

*Commenced Publication in 1973*

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

## Editorial Board

David Hutchison

*Lancaster University, UK*

Takeo Kanade

*Carnegie Mellon University, Pittsburgh, PA, USA*

Josef Kittler

*University of Surrey, Guildford, UK*

Jon M. Kleinberg

*Cornell University, Ithaca, NY, USA*

Friedemann Mattern

*ETH Zurich, Switzerland*

John C. Mitchell

*Stanford University, CA, USA*

Moni Naor

*Weizmann Institute of Science, Rehovot, Israel*

Oscar Nierstrasz

*University of Bern, Switzerland*

C. Pandu Rangan

*Indian Institute of Technology, Madras, India*

Bernhard Steffen

*University of Dortmund, Germany*

Madhu Sudan

*Massachusetts Institute of Technology, MA, USA*

Demetri Terzopoulos

*New York University, NY, USA*

Doug Tygar

*University of California, Berkeley, CA, USA*

Moshe Y. Vardi

*Rice University, Houston, TX, USA*

Gerhard Weikum

*Max-Planck Institute of Computer Science, Saarbruecken, Germany*

Hubert Baumeister Michele Marchesi  
Mike Holcombe (Eds.)

# Extreme Programming and Agile Processes in Software Engineering

6th International Conference, XP 2005  
Sheffield, UK, June 18-23, 2005  
Proceedings

## Volume Editors

Hubert Baumeister  
Ludwig-Maximilians-Universität München  
Institut für Informatik  
Oettingenstr. 67, 80538 München, Germany  
E-mail: baumeist@informatik.uni-muenchen.de

Michele Marchesi  
University of Cagliari  
DIEE, Department of Electrical and Electronic Engineering  
Piazza d'Armi, 09123 Cagliari, Italy  
E-mail: michele@diee.unica.it

Mike Holcombe  
University of Sheffield, Department of Computer Science  
Regent Court, 211 Portobello Street, Sheffield, S1 4DP, UK  
E-mail: m.holcombe@dcs.shef.ac.uk

Library of Congress Control Number: 2005927234

CR Subject Classification (1998): D.2, D.1, D.3, K.6.3, K.6, K.4.3, F.3

ISSN	0302-9743
ISBN-10	3-540-26277-6 Springer Berlin Heidelberg New York
ISBN-13	978-3-540-26277-0 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media  
springeronline.com

© Springer-Verlag Berlin Heidelberg 2005  
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Olgun Computergrafik  
Printed on acid-free paper      SPIN: 11499053      06/3142      5 4 3 2 1 0

# Preface

Extreme Programming has come a long way since its first use in the C3 project almost 10 years ago. Agile methods have found their way into the mainstream, and at the end of last year we saw the second edition of Kent Beck's book on Extreme Programming, containing a major refactoring of XP.

This year, the 6th International Conference on Extreme Programming and Agile Processes in Software Engineering took place June 18–23 in Sheffield. As in the years before, XP 2005 provided a unique forum for industry and academic professionals to discuss their needs and ideas on Extreme Programming and agile methodologies. These proceedings reflect the activities during the conference which ranged from presentation of research papers, invited talks, posters and demonstrations, panels and activity sessions, to tutorials and workshops. Included are also papers from the Ph.D. and Master's Symposium which provided a forum for young researchers to present their results and to get feedback.

As varied as the activities were the topics of the conference which covered the presentation of new and improved practices, empirical studies, experience reports and case studies, and last but not least the social aspects of agile methods.

The papers and the activities went through a rigorous reviewing process. Each paper was reviewed by at least three Program Committee members and was discussed carefully among the Program Committee. Of 62 papers submitted, only 22 were accepted as full papers.

We would like to sincerely thank the several chairs and the members of the Program Committee for their thorough reviews and dedicated involvement in shaping the contents of the conference. We would also like to thank the authors, the workshop and activity leaders, the tutorial speakers, the panelists, those who served on the various committees, our sponsors, those who offered their experience of running previous XP conferences, the staff of Sheffield University and, last but not least, everyone who attended.

April 2005

Hubert Baumeister  
Michele Marchesi  
Mike Holcombe

# Organization

XP 2005 was organized by Sheffield University.

