
Publications

Michele Lanza

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The vast majority of the publications listed in this document can be downloaded from my website currently located at <https://www.inf.usi.ch/lanza/>

This document features several acronyms. They are explained in the Glossary at the end of the document.

1 Books

B2. **Object-Oriented Metrics in Practice - Using Software Metrics to Characterize, Evaluate, and Improve the Design of Object-Oriented Systems**

Michele Lanza, Radu Marinescu
Springer, 2006

DOI: <https://doi.org/10.1007/3-540-39538-5>

B1. **The FAMOOS Object-Oriented Reengineering Handbook**

Holger Bär, Markus Bauer, Oliver Ciupke, Serge Demeyer, Stéphane Ducasse, Michele Lanza, Radu Marinescu, Robb Nebbe, Oscar Nierstrasz, Michael Przybilski, Tamar Richner, Matthias Rieger, Claudio Riva, Anne-Marie Sassen, Benedikt Schulz, Patrick Steyaert, Sander Tichelaar, Joachim Weisbrod
1999

2 Theses

Th2. **Object-Oriented Reverse Engineering - Coarse-grained, Fine-grained, and Evolutionary Software Visualization**

Michele Lanza
PhD Thesis, University of Bern, Switzerland, 2003

Ernst Denert Software Engineering Award

Th1. **Combining Metrics and Graphs for Object Oriented Reverse Engineering**

Michele Lanza
Master's Thesis, University of Bern, Switzerland, 1999

3 Book Chapters

BC8. **Mining, Analyzing, and Evolving Data-Intensive Software Ecosystems**

Csaba Nagy, Michele Lanza, Anthony Cleve
In "Software Ecosystems", pp. 281 - 314, Springer, 2023

DOI: https://doi.org/10.1007/978-3-031-36060-2_11

BC7. **Architecture and Computer Science, Computer Science and Architecture**

Michele Lanza, Marcello Nasso
In "9 x 9 - A Method of Design", pp. 508 - 520, Birkhauser, 2018

DOI: <https://doi.org/10.1515/9783035610994-016>

BC6. **EvoSpaces - Multi-Dimensional Navigation Spaces for Software Evolution**

Sazzadul Alam, Sandro Boccuzzo, Richard Wettel, Philippe Dugerdil, Harald Gall, Michele Lanza
In "Human Machine Interaction", pp. 167 - 192, LNCS Series. Springer, 2009

DOI: https://doi.org/10.1007/978-3-642-00437-7_7

BC5. **Analyzing Software Repositories to Understand Software Evolution**

Marco D'Ambros, Harald Gall, Michele Lanza, Martin Pinzger
In "Software Evolution", pp. 37 - 67, Springer, 2008

DOI: https://doi.org/10.1007/978-3-540-76440-3_3

BC4. **CodeCrawler - An Extensible and Language Independent 2D and 3D Software Visualization Tool**

Michele Lanza, Stéphane Ducasse
In "Tools for Software Maintenance and Reengineering", pp. 74 - 94, RCOST / Software Technology Series. Franco Angeli, 2005

BC3. **Moose - A Collaborative and Extensible Reengineering Environment**

Stéphane Ducasse, Tudor Gîrba, Michele Lanza, Serge Demeyer
In "Tools for Software Maintenance and Reengineering", pp. 55 - 71, RCOST / Software Technology Series. Franco Angeli, 2005

