



SOFTWARE ENGINEERING NOTES

An Informal Newsletter Published by the
Association for Computing Machinery
SPECIAL INTEREST GROUP ON
SOFTWARE ENGINEERING

Volume 17, Number 5

December 1992

SIGSOFT '92

Proceedings of the
Fifth ACM SIGSOFT Symposium
on Software Development Environments



Edited by
Herbert Weber

Tyson's Corner, Virginia, USA
December 9-11, 1992

ACM SIGSOFT '92: Fifth Symposium on Software Development Environments (SDE5)

Table of Contents

Committee Members	iii
Opening Comments	
<i>Ian Thomas, Software Design & Analysis Inc.</i>	
<i>Herbert Weber, Technical University of Berlin</i>	iv
Table of Contents.....	v
Author Index	viii

Papers

Keynote Speaker: Stuart I. Feldman (Executive Director Computer Systems Research Bellcore, Morristown, New Jersey, USA) "The Continuing Challenge of Software Environments for Telecommunications Software"	
 Session #1: "Work Co-Ordination" Chairman: Wilhelm Schäfer, University of Dortmund	
HyperWeb: A Framework for Hypermedia-Based Environments <i>James C. Ferrans, David W. Hurst, Michael A. Sennet, Burton M. Covnot, Wenguang Ji, Peter Kajka and Wei Ouyang, Vista Technologies, Illinois, USA</i>	1
Supporting Collaborative Software Development with Conversation Builder <i>Simon M. Kaplan, William J. Tolone, Alan M. Carroll, Douglas P. Bogia and Celsina Bignoli, University of Illinois, USA</i>	11
Supporting Cooperation in the <i>Marvel</i> Process-Centered SDE <i>Naser S. Barghouti, AT&T Bell Laboratories, USA</i>	21
 Session #2: "CAD- and CASE-Exchanging Experience" Chairman: David Notkin, University of Washington	
obTIOS: A CAx-Framework Service for Building Concurrent Engineering Environments <i>Remco Quester, Cadlab, University of Paderborn, FRG</i>	32

Session #3: "Empirical Studies"	
Chairman: Dieter Rombach, University of Kaiserslautern	
An Empirical Investigation of Menu Design in Language-Based Editors	
<i>Mark A. Toleman, Alan J. Chapman, University of Southern Queensland, Australia Jim Welsh, University of Queensland, Australia.....</i>	41
An Empirical Study of Multiple-View Software Development	
<i>Scott Meyers and Steven P. Reiss, Brown University, USA</i>	47
Session #4: "Change Management and Consistency"	
Chairman: Hausi Müller, University of Victoria	
Consistency in Software System Development: Framework, Model, Techniques & Tools	
<i>Torben Mejlvang Hagensen, Bent Bruun Kristensen, Aalborg University, Norway</i>	58
A Transformational Approach to Generating Application-Specific Environments	
<i>David Garlan, Linxi Cai, Robert L. Nord, Carnegie Mellon University, USA.....</i>	68
Operation-based Merging	
<i>Ernst Lippe, Norbert van Oosterom, University of Utrecht, NL</i>	78
Session #5: "Connectivity and System Structures"	
Chairman: Jeff Kramer, Imperial College	
A Reverse Engineering Environment Based on Spatial and Visual Software Interconnection Models	
<i>H.A. Müller, S.R. Tilley, M.A. Orgun, B.D. Corrie, N.H. Madhavji University of Victoria, Canada</i>	88
Integrating the Heterogeneous Control Properties of Software Modules	
<i>Elizabeth L. White, James M. Purtilo, University of Maryland, USA</i>	99
Developing and Integrating ProDAG in the Arcadia Environment	
<i>Debra J. Richardson, T. Owen O'Malley, Cynthia Tittle Moore, Stephanie Leif Aha, University of California, Irvine, USA</i>	109
Session #6: "Interfaces and Presentation"	
Chairman: Richard N. Taylor, University of California, Irvine	
Real Theorem Provers Deserve Real User-Interfaces	
<i>Laurent Théry, University of Cambridge, Yves Bertot, Gilles Kahn, INRIA, Sophia Antipolis, France</i>	120
The Proteus Presentation System	
<i>Susan L. Graham, Michael A. Harrison, Ethan V. Munson, University of California, Berkeley, USA</i>	130

Session #7: "Demonstrations"

Chairman: Richard W. Selby, University of California, Irvine

Session #8: "Architecture"

Chairman: Reidar Conradi, University of Trondheim

An Analysis Technique for Examining Integration in a Project Support Environment*Alan W. Brown, Peter H. Feiler, Carnegie-Mellon University, USA* 139**An Architecture for Multi-User Software Development Environments***Israel Z. Ben-Shaul, Gail E. Kaiser, George T. Heineman,
Columbia University, USA.....* 149**The ProcessWall: A Process State Server Approach to Process Programming***Dennis Heimbigner, University of Colorado, USA* 159**Session #9: "Constructing Environments: Lessons Learned from
ARCADIA, ESF and EAST"**

Chairman: Bob Balzer, Information Science Institute

Issues Encountered in Building a Flexible Software Development Environment - Lessons from the Arcadia Project -*R. Kadia* 169