Proceedings of the 14th International
Software Product Line Conference
Volume 2 – Workshops, Industrial Track, Doctoral
Symposium, Demonstrations and Tools
Jeju Island, South Korea, 13-17 September 2010

Goetz Botterweck,
Stan Jarzabek,
Tomoji Kishi,
Jaejoon Lee,
Steve Livengood
(eds.)
# Table of Contents

**Workshops** .......................................................................................................................... 1

**ACOM 2010** .......................................................................................................................... 3

Stability of Software Product Lines with Class-Aspect Interfaces: A Comparative Study ......................... 5
  *Francisco Dantas, Camila Nunes, Alessandro Garcia, Uirá Kulesza and Carlos Lucena*

Assessing Modularity of Feature Concern .................................................................................. 11
  *Sagar Sunkle*

Modularity Assessment Framework for Context-dependent Formal Specifications ......................... 13
  *Naqyasu Ubayashi*

DaRT++: Dashboard for Reengineering Tools ............................................................................ 15
  *Ji-Yong Jung and Tae-Hyung Kim*

Benchmarking Stability of Aspect-Oriented Product-Line Decompositions ..................................... 21
  *Francisco Dantas, Eduardo Figueiredo, Alessandro Garcia, Claudio Sant’Anna, Uirá Kulesza, Nêlio Cacho, Sérgio Soares, Thais Batista, Roberta Coelho, Maurício Alfêrez, Ana Moreira, Afonso Pimentel and Jodo Araujo*

Coverage and Conformance Metrics: Evaluation of Legacy Software for Software Product Line Asset Development ......................................................................................................................... 27
  *Hyesun Lee and Kyo C. Kang*

Feature Volatility Assessment ........................................................................................................ 33
  *Warren Baelen, Yuanfang Cai, Robert Dyer and Hridesh Rajan*

Ontology Support for Abstraction Layer Modularization .................................................................. 35
  *Hyun Cho and Jeff Gray*

**DSPL 2010** .......................................................................................................................... 41

Requirements for Evolvable Dynamic Software Product Lines .......................................................... 43
  *Muhammad Adeel Talib, Tuan Nguyen, Alan Colman and Jun Han*

Enhancing Runtime Variability in Software Product Lines through Service-orientation ......................... 47
  *Matthias Galster*

Characterizing Dynamic Software Product Lines - A Preliminary Mapping Study .................................. 53
  *Vanilson Arruda Burégio, Silvio Lemos Meira and Eduardo Santana de Almeida*

How dynamic is your Dynamic Software Product Line? .................................................................... 61
  *Nelly Bencomo, Jaejoon Lee and Svein Hallsteinsen*

**FMSPLE 2010** ....................................................................................................................... 69

First International Workshop on Formal Methods in Software Product Line Engineering ................... 71
  *Ina Schaefer and Ralf Carbon*

Formally Specifying Families of Space Exploration Missions .................................................................. 73
  *Mike Hinchey*
Automated Analysis of Conflicts in Software Product Lines

Enrique Martinez and Gerardo Schneider

Merging Feature Models

Pim van den Broek, Ismênia Galvão and Joost Noppen

Towards a Theory of Views for Feature Models

Dave Clarke and José Proença

Feature Petri Nets

Radu Muschevici, Dave Clarke and José Proença

Optimization of Product Instantiation using Integer Programming

Pim van den Broek

An Effective Approach for Verifying Product Lines in Presence of Variability Models

Hamideh Sabouri and Ramtin Khosravi

HATS - A Formal Software Product Line Engineering Methodology

Dave Clarke, Nikolay Diakov, Reiner Hähnle, Einar Broch Johnsen, Germán Puebla, Balthasar Weitzel and Peter Y. H. Wong

Integrating Software Safety and Product Line Engineering using Formal Methods: Challenges and Opportunities

