	Paper Session VIII - Protocol and State Machine Recovery	
	3:00pm - 3:30pm	Coffee Break	
	3:30pm - 5:00pm	Paper Session XI - Clustering	
	5:00pm - 5:30pm	WCRE Wrap-Up	



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Keynotes

Reengineering Tools: A Perspective from the Trenches	The Dark Side of Software Reverse Engineering
<p style="text-align: center;">Ira D. Baxter CEO, Semantic Designs, Inc</p> <p style="text-align: center;"><i>October 28, 2007; 11:00am - 12:15pm</i> Nelson+Denman room</p> <p>Software systems are growing in size (tens of millions of lines), complexity (application, number of languages and implementation technologies involved), and age (decades). The larger the size, the larger the investment, and the more important it becomes to preserve that investment. As with remodeling houses, demands for new functionality and the need to integrate with newer technology often require massive changes to the software base. These two factors suggest that massive software remodeling will become long-term steady-state phenomena for these systems. Software change scale suggests that automation is necessary to accomplish this remodeling.</p> <p>Semantic Designs has been building the DMS® Software Reengineering Toolkit to support these kinds of tasks in commercial contexts. DMS consists of a set of integrated compiler-like technologies, composed to solve custom reengineering problems. Scale and integration are a key theme. This talk will examine some applications of DMS (e.g., to large C and C++ systems) to motivate the technologies behind DMS. It will sketch the technologies used and their shortcomings in functionality, scale and usability, and suggest future directions. The talk should be of wide interest to reverse- and re-engineering researchers by exhibiting needs driven by very practical concerns.</p>	<p style="text-align: center;">Donald J. Reifer Reifer Consultants, Inc., USA</p> <p style="text-align: center;"><i>October 29, 2007; 11:00am - 1:00pm</i> Nelson+Denman room</p> <p>During the past decade, substantial advances have been made in the field of software reverse engineering. Tools and techniques that have been developed for program understanding, design recovery and reengineering and/or refactoring have been commercialized and deployed to reduce the software maintenance burden. However, along with the good comes the dark side of software reverse engineering. These same tools and techniques can be and have been used for nefarious purposes. Take the disassemblers/debuggers used for exploring binary programs for which source code is not available. Besides being able to figure out what functions the software performs and in what manner, these tools can be used to identify sensitive information hidden in the code (data, algorithms, etc.). For example, such tools can be used to get at this sensitive information even when it is guarded, obfuscated or encrypted. In addition, those tools and techniques employed to figure out how a program works can also be used to determine how it breaks. For example, exploiters can use the same exceptions that were put into the code to improve safety to crash the system. The challenge posed to the reverse engineering community is to find ways to prevent the misuse of their technology along with its proper use.</p>



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Technical Program

October 28, 2007 - Nelson+Denman Room

Time	Session I - Program Analysis - Session Chair: Rainer Koschke
9:00am - 10:30am	<ul style="list-style-type: none"> • Interprocedural Static Single Assignment Form <i>Stefan Staiger, Gunther Vogel, Steffen Keul, and Eduard Wiebe</i> • An Automated Approach to Grammar Recovery for a Dialect of the C++ Language <i>Brian Malloy and Edward Duffy</i> • Parametric Process Model Inference <i>Saurabh Sinha, G Ramalingam, and Raghavan Komondoor</i>
Time	Session II - Program Comprehension - Session Chair: Spiros Mancoridis
1:45pm - 3:15pm	<ul style="list-style-type: none"> • Documenting Typical Crosscutting Concerns <i>Marius Marin, Leon Moonen, and Arie van Deursen</i> • Temporal Exploration of Software Models: A Tool Feature to Enhance Software Understanding <i>Hanna Farah and Timothy Lethbridge</i> • Detecting Implied Scenarios from Execution Traces <i>Felipe Sousa, Nabor Mendonca, Sebastian Uchitel, and Jeff Kramer</i>
Time	Session III - Mining Software Repositories - Session Chair: Ahmed Hassan
4:30pm - 6:00pm	<ul style="list-style-type: none"> • Recovering Maintainability Effort in the Presence of Global Data Usage <i>Jason Selby, Fraser Ruffell, Mark Giesbrecht, and Michael Godfrey</i> • Do Code and Comments Co-Evolve? On the Relation Between Source Code and Comment Changes <i>Beat Fluri, Michael Wuersch, and Harald Gall</i> • Quality Assessment based on Attribute Series of Software Evolution <i>Jacek Ratzinger, Harald Gall, and Martin Pinzger</i>