BC2. **CodeCrawler**

Michele Lanza, Stephane Ducasse

In "The FAMOOS Object-Oriented Reengineering Handbook", pp. 31 - 64, 1999

BC1. **Program Visualization and Metrics**

Michele Lanza

In "The FAMOOS Object-Oriented Reengineering Handbook", pp. 241-247, 1999

4 Journal Articles

- J33. **The Human Side of Fuzzing: Challenges Faced by Developers During Fuzzing Activities** Journal 1st Presentation at FSE 2024
Olivier Nourry, Yutaro Kashiwa, Bin Lin, Gabriele Bavota, Michele Lanza, Yasutaka Kamei
In ACM Transactions on Software Engineering and Methodology (TOSEM), Vol. 33, No. 1, Art. 14, pp. 1-26. ACM, 2024
DOI: <https://doi.org/10.1145/3611668>
- J32. **A Comprehensive Evaluation of SZZ Variants Through a Developer-informed Oracle**
Giovanni Rosa, Luca Pascarella, Simone Scalabrino, Rosalia Tufano, Gabriele Bavota, Michele Lanza, Rocco Oliveto
In Journal of Systems & Software (JSS), Vol. 202, pp. 111729, Elsevier, 2023
DOI: <https://doi.org/10.1016/j.jss.2023.111729>
- J31. **CodeCity: A Comparison of On-Screen and Virtual Reality**
David Moreno-Lumbreras, Roberto Minelli, Andrea Villaverde, Jesus Gonzalez-Barahona, Michele Lanza
In Journal of Information and Software Technology (IST), Vol. 153, pp. 107064, Elsevier, 2023
DOI: <https://doi.org/10.1016/j.infsof.2022.107064>
- J30. **Opinion Mining for Software Development: A Systematic Literature Review**
Bin Lin, Nathan Cassee, Alexander Serebrenik, Gabriele Bavota, Nicole Novielli, Michele Lanza
In ACM Transactions on Software Engineering and Methodology (TOSEM), Vol. 31, No. 3, pp. 38:1-38:41. ACM, 2022
DOI: <https://doi.org/10.1145/3490388>
- J29. **Quick Remedy Commits and Their Impact on Mining Software Repositories**
Fengcai Wen, Csaba Nagy, Gabriele Bavota, Michele Lanza
In Journal of Empirical Software Engineering (EMSE), Vol. 27, No. 1, pp. 1-14. Springer, 2022
DOI: <https://doi.org/10.1007/s10664-021-10051-z>
- J28. **How Software Refactoring Impacts Execution Time** Journal 1st Presentation at ASE 2022
Luca Traini, Daniele Di Pompeo, Michele Tucci, Bin Lin, Simone Scalabrino, Gabriele Bavota, Michele Lanza, Rocco Oliveto, Vittorio Cortellessa
In ACM Transactions on Software Engineering and Methodology (TOSEM), Vol. 31, No. 2, Art. No. 25, pp. 25:1-25:23. ACM, 2022
DOI: <https://doi.org/10.1145/3485136>
- J27. **Why Do Developers Reject Refactorings in Open-Source Projects?**
Jevgenija Pantuichina, Bin Lin, Fiorella Zampetti, Massimiliano Di Penta, Michele Lanza, Gabriele Bavota
In ACM Transactions on Software Engineering and Methodology (TOSEM), Vol. 31, No. 2, Art. No. 23, pp. 1-23. ACM, 2022
DOI: <https://doi.org/10.1145/3487062>
- J26. **Automated Documentation of Android Apps** Journal 1st Presentation at ESEC/FSE 2019
Emad Aghajani, Gabriele Bavota, Mario Linares-Vasquez, Michele Lanza
In IEEE Transactions on Software Engineering (TSE), Vol. 47, No. 1, pp. 204-220. IEEE, 2021
DOI: <https://doi.org/10.1109/TSE.2018.2890652>
- J25. **API Compatibility Issues in Android: Causes and Effectiveness of Data-Driven Detection Techniques**
Simone Scalabrino, Gabriele Bavota, Mario Linares-Vasquez, Valentina Piantadosi, Michele Lanza, Rocco Oliveto
In Journal of Empirical Software Engineering (EMSE), Vol. 25, No. 6, pp. 5006-5046. Springer, 2020
DOI: <https://doi.org/10.1007/s10664-020-09877-w>
- J24. **On the Use of Virtual Reality in Software Visualization: The Case of the City Metaphor**
Simone Romano, Nicola Capece, Ugo Erra, Giuseppe Scanniello, Michele Lanza
In Journal of Information and Software Technology (IST), Vol. 114, pp. 92-106. Elsevier, 2019
DOI: <https://doi.org/10.1016/j.infsof.2019.06.007>

