



PATTERNS 2011

The Third International Conferences on Pervasive Patterns and Applications

September 25-30, 2011
Rome, Italy

PATTERNS 2011 Editors

Fritz Laux, Reutlingen University, Germany

René Reiners, Fraunhofer FIT - Sankt Augustin, Germany

Alfred Zimmermann, Reutlingen University, Germany

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2011) by International Academy, Research, and Industry Association (IARIA)
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2012)

International Academy, Research, and Industry Association (IARIA)
412 Derby Way
Wilmington, DE 19810

Phone: (408) 893-6407
Fax: (408) 527-6351

petre@aria.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

PATTERNS 1: DOMAIN-ORIENTED PATTERNS

Information Demand Patterns.....	1
<i>Kurt Sandkuhl</i>	
A Pattern Language for Architecture Assessments of Service-oriented Enterprise Systems.....	7
<i>Alfred Zimmermann, Fritz Laux, René Reiners</i>	
A Novel Live 3D Objects Reconstruction Scheme.....	13
<i>Hui Zheng, Jie Yuan, Sidan Du</i>	
Application of Feature Point Detection and Matching in 3D Objects Reconstruction.....	19
<i>Jie Yuan, Ting Feng, Yu Zhou, Yao Yu</i>	

PATTERNS 2: PATTERNS AT WORK

Boosted Wireless Capsule Endoscopy Frames Classification.....	25
<i>Giovanni Gallo, Alessandro Torrisi</i>	
Improved Trend Following Trading Model by Recalling Past Strategies in Derivatives Market.....	31
<i>Simon Fong, Jackie Tai</i>	
Visualizing Multiple Websites with Views of Structural Growth, Dynamic Performance and Peer Comparison.....	37
<i>Simon Fong, Si Meng Ho, Cheng I Ma</i>	
Application of Motion Vector in Live 3D Object Reconstruction.....	41
<i>Renshu Gu, Jie Yuan, Sidan Du</i>	

PATTERNS 3: DISCOVERY AND DECISION PATTERNS

Patterns of Emotion Driven by Affect State and Environment.....	47
<i>Paul Joseph, Haim Levkowitz</i>	
Towards an Adaptive Forecasting of Earthquake Time Series from Decomposable and Salient Characteristics.....	53
<i>Simon Fong, Nannan Zhou</i>	
Introducing New Pattern Language Concepts and an Extended Pattern Structure for Ubiquitous Computing Application Design Support.....	61
<i>René Reiners, Irina Astrova, Alfred Zimmermann</i>	
Word Spotting for Arabic Handwritten Historical Document Retrieval using Generalized Hough Transform.....	67
<i>Nabil Aouadi, Afef Kacem</i>	

PATTERNS 4: SOFTWARE PATTERNS I

Practical Math and Simulation in Software Design.....	72
<i>Jerry Overton</i>	
Evaluating Data Modeling Aspects for Home Telemonitoring	78
<i>Vilmos Szcs, Ádám Zoltán Végh, Miklós Kasza, Vilmos Bilicki</i>	
A Rewriting Logic-based Meta-Model for Design Patterns Formalization	84
<i>Halima Douibil, Kamel Boukhelfa, Faiza Belala</i>	
Pattern-based Software Design and Adaptation	90
<i>Hassan Gomaa</i>	

PATTERNS 5: SOFTWARE PATTERNS II

Issues of Persistence Service Integration in Enterprise Systems	96
<i>Ádám Zoltán Végh, Vilmos Szcs, Miklós Kasza, Vilmos Bilicki</i>	

Case Study Towards Implementation of Pure Aspect-oriented Factory Method Design Pattern.....	102
<i>Žilvinas Vaira, Albertas Caplinskas</i>	
A Language for Modeling Patterns for Extra-Functional Requirements	108
<i>Brahim Hamid</i>	
A Formalization of UML AD Refinement Patterns in Event B	116
<i>Ahlem Ben Younes, Leila Jemni Ben Ayed</i>	
A Quality Control System using Texture Analysis in Metallurgy	122
<i>Jonathan Blackledge, Dmitriy Dubovitskiy</i>	

PATTERNS 6: SECURITY PATTERNS

Prediction of Distortion Patterns in Image Steganography by Means of Fractal Computing.....	128
<i>Shanyu Tang, Yongfeng Huang</i>	
Reducing User Error by Establishing Encryption Patterns.....	133
<i>Anthony Gabrielson, Haim Levkowitz</i>	
Application-Domain Classification for Security Patterns	138
<i>Michaela Bunke, Rainer Koschke, Karsten Sohr</i>	
Patterns Combining Reliability and Security	144
<i>Ingrid A. Buckley, Eduardo B. Fernandez, Maria M. Larrondo-Petrie</i>	
A Systematic Security Analysis of Information Systems	151
<i>Roberto Ortiz, Santiago Moral-Rubio, Javier Garzás, Eduardo Fernandez-Medina</i>	
Author Index	