October 29, 2007 - Nelson+Denman Room

Time	Session IV - Data Reverse Engineering - Session Chair: Michael Blaha
8:15am - 9:45am	<ul style="list-style-type: none"> • An ADM Approach to Reengineer Relational Databases Towards Web Services <i>Ignacio García-Rodríguez de Guzmán, Macario Polo, and Mario Piattini</i> • Discovering the Objectual Meaning of Foreign Key Constraints in Enterprise Applications <i>Cristina Marinescu</i> • Recovering Data Models via Guarded Dependences <i>Raghavan Komondoor and G Ramalingam</i>



WCRE 2007 14th Working Conference on Reverse Engineering

28-31 October 2007 – Vancouver, BC, Canada



October 30, 2007 - Nelson+Denman Room

Time	Session V - Visualization & Understanding - Session Chair: Martin Pinzger
1:00pm - 2:30pm	<ul style="list-style-type: none">Reverse Engineering Super-Repositories <i>Mircea Lungu, Michele Lanza, Tudor Girba, and Reinout Heeck</i>Visualizing Software Architecture Evolution using Change-sets <i>Andrew McNair, Daniel German, and Jens Weber-Jahnke</i>A Model to Understand the Building and Running Inter-Dependencies of Software <i>Daniel German, Jesus Gonzales-Barahona, and Gregorio Robles</i>
Time	Session VI - Software Clones - Session Chair: Mike Godfrey
2:45pm - 4:15pm	<ul style="list-style-type: none">Clone Detection via Structural Abstraction <i>William Evans, Christopher Fraser, and Fei Ma</i>Extending the Reflexion Method for Consolidating Software Variants into Product Lines <i>Pierre Frenzel, Rainer Koschke, Andreas Breu, and Karsten Angstmann</i>A Study of Consistent and Inconsistent Changes to Code Clones <i>Jens Krinke</i>
Time	Session VII - Reengineering Interfaces - Session Chair: Ying Zou
4:30pm - 6:00pm	<ul style="list-style-type: none">Swing2Script: Middleware for migrating Desktop Java applications to Ajax Web applications <i>Hani Samir, Eleni Stroulia, and Amr Kamel</i>Reverse Engineering of Graphical User Interfaces using Static Analyses <i>Stefan Staiger</i>Turning Web Applications into Web Services by Wrapping techniques <i>Giusy Di Lorenzo, Anna Rita Fasolino, Lorenzo Melcarne, Porfirio Tramontana, and Valeria Vittorini</i>



WCRE 2007 14th Working Conference on Reverse Engineering

28-31 October 2007 – Vancouver, BC, Canada



October 31, 2007 - Nelson+Denman Room

Time	Session VIII - Protocol and State Machine Recovery - Session Chair: Jens Krinke
1:30pm - 3:00pm	<ul style="list-style-type: none">Reverse Engineering State Machines by Interactive Grammar Inference <i>Neil Walkinshaw, Kirill Bogdanov, Mike Holcombe, and Sarah Salahuddin</i>Dynamic Protocol Recovery <i>Jochen Quante and Rainer Koschke</i>A Reverse Engineering Tool for Extracting Protocols of Networked Applications <i>Maxim Shevertalov and Spiros Mancoridis</i>
Time	Session XI - Clustering - Session Chair: Dirk Beyer
3:30pm - 5:00pm	<ul style="list-style-type: none">Clustering for Generating Framework Top-Level Views <i>Thorsten Schäfer, Ivica Aracic, Matthias Merz, Mira Mezini, and Klaus Ostermann</i>Lossless Comparison of Nested Software Decompositions <i>Vassilios Tzerpos and Mark Shtern</i>An Amalgamated Dynamic and Static Architecture Reconstruction Framework to Control Component Interactions <i>Kamran Sartipi and Nima Dezhkam</i>