## Executive Committee

Conference Chair	Michele Marchesi (Italy)
Local Chair	Mike Holcombe (UK)
Program Chair	Hubert Baumeister (Germany)
Tutorials Co-chairs	Geoffrey Bache (Sweden) Emily Bache (Sweden)
Workshops Chair	Vera Peeters (Belgium)
Panel Co-chairs	David Hussman (USA) David Putman (UK)
Ph.D. Symposium Chair	Sandro Pinna (Italy)
Posters Chair	Barbara Russo (Italy)
Sponsorship Chair	Steven Fraser (USA)
Communications Chair	Erik Lundh (Sweden)
Social Activities Chair	Nicolai Josuttis (Germany)

## Program Committee

Alberto Sillitti (Italy)	Linda Rising (USA)
Ann Anderson (USA)	Marco Abis (Italy)
Barbara Russo (Italy)	Martin Lippert (Germany)
Bernhard Rumpe (Germany)	Mary Poppendieck (USA)
Charlie Poole (USA)	Michael Hill (USA)
Chet Hendrickson (USA)	Nicolai Josuttis (Germany)
Daniel Karlström (Sweden)	Paul Grünbacher (Austria)
David Hussman (USA)	Pekka Abrahamsson (Finland)
Diana Larsen (USA)	Rachel Davis (UK)
Dierk König (Switzerland)	Rick Mugridge (New Zealand)
Don Wells (USA)	Ron Jeffries (USA)
Erik Lundh (Sweden)	Sandro Pinna (Italy)
Francesco Cirillo (Italy)	Scott W. Ambler (USA)
Frank Westphal (Germany)	Sian Hopes (UK)
Giancarlo Succi (Italy)	Steve Freeman (UK)
Helen Sharp (UK)	Steven Fraser (USA)
Jim Highsmith (USA)	Till Schümmer (Germany)
Joe Bergin (USA)	Tim Mackinnon (UK)
John Favaro (Italy)	Vera Peeters (Belgium)
Joshua Kerievsky (USA)	Ward Cunningham (USA)
Jutta Eckstein (Germany)	Yael Dubinsky (Israel)
Laurent Bossavit (France)	
Laurie Williams (USA)	

## Referees

Michael Barth	Tom Poppendieck
Phil McMinn	Greg Utas

# Table of Contents

## Experience Reports

Lean Software Management Case Study: Timberline Inc. ....	1
<i>Peter Middleton, Amy Flaxel, and Ammon Cookson</i>	
XP South of the Equator: An eXPerience Implementing XP in Brazil .....	10
<i>Alexandre Freire da Silva, Fábio Kon, and Cicero Torteli</i>	
Introducing Extreme Programming into a Software Project at the Israeli Air Force .....	19
<i>Yael Dubinsky, Orit Hazzan, and Arie Keren</i>	
The Agile Journey – Adopting XP in a Large Financial Services Organization .....	28
<i>Jeff Nielsen and Dave McMunn</i>	

## New Insights

From User Stories to Code in One Day? .....	38
<i>Michał Śmiatek</i>	
Evaluate XP Effectiveness Using Simulation Modeling .....	48
<i>Alessandra Cau, Giulio Concas, Marco Melis, and Ivana Turnu</i>	
Agile Security Using an Incremental Security Architecture .....	57
<i>Howard Chivers, Richard F. Paige, and Xiaocheng Ge</i>	
Quantifying Requirements Risk .....	66
<i>Fred Tingey</i>	

## Social Issues

Social Perspective of Software Development Methods:	
The Case of the Prisoner Dilemma and Extreme Programming.....	74
<i>Orit Hazzan and Yael Dubinsky</i>	
A Framework for Understanding the Factors Influencing Pair Programming Success .....	82
<i>Mustafa Ally, Fiona Darroch, and Mark Toleman</i>	
Empirical Study on the Productivity of the Pair Programming.....	92
<i>Gerardo Canfora, Aniello Cimitile, and Corrado Aaron Visaggio</i>	
The Social Side of Technical Practices .....	100
<i>Hugh Robinson and Helen Sharp</i>	

