



PLoP® 2022 Conference Proceedings
29th CONFERENCE ON PATTERN LANGUAGES OF PROGRAMS

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Proceedings

Editors and PLoP Program Chairs: Eduardo Guerra and Mary Lynn Manns

Supporting Editors: Joseph Yoder and Michael Weiss

SugarLoafPLoP Program Chairs: Paulo Meireles and Phyllipe Lima



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Welcome to PLoP 2022

The Pattern Languages of Programs (PLoP™) conference is the premier event for pattern authors and enthusiasts to gather, discuss, and learn more about patterns, programming, software development, and more!

This year, PLoP was held online. The conference is not traditional—during the main event conference days, it took place over a set of Writers' Workshops where pattern papers were reviewed by fellow authors, led by expert workshop leaders. During the year, several events called PLoPourri events gave to the participants lots of opportunities to learn about patterns, pattern languages, and pattern writing. In this edition, SugarLoafPLoP (Latin-American Conference on Pattern Languages of Programs) joined the event as a track.

Writers' Workshops are the primary focus of our time at PLoP. They allow authors to discuss and review each other's papers in a very fruitful way. We had five groups of four to five papers each, selected from an initial set of submissions after a considerable period of shepherding. Three other papers were selected for a writing group and had the opportunity of being evolved during PLoP with the mentoring of an experienced pattern writer.

In addition to the Writers' Workshops, we had one invited plenary talk, "Technology Last - Christopher Alexander's approach to software development" by Greg Bryant, and a discussion session, "Design Patterns, then and now" with the participation of Ward Cunningham, Brian Foote, Joseph Yoder and Rebecca Wirfs-Brock. Last but not least, we had some Games in the opening and closing session, a well-established and very important activity at PLoP. Guided by Mary Lynn Manns, the games helped us to break the ice, exercise our bodies and minds, collaborate better, and reinforce our community of trust.

The PLoPourri events were held throughout the year, approximately one per month. Topics included Pattern Mining which taught attendees how to extract patterns from proven experiences, Teaching with Patterns, Cloud Architecture, The Future of Education: Patterns for reshaping learning and the campus, a virtual Campfire with stories of the Fearless Change patterns, and a Dialogue Workshop with patterns from Iba Lab in Japan. There was a diverse group of attendees with enlightening discussions and a lot of fun.

After the conference, the authors were strongly encouraged to further evolve their papers in order to accommodate suggestions for improvement gathered during the discussions at the conference. A final version of these evolved papers are published in the ACM Digital Library as PLoP 2022 Proceedings.

We would like to thank all authors, shepherds, reviewers, and members of the Program Committee for their time and collaboration. Thank you all for making PLoP 2022 possible!

Eduardo Guerra and Mary Lynn Manns, PLoP 2022 Chairs

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PLoP 2022 Conference Description

Pattern Languages of Programs (PLoP) conference is a venue for pattern authors to have their pattern languages reviewed by fellow authors. The purpose of PLoP is to promote the development of pattern languages, primarily about aspects of software: design and programming, testing, software architecture, user interface design, domain modelling, education, human relations, and software processes. Patterns and pattern languages for domains outside software are also welcome.

PLoP 2022 was held online from October 17 - 24, 2022.

We invited contributions from practitioners and researchers on the following:

- 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 as a "writers' workshop," as described in Richard Gabriel's book, *Writers' Workshops and the Work of Making Things*. Before the conference, authors interact with a *shepherd* who helps them improve their paper to prepare it for PLoP. After shepherding, the program committee reviews the papers for final acceptance. The writers' workshops provide more feedback, and authors revise their papers again after PLoP. The papers here are these final, revised versions, not the ones reviewed at PLoP.

PLoP 2022 Writers' Workshops

Writers' workshops help the pattern community to improve their patterns and pattern languages. These workshops are the primary focus at PLoP, and in them we discuss accepted papers. Below is the list of papers that were workshopped at PLoP 2022 and are included in these proceedings.

Neo, led by Valentino Vranić

"A Catalog of Security Patterns"

by André Cordeiro, André Vasconcelos, and Miguel Correia

"An abstract security pattern for Zero Trust Access Control"

by Andrei Brazhuk, and Eduardo B. Fernandez

"Patterns for Anonymity Enhancing Cryptocurrencies Non-Custodian Mobile Wallets"

by Francisco Gindre, Matias Urbieto, and Gustavo Rossi

"A Pattern Language of Multi-Organizational Collaboration in Public Sector in Developing Countries"

by Haji Gul Wahaj, Valentino Vranić

Morpheus, led by Michael Weiss

"Recurring Structures of Subcontract Management in System Outsourcing"

by Haji Gul Wahaj, Valentino Vranić

"Software Engineering Patterns for Machine Learning Applications (SEP4MLA) - Part 4 - ML Gateway Routing Architectur"

by Hironori Washizaki, Foutse Khomh, Yann-Gaël Guéhéneuc

"Patterns for Polyglot Persistence Layer"

by Fernando Pereira, Eduardo Guerra, and Reinaldo R. Rosa

"Building Customer Capacity Through Organizational Patterns Improves the Development" Team's Understanding"

by Mohammad Ismail Khattab, Valentino Vranić

"Patterns for Remote Teams"

by Bitá Zaripour, Michael Weiss

Trinity led by Rebecca Wirfs-Brock

"Patterns of Recreating Reality in Games"

by Branislava Vranić, Valentino Vranić

"Applying Idioms for Synchronization Mechanisms: Synchronizing communication components for the Fast Fourier Transform"

by Jorge L. Ortega-Arjona

"Applying Design Patterns for Communication Components: Communicating CSE components for the Laplace Equation"

by Jorge L. Ortega-Arjona

"Observations on growing a software design umwelt"

by Rebecca Wirfs-Brock

"The Abstract Secure Communication Path (ASCP) pattern and a derived VPN pattern"

by Eduardo Fernandez, and Andrei Brazhuk

Oracle led by Rosana Braga

"Building a Pattern Language for Serverless Architectures"

by Leandro Rodrigues da Silva, João Francisco Lino Daniel, and Alfredo Goldman

"C2-P2: A Chatbot-based approach for navigation in Pattern collections"

by Rafael Tofoli Sereickikas, Anathan Telles Pereira, Vitor Pacheco, Luciana A.M. Zaina, and Eduardo Guerra

"Review-based Comparison of Design Pattern Detection Tools"

by Rodrigo Moreira, Eduardo Fernandes, and Eduardo Figueiredo

"A framework for visualizing HCI pattern languages through network diagrams"

by Diego Moreira da Rosa, Andrea Gnecco, Milene Silveira, Christian Mattjie, Rodrigo C. Barros, Sofia Apuzzo, Marcio Sarroglia Pinho, and Isabel Manssour

Smith led by Pavel Hruby

"Foundational DevOps Patterns"

by Paulo Marques, and Filipe Correia

"Towards a Pattern Language for improving UX work in Software Startups"

by Joelma Choma, Helen Sharp, Leonor Barroca, Cleidson de Souza, Leticia Machado, and Luciana Zaina

"Event-Driven Microservice Architecture: Patterns for Enterprise Applications Supporting Business Agility"

by Pavel Hruby, and Christian Scheller

**"Management Patterns for Software Architecture Revolution – Part 1:
Creating Awareness, Preparing and Measuring"**

by Marden Neubert, and Joseph W. Yoder

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 before the 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 2022 a complete success!

Conference Organization Committees

Program Co-Chair	Eduardo Guerra (Free University of Bozen-Bolzano, Mary Lynn Manns (Fearless Change, Author)
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