WCRC 2007 14th Working Conference on Reverse Engineering

28-31 October 2007 – Vancouver, BC, Canada



Tool Demonstrations

October 28, 2007 - Nelson+Denman Room

Time	Tool Presentations (I)
3:45pm - 4:30pm	<ul style="list-style-type: none">• Evospaces Visualization Tool: Exploring Software Architectures in 3D <i>Philippe Dugerdil and Sazzadul Alam</i>• Emulated Breakpoint Debugger and Data Mining using Detours <i>Jason Raber and Eric Laspe</i>

October 29, 2007 - Nelson+Denman Room

Time	Tool Presentations (II)
9:45am - 10:30am	<ul style="list-style-type: none">• CocoViz: Supported Cognitive Software Visualization <i>Sandra Buccuzo and Harald Gall</i>• Deobfuscator: an Automated Approach to the Identification and Removal of Obfuscated Code <i>Jason Raber and Eric Laspe</i>

October 31, 2007 - Nelson Room

Time	Tool Demonstrations
2:00pm - 2:30pm	<ul style="list-style-type: none">• Evospaces Visualization Tool: Exploring Software Architectures in 3D <i>Philippe Dugerdil and Sazzadul Alam</i>• Emulated Breakpoint Debugger and Data Mining using Detours <i>Jason Raber and Eric Laspe</i>• CocoViz: Supported Cognitive Software Visualization <i>Sandra Buccuzo and Harald Gall</i>• Deobfuscator: an Automated Approach to the Identification and Removal of Obfuscated Code <i>Jason Raber and Eric Laspe</i>



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Tutorial

October 29, 2007 – Denman Room

Time	Intellectual Property for Software (Re-)Engineers and Researchers Daniel M. German, University of Victoria, Canada
2:30pm - 6:00pm (includes break)	Abstract The goal of this 3 hrs. tutorial is to introduce software engineers and researchers to the field of intellectual property(IP) as it applies to software engineering and reverse engineering. This tutorial is composed of three main components: software IP, IP legislation regarding software reengineering, and the legal issues surrounding reuse of open source software.

Doctoral Symposium

October 30, 2007 – Denman Room

Time	Program
8:00am - 11:30am (includes break)	<ul style="list-style-type: none">• Dynamic Analysis Techniques for the Reconstruction of Architectural Views <i>Bas Cornelissen</i>• PRESSWEB: A Process to Reengineer Legacy Systems towards Web Services <i>Ignacio García-Rodríguez de Guzmán</i>• Building Reverse Engineering Tools with Software Components: Ten Lessons Learned <i>Holger M. Kienle</i>• An Experimental Platform for Root Cause Diagnosis Research <i>Qin Zhu</i>• Reforming Software Design Documentation <i>Piotr Kaminski</i>



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PCODA:
Workshop on Program Comprehension
through Dynamic Analysis

Organizers: Orla Greevy, Abdelwahab Hamou-Lhadj, Andy Zaidman

Workshop URL: <http://swerl.tudelft.nl/bin/view/Main/PCODA2007>

October 29, 2007 - Nelson Room

Time	Session 1: Coping with large-sized execution traces (presented by Abdelwahab Hamou-Lhadj)
2:30pm - 4:00pm	<ul style="list-style-type: none">Working with 'Monster' Traces: Building a Scalable, Usable Sequence Viewer <i>Chris Bennett, Del Myers, Margaret-Anne Storey, Daniel German</i>Exploring Similarities in Execution Traces <i>Bas Cornelissen and Leon Moonen</i>Exposing Side Effects in Execution Traces <i>Adrian Lienhard, Tudor Girba, Orla Greevy and Oscar Nierstrasz</i>

Time	Session 2: Modelling and knowledge extraction (presented by Tudor Girba)
4:15pm - 6:00pm	<ul style="list-style-type: none">Applying Grammar Inference Principles to Dynamic Analysis <i>Neil Walkinshaw, Kirill Bogdanov</i>Mining Temporal Rules from Program Execution Traces <i>David Lo, Siau-Cheng Khoo, Chao Liu</i>
	Session 3: Application of dynamic analysis (presented by Andy Zaidman)
	<ul style="list-style-type: none">Supporting Feature Analysis with Runtime Annotations <i>Marcus Denker, Orla Greevy, Oscar Nierstrasz</i>Identification of Behavioral and Creational Design Patterns through Dynamic Analysis <i>Janice Ka-Yee Ng, Yann-Gael Gueheneuc</i>Verifying Business Processes Extracted from E-Commerce Systems Using Dynamic Analysis <i>Derek Foo, Jin Guo and Ying Zou</i>