## Testing

A Survey of Test Notations and Tools for Customer Testing . . . . .	109
<i>Adam Geras, James Miller, Michael Smith, and James Love</i>	
Testing with Guarantees and the Failure of Regression Testing in eXtreme Programming . . . . .	118
<i>Anthony J.H. Simons</i>	
Examining Usage Patterns of the FIT Acceptance Testing Framework . . . .	127
<i>Kris Read, Grigori Melnik, and Frank Maurer</i>	
Agile Test Composition . . . . .	137
<i>Rick Mugridge and Ward Cunningham</i>	

## Tools

E-TDD – Embedded Test Driven Development a Tool for Hardware-Software Co-design Projects . . . . .	145
<i>Michael Smith, Andrew Kwan, Alan Martin, and James Miller</i>	
Multi-criteria Detection of Bad Smells in Code with UTA Method . . . . .	154
<i>Bartosz Walter and Błażej Pietrzak</i>	
An Eclipse Plugin to Support Agile Reuse . . . . .	162
<i>Frank McCarey, Mel Ó Cinnéide, and Nicholas Kushmerick</i>	

## Case Studies

An Approach for Assessing Suitability of Agile Solutions: A Case Study . .	171
<i>Minna Pikkariainen and Ulla Passoja</i>	
XP Expanded: Distributed Extreme Programming . . . . .	180
<i>Keith Braithwaite and Tim Joyce</i>	
A Case Study on Naked Objects in Agile Software Development . . . . .	189
<i>Heikki Keränen and Pekka Abrahamsson</i>	

## Invited Talks

Extreme Programming for Critical Systems? . . . . .	198
<i>Ian Sommerville</i>	
That Elusive Business Value: Some Lessons from the Top . . . . .	199
<i>John Favaro</i>	
Agility – Coming of Age . . . . .	200
<i>Jutta Eckstein</i>	
Another Notch . . . . .	201
<i>Kent Beck</i>	

## Posters and Demonstrations

A Process Improvement Framework for XP Based SMEs . . . . .	202
<i>Muthu Ramachandran</i>	
Standardization and Improvement of Processes and Practices Using XP, FDD and RUP in the Systems Information Area of a Mexican Steel Manufacturing Company . . . . .	206
<i>Luis Carlos Aceves Gutiérrez, Enrique Sebastián Canseco Castro, and Mauricio Ruanova Hurtado</i>	
Multithreading and Web Applications: Further Adventures in Acceptance Testing . . . . .	210
<i>Johan Andersson, Geoff Bache, and Claes Verdoes</i>	
Using State Diagrams to Generate Unit Tests for Object-Oriented Systems . . . . .	214
<i>Florentin Ipate and Mike Holcombe</i>	
The Positive Affect of the XP Methodology . . . . .	218
<i>Sharifah Lailee Syed-Abdullah, John Karn, Mike Holcombe, Tony Cowling, and Marian Gheorge</i>	
Adjusting to XP: Observational Studies of Inexperienced Developers . . . . .	222
<i>John Karn, Tony Cowling, Sharifah Lailee Syed-Abdullah, and Mike Holcombe</i>	
An Agile and Extensible Code Generation Framework . . . . .	226
<i>Dimitrios S. Kolovos, Richard F. Paige, and Fiona A.C. Polack</i>	
UC Workbench – A Tool for Writing Use Cases and Generating Mockups . . . . .	230
<i>Jerzy Nawrocki and Lukasz Olek</i>	
Desperately Seeking Metaphor . . . . .	235
<i>Ben Aveling</i>	
Agile Testing of Location Based Services . . . . .	239
<i>Jiang Yu, Andrew Tappenden, Adam Geras, Michael Smith, and James Miller</i>	
Source Code Repositories and Agile Methods . . . . .	243
<i>Alberto Sillitti and Giancarlo Succi</i>	
Writing Coherent User Stories with Tool Support . . . . .	247
<i>Michał Śmiałek, Jacek Bojarski, Wiktor Nowakowski, and Tomasz Straszak</i>	
BPUF: Big Picture Up Front . . . . .	251
<i>Frank Keenan and David Bustard</i>	

Agile Development Environment for Programming and Testing (ADEPT) –  
Eclipse Makes Project Management eXtreme ..... 255  
*Mike Holcombe and Bhavnidhi Kalra*

Tailoring Agile Methodologies to the Southern African Environment ..... 259  
*Ernest Mnkandla, Barry Dwolatzky, and Sifiso Mlotshwa*