Martin Becker, Soeren Kemmann and K.C. Shashidhar

MAPLE 2010


Abel Gómez, Ma Eugenia Cabello and Isidro Ramos

Model-Based Generation of Test Oracles for Embedded Software Product Lines

Ftorian Markert and Sebastian Oster

From Products to Product Lines Using Model Matching and Refactoring

Julia Rubin and Marsha Chechik

Exploring the Synergies Between Feature Models and Ontologies

Martin Pauereng Johansen, Franck Fleurey, Mathieu Acher, Philippe Collet and Philippe Lahire

Assessing Model-Driven Software Product Lines for Lean and Agile Development: An Experience Report

Antti Jäskeläinen, Mika Kataria, Julia Rubin, Tali Yatzkar-Haham and Mila Keren

Automated Reasoning for Derivation of Model-Driven SPLs

Hugo Arboleda, Juan Francisco Diaz, Victor Vargas, Jean-Claude Royer

SCALE 2010

New Challenge of Scalable Modeling

Natsuko Noda and Tomoji Kishi

Mining Software Repository to Support Scalable Modeling of Product Lines

Kentaro Yoshimura
Towards Scalable and Conflict-Free Configuration of Features ............................... 197
Hyunsik Choi and Kyo C. Kang

Problem Factor Portfolio Analysis for Product Line Architecture Refactoring ................. 205
Takashi Maki and Tomoji Kishi

Generation Language - Enabling Scalability for Product Realisation .......................... 211
Jabier Martinez

VISPLE 2010 ........................................................................................................... 217

Using Flow Maps to Visualize Product Attributes during Feature Configuration ............. 219
André Heuer, Kim Lauenroth, Marco Müller

Towards Effective Visual Modeling of Complex Software Product Lines ....................... 229
Jan-Nils Scheele

Industrial Track ....................................................................................................... 239

Industrial Track Preface ......................................................................................... 241

Testing for the embedded open platform ....................................................................... 243
Minyoung Kim, Eunseok Lee, Kangtae Kim

Product Line Metrics for Legacy Software in Practice ............................................... 247
Christian Berger, Holger Rendel, Bernhard Rumpe, Carsten Busse, Thorsten Jablonski and Fabian Wolf

Exploring the Business Case for Transitioning from a Framework-based Approach to a Software Product Line Engineering Approach .................................................. 251
Bedir Tekinerdogan, Eray Tüzin, Ediz Saykol and Havelsan A. Ş.

An Experience Report of Introducing Product Line Engineering across the Board ........... 255
Takashi Iwasaki, Makoto Uchiba, Jun Ohtsuka, Koji Hachiya, Tsuneo Nakanishi, Kenji Hisazumi and Akira Fukuda

A Robust-Reference-Architecture-Centric Approach for High Availability SPLE in Security Inspection Domain ................................................................. 259
Dong Li

Introducing Product Line Architectures in the ERP Industry: Challenges and Lessons Learned ................................................................. 263
Haitham S. Hamza, Jabier Martinez and Carmen Alonso

Application of Software Product Line Principles to Multi-Sector Software Development ................................................................. 267
Melike Demir, Ayse Bener, Tolga Kurt and Emin Anarim

Doctoral Symposium ................................................................................................ 269

Model-driven Project Management in Software Product Lines ..................................... 271
Hyun Cho

Architecture Query Language Framework .................................................................... 279
Bartosz Michalik

Consistent Refinement of Variable Domain Design Specifications ............................... 287
Vanessa Stricker
Demonstrations and Tools .................................................................................................................. 293

A Scalable Multiple Perspective Variability Management CASE Tool ............................................... 295
  Rabih Bashroush

Modeling and Building Software Product Lines with pure::variants .............................................. 296
  Danilo Beuche

The BigLever Software Gears Systems and Software Product Line Lifecycle Framework ................. 297
  Charles W. Krueger

Implementing Code-Level Product Lines by Utilizing Generic Variability Services .......................... 298
  Itay Maman, Tomer Amarilio, Dolev Dotan, Andrei Kirshin, Julia Rubin and Tali Yatzkar Haham

CVL Tool -- Modeling Variability in SPLs ......................................................................................... 299
  Andreas Svendsen, Xiaorui Zhang, Franck Fleurey, Øystein Haugen, Gøran K. Olsen and
  Birger Møller-Pedersen