



14th CONFERENCE ON PATTERN LANGUAGES OF PROGRAMS

September 5th - 8th, 2007, Monticello, IL, USA

Proceedings



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Welcome to PLoP 2007

Welcome to PLoP '07, the 14th Conference on Pattern Languages of Programs, a premier event for pattern authors and pattern enthusiasts to gather, discuss and learn more about patterns, pattern writing, pattern reviewing, shepherding, software development, collaboration, and more.

The conference program offers a rich set of activities that promote a friendly and effective environment to share expertise, and to give and receive feedback from fellow authors.

The pre-conference activities started Wednesday morning with the BootCamp, a special session aimed at people new to patterns, and led by Linda Rising and Robert Hanmer. Writers' Workshops are the primary focus of our time at PLoP and it will be during them that we will discuss and review each other's papers in a very fruitful way. Papers of each Writing Group will evolve during PLoP with the mentoring of very experienced pattern writers, concretely by Linda Rising, Brian Foote, Richard Gabriel, and Ralph Johnson.

The Invited Talks will be the time to get inspired and energized by the words and thoughts of Richard Gabriel, Linda Rising, and Ralph Johnson on hot topics related to design, agility, and enterprise application patterns. Other activities, such as the 'Birds of a Feather' (BoF), or the Focus Groups allow you to organize your own sessions. Just announce your topics!

And last but not least, we have Games, a well-established and very important activity at PLoP. Guided by Robert Hanmer, the games will help us (re)energize our body and mind, to collaborate better, and to reinforce a community of trust. Some of the games have become 'traditions, while others will be a surprise.

This year we are back to this beautiful scenery of Allerton Park, the original PLoP location. Allerton is a beautiful place so be sure to take time to enjoy the scenery.

We wish you enjoyment at PLoP07!

Ademar Aguiar and Joe Yoder
PLoP 2007 Chair and Program Chair

PLoP® 2007 Conference Proceedings

Pattern Languages of Programs (PLoP®) conference is a premier event for pattern authors and pattern enthusiasts to gather, discuss and learn more about patterns and software development.

Preliminary versions of these papers were workshopped at Pattern Languages of Programming (PLoP) '07 September 5th - 8th, 2007, Monticello, IL, USA. Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission. Copyright is held by the authors.

PLoP 2007 Conference Description

Ademar Aguiar, General Chair
Universidade do Porto
ademar.aguiar@fe.up.pt

Joseph Yoder, Program Chair
The Refactory, Inc.
joe@refactory.com

Pattern Languages of Programs (PLoP) conference is a place for pattern authors to have their pattern languages reviewed by fellow authors. The purpose of PLoP is to promote development of pattern languages on all aspects of software, including design and programming, software architecture, user interface design, domain modeling, and software process. Domain-specific patterns were encouraged for PLoP 2007.

PLoP 2007 was held in Monticello, IL, September 5-8. Following PLoP, a Mini-PLoP was held in conjunction with OOPSLA 2007 in Montreal, Canada from October 21-25, 2007.

We invited contributions from practitioners and researchers on:

- Patterns and pattern languages
- Critiques of patterns and pattern languages
- Research on patterns and pattern languages
- Case studies of the use of patterns and pattern languages

PLoP is different from other conferences. It is run in the "writers' workshop" style, as described in [Richard Gabriel's book](#). Before the conference, authors interact with a "shepherd" who helps them improve their paper to make it as ready for PLoP as possible. A program committee reviews the papers for final acceptance after they have gone through the shepherding process. The writers workshops provide more feedback, and so authors revise their paper again after PLoP. The papers here are the version produced by authors after PLoP, not the ones reviewed at PLoP.

Invited Talks

At the PLoP '07 conference a number of invited speakers spoke on topics pertinent to pattern writing and developing trends in the software community. Following are list of the invited talks, including speaker information and a short synopsis of the talk:

Design Beyond Human Abilities

by Richard P. Gabriel, Thursday, 6th, 19:00-20:30

For 50 years we've been developing a science and practice of software based on understandings and explorations of software systems of modest size--centering on systems of a few tens of thousands of lines of code but extending up to about 50 million lines. Scale makes a difference: scale of time and of size. The prospect of ultra large scale software systems--systems with perhaps trillions of lines of code encompassing millions of processors, ranging from sensors the size of dust to the largest servers, with much of it with real-time requirements will change everything. Imagine, if you can, how such systems will be made. Can they truly be said to be designed at all? The realities of such systems will force us to re-examine the very foundations of computing and software engineering; our concepts of abstraction, modularity, information hiding, pure static typing, and many other things will need to be refined, expanded, or reformulated. Consider, further, that such systems in normal circumstances cannot be routinely re-installed nor globally rebooted, and when used in life-critical situations, they must not stop. Data must be readable and usable for decades, even as standards and hardware changes.

This talk examined the nature of such systems, especially how they are designed, built, and what is needed to keep them running. The talk took both a philosophical and technical look at some of the aspects of ultra large scale software that make us need to revise our foundations and what those revisions will be like.

Richard P. Gabriel is a Distinguished Engineer at IBM Research, looking into the architecture, design, and implementation of extraordinarily large, self-sustaining systems. He is the award-winning author of four books and a poetry chapbook. He lives in California.

Are Agilists the Bonobos of Software Development?