## Panels and Activities

XP/Agile Education and Training ..... 263  
*Angela Martin, Steven Fraser, Rachel Davies, Mike Holcombe,  
Rick Mugridge, Duncan Pierce, Tom Poppendieck, and Giancarlo Succi*

Off-Shore Agile Software Development ..... 267  
*Steven Fraser, Angela Martin, Mack Adams, Carl Chilley,  
David Hussman, Mary Poppendieck, and Mark Striebeck*

The Music of Agile Software Development ..... 273  
*Karl Scotland*

The XP Game ..... 274  
*Pascal Van Cauwenberghe, Olivier Lafontan, Ivan Moore,  
and Vera Peeters*

Leadership in Extreme Programming ..... 276  
*Kent Beck, Fred Tingey, John Nolan, and Steve Freeman*

## Tutorials

Agile Project Management ..... 277  
*Ken Schwaber*

Expressing Business Rules ..... 278  
*Rick Mugridge*

Introduction to Lean Software Development – Practical Approaches  
for Applying Lean Principles to Software Development ..... 280  
*Mary Poppendieck and Tom Poppendieck*

The Courage to Communicate:  
Collaborative Team Skills for XP/Agile Teams ..... 281  
*Diana Larsen*

Test-Driven User Interfaces ..... 285  
*Charlie Poole*

The XP Geography: Mapping Your Next Step,  
a Guide to Planning Your Journey ..... 287  
*Kent Beck*

## Workshops

Lightning Writing Workshop Exchange Ideas on Improving Writing Skills . . . . .	288
<i>Laurent Bossavit and Emmanuel Gaillot</i>	
The Coder's Dojo – A Different Way to Teach and Learn Programming . . .	290
<i>Laurent Bossavit and Emmanuel Gaillot</i>	
Informative Workspace “Ways to Make a Workspace that Gives Your Team Useful FeedBack” . . . .	292
<i>Rachel Davies and Tim Bacon</i>	
Exploring Best Practice for XP Acceptance Testing . . . . .	294
<i>Geoff Bache, Rick Mugridge, and Brian Swan</i>	
Hands-on Domain-Driven Acceptance Testing . . . . .	296
<i>Geoff Bache, Rick Mugridge, and Brian Swan</i>	
How to Sell the Idea of XP to Managers, Customers and Peers . . . . .	299
<i>Jan-Erik Sandberg and Lars Arne Skår</i>	
Agile Contracts – How to Develop Contracts that Support Agile Software Development . . . .	302
<i>Mary Poppendieck and Tom Poppendieck</i>	
When Teamwork Isn't Working . . . . .	303
<i>Tim Bacon and Dave Hoover</i>	
The Origin of Value: Determining the Business Value of Software Features . . . . .	305
<i>David L. Putman and David Hussman</i>	
The Drawing Carousel: A Pair Programming Experience . . . . .	308
<i>Vera Peeters and Peter Schrier</i>	
Agile Development with Domain Specific Languages: Scaling Up Agile – Is Domain-Specific Modeling the Key? . . . . .	311
<i>Alan Cameron Wills and Steven Kelly</i>	

## Ph.D. and Master's Symposium

A Thinking Framework for the Adaptation of Iterative Incremental Development Methodologies . . . . .	315
<i>Ernest Mnkandla</i>	
Exploring XP's Efficacy in a Distributed Software Development Team . . . .	317
<i>Alessandra Cau</i>	

Agile Methods for Embedded Systems .....	319
<i>Dirk Wilking</i>	
Tool Support for the Effective Distribution of Agile Practice .....	321
<i>Paul Adams and Cornelia Boldyreff</i>	
The Software Hut – A Student Experience of eXtreme Programming with Real Commercial Clients .....	323
<i>Bhavnidhi Kalra, Chris Thomson, and Mike Holcombe</i>	
Eclipse Platform Integration of Jester – The JUnit Test Tester.....	325
<i>Simon Lever</i>	
Extreme Programming: The Genesys Experience .....	327
<i>Susheel Varma and Mike Holcombe</i>	
Shared Code Repository: A Narrative .....	329
<i>Susheel Varma and Mike Holcombe</i>	
<b>Author Index</b> .....	331