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Industry & Application Forum

Organizer: Elliot Chikofsky

Workshop URL: <http://reengineer.org/iaf2007/iaf2007.php>

October 30, 2007 - Nelson Room

Time	Industry & Application Forum
<p>8:00am - 11:30am (Includes break)</p>	<p>The Industry & Applications Forum (IAF) at WCRE 2007 is a presentation workshop for review of current industry practice on reverse engineering and reengineering.</p> <p>Invited speakers from industrial and research organizations will present and demonstrate the state of their current work and products. The IAF is an opportunity for practitioners, developers, and technology promoters to showcase their work and exchange ideas and techniques.</p> <p>To provide an opportunity for product announcements, late-breaking news, and similar very-current technical results, some talks at IAF may not be announced until mid-October. Trust us. This Forum will be well worth your participation.</p> <p>As with all WCRE sessions, IAF will focus on discussion and exchange of ideas, not just listening to speakers.</p> <p>Anchor Talk (Special Guest Speaker):</p> <ul style="list-style-type: none"> • <i>Philip H. Newcomb, CEO, The Software Revolution Inc (TSRI)</i> 'The Enterprise Transformation Option' <p>Forum presentations include:</p> <ul style="list-style-type: none"> • "Semantic Design's Custom Tools" <i>Ira Baxter, CEO of Semantic Designs</i> • "Case Study of a Reengineering Project" <i>Peter Cheung, Partner in Modelsoft Corp.</i> • "University of Victoria's Research - an Overview" <i>Hausi Muller, University of Victoria</i>



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CoBaSSA:
Code Based Software Security Assessments

Organizers: Spiros Mancoridis and Leon Moonen

Workshop URL: <http://swerl.tudelft.nl/leon/cobassa2007/>

October 31, 2007 – Denman Room

Time	Session I
8:30am - 10:10am	<ul style="list-style-type: none">• 08:30 - welcome & participant intro• 08:45 - The Good, the Bad, and the Ugly From 10 Years of Vulnerability Prevention <i>Crispin Cowan</i>• 09:45 - Searching for Malware <i>Ira Baxter</i>

Time	Session II
10:25am - 12:00pm	<ul style="list-style-type: none">• 10:25 Information Flow Control and Taint Analysis with Dependence Graphs <i>Jens Krinke</i>• 10:50 Software Security through Targeted Diversification <i>Nessim Kisserli, Jan Cappaert, Bart Preneel</i>• 11:15 Identifying Source Code Authorship <i>Robert Lange, Jonathan Max-Sohmer, Maxim Shevertalov, Jay Kothari, Spiros Mancoridis</i>• 11:40 global discussion• 11:55 wrap-up• 12:00 end



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14th Working Conference on
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PERE:
Performance Engineering and Reverse Engineering

Organizer: Kevin Mobley

Workshop URL: http://www.speradio.com/WCRE_Abstract.html

October 31, 2007 – Denman Room

Time	PERE: Performance Engineering and Reverse Engineering
8:30am - 12:00pm	TBA



WCRE 2007
14th Working Conference on
Reverse Engineering

28-31 October 2007 – Vancouver, BC, Canada

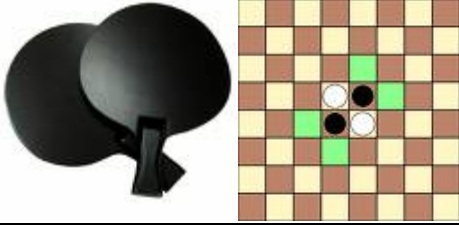


Social Program

October 27, 2007 – Barclay/Gilford Room

Time	Welcome Reception
7:30pm - 10:00pm	

October 28, 2007 – Denman Ballroom

Time	Tournament: Table Tennis and Reversi and buffet
7:30pm - 11:00pm	

October 30, 2007 - 35th Floor Suites Evergreen through CityView Rooms

Time	Halloween Party
7:00pm - 11:00pm	