Linda Rising, Friday, 7th, 11:00-12:00

The chimpanzees and the bonobos are the animals whose genetic make-up is closest to that of human beings, but their "cultures" (and, yes, these animals definitely have well-defined cultures) are very different. The chimpanzees are aggressive, and operate in a strict, alpha-male-dominated hierarchy, while the bonobos are gentle and promiscuous! What sort of tie could this have for those of us who favor agile development over plan-driven?

Linda Rising has a Ph.D. from Arizona State University in the field of object-based design metrics and a background that includes university teaching and industry work in telecommunications, avionics, and strategic weapons systems. An internationally known presenter on topics related to patterns, retrospectives, agile development approaches, and the change process, Linda is the author of numerous articles and four books--Design Patterns in Communications, The Pattern Almanac 2000, A Patterns Handbook, and Fearless Change: Patterns for Introducing New Ideas, written with Mary Lynn Manns. Find more information about Linda at www.lindarising.org.

Patterns of Enterprise Application Architecture

Ralph Johnson, Saturday, 8th, 10:45-11:45

Several books document parts of the emerging standard architectural style for building enterprise computing systems using OO technology. Martin Fowler's book "Patterns of Enterprise Application Architecture" is the most well-known, but Eric Evan's "Domain Driven Design" describes some key aspects of this style that Martin Fowler does not describe, and is closely related. Both of these books emphasize the importance of the domain model, but neither describe the patterns of the domain model. These patterns are described in other books, such as Fowler's "Analysis Patterns", Silverston's "The Data Model Resource Book" and Hay's "Data Model Patterns". This talk showed how these books are related and what is still missing to document the architectural style of building enterprise applications based on object-oriented domain models.

Ralph Johnson is a Research Associate Professor at the University of Illinois at Urbana-Champaign. He is one of the four co-authors of "Design Patterns" and the conference chair of the first PLoP. He has been to every PLoP since, in large part because they have been close to his home and organized by his students and ex-students. He is an editor of the new Transactions on Pattern Languages of Programming.

Presentations

The PLoP '07 conference also hosted presentations concerning a number of hot topics in the patterns community. Following are a list of presentations from PLoP 2007:

- **"Pattern design in the context space: A methodological framework for designing auditory display with patterns"**
by Christopher Frauenberger, Tony Stockman, Marie-Luce Bourguet
- **"Software Pattern Communities: Current Practices and Challenges"**
by Scott Henninger, Victor Correa
- **"A Pattern Story for Aspect-Oriented State Machines"**
by Mark Mahoney, Tzilla Elrad
- **"Design Patterns in Eos"**
by Hridesh Rajan
- **"A Metric for Measuring Abstraction Level of Design Patterns"**
by Atsuto Kubo, Hironori Washizaki, Yoshiaki Fukazawa

Writer's Workshops

'Girl with a Scarf' group, led by Linda Rising



"Misuse Patterns in VoIP"

by Juan C. Pelaez, Eduardo B. Fernandez, Maria M. Larrondo-Petrie, Christian Wieser

"Scalability Design Patterns"

by Kanwardeep Singh Ahluwalia

"Patterns for Access Control in Distributed Systems"

by Nelly Delessy, Eduardo B. Fernandez, Maria M. Larrondo-Petrie, Jie Wu

"Network Congestion Control at the Application Layer"

by Paul Adamczyk, Federico Balaguer, Munawar Hafiz, Craig L. Robinson

"SEAMLESS APPLICATION" for Seamless and Personal Mobile Computing

by Paul Austrem

'Fu Dog' group, led by Ralph Johnson



"SIMD: An Additional Pattern for PLPP (Pattern Language for Parallel Programming)"

by Berna L. Massingill, Timothy G. Mattson, Beverly A. Sanders

"Patterns for Refactoring to Aspects: an incipient Pattern Language"

by Miguel Pessoa Monteiro, Ademar Aguiar

"A Pattern Story for Combining Crosscutting Concern State Machines"

by Mark Mahoney, Tzilla Elrad

"Design Pattern Implementations in Eos"

by Hridesh Rajan

"Telecom Service Delivery Design Patterns "

by Atul Jain

'Sun Singer' group, led by Richard Gabriel



"Hands-On Release Planning with Poker Chips"

by Jason Yip

"Rendering Patterns for Adaptive Object-Models"

by Leon Welicki, Joe Yoder, Rebecca Wirfs-Brock

"Where to go and what to show - More patterns for a pattern language of interactive information graphics"

by Christian Kohls, Tobias Windbrake

"Software Pattern Communities: Current Practices and Challenges"

by Scott Henninger, Victor Correa

'Centaur' group, led by Brian Foote



"Stateless Process Enactment"

by Raf Haesen, Lotte De Rore, Stijn Goedertier, Monique Snoeck, Wilfried Lemahieu, Stephan Poelmans

"Batch Lazy Loader"

by Ryan Senior

"Pattern design in the context space: A methodological framework for designing auditory display with patterns"

by Christopher Frauenberger, Tony Stockman, Marie-Luce Bourguet

"The Selex Design Pattern: Decomposing State Machines Cluttered by Message Multiplexing"

by Frank Roessler, Birgit Geppert

"A Metric for Measuring Abstraction Level of Design Patterns"

by Atsuto Kubo, Hironori Washizaki, Yoshiaki Fukazawa

Committees

The PLoP Conference would not be a success without the volunteer help of the shepherds and program committee members. The shepherds devote hours of their time to helping authors improve their papers pre-conference. The program committee members help organize the conference, handle requests, and communicate with attendees.

We would like to thank all those who helped make PLoP 2007 a complete success.

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