- J23. **The City Metaphor in Software Visualization: Feelings, Emotions, and Thinking**
Simone Romano, Nicola Capece, Ugo Erra, Giuseppe Scanniello, Michele Lanza
In Journal of Multimedia Tools and Applications (MTA). Vol. 78, No. 23, pp. 33113-33149. Elsevier, 2019
DOI: <https://doi.org/10.1007/s11042-019-07748-1>
- J22. **Automatic Identification and Classification of Software Development Video Tutorial Fragments**
Luca Ponzanelli, Gabriele Bavota, Andrea Mocci, Massimiliano di Penta, Rocco Oliveto, Barbara Russo, Sonia Haiduc, Michele Lanza
In IEEE Transactions on Software Engineering, Vol. 45, No. 5, pp. 464 - 488. IEEE, 2019
DOI: <https://doi.org/10.1109/TSE.2017.2779479>
- J21. **Mining Structured Data in Natural Language Artifacts with Island Parsing**
Alberto Bacchelli, Anthony Cleve, Andrea Mocci, Michele Lanza
In Journal of Science of Computer Programming (SCP), Vol. 150, pp. 31 - 55. Elsevier, 2017
DOI: <https://doi.org/10.1016/j.scico.2017.06.009>
- J20. **The Tragedy of Defect Prediction, Prince of Empirical Software Engineering Research**
Michele Lanza, Andrea Mocci, Luca Ponzanelli
In IEEE Software, Vol. 33, No. 6, pp. 102-105. IEEE, 2016
DOI: <https://doi.org/10.1109/MS.2016.156>
- J19. **Prompter - Turning the IDE into a Self-confident Programming Assistant**
Luca Ponzanelli, Gabriele Bavota, Massimiliano di Penta, Rocco Oliveto, Michele Lanza
In Journal of Empirical Software Engineering (EMSE), Vol. 21, No. 5, pp. 2190 - 2231. Springer, 2016
DOI: <https://doi.org/10.1007/s10664-015-9397-1>
- J18. **Object-focused Environments Revisited**
Fernando Olivero, Michele Lanza, Marco D'Ambros
In Journal of Science of Computer Programming (SCP). Vol. 98, pp. 394-407. Elsevier, 2015
DOI: <https://doi.org/10.1016/j.scico.2013.07.011>
- J17. **The City of Software**
Michele Lanza
In Domus, No. 995, pp. 46-48. Editoriale Domus, 2015
- J16. **Evolutionary and Collaborative Software Architecture Recovery with Softwarentaut**
Mircea Lungu, Michele Lanza, Oscar Nierstrasz
In Journal of Science of Computer Programming (SCP), Vol. 79, No. 1, pp. 204 - 223. Elsevier, 2014
DOI: <https://doi.org/10.1016/j.scico.2012.04.007>
- J15. **Answering Software Evolution Questions: An Empirical Evaluation**
Lile Hattori, Marco D'Ambros, Michele Lanza, Mircea Lungu
In Journal of Information and Software Technology (IST). Vol. 55, No. 4, pp. 755-775. Elsevier, 2013
DOI: <https://doi.org/10.1016/j.infsof.2012.09.001>
- J14. **Refining Code Ownership With Synchronous Changes**
Lile Hattori, Michele Lanza, Romain Robbes
In Journal of Empirical Software Engineering (EMSE). Vol. 17, No. 4-5, pp. 467-499. Springer, 2012
DOI: <https://doi.org/10.1007/s10664-010-9145-5>
- J13. **Evaluating Defect Prediction Approaches: A Benchmark and an Extensive Comparison**
Marco D'Ambros, Michele Lanza, Romain Robbes
In Journal of Empirical Software Engineering (EMSE), Vol. 17, No. 4-5, pp. 531-577. Springer, 2012
DOI: <https://doi.org/10.1007/s10664-011-9173-9>
- J12. **Holistic Software Evolution**
Michele Lanza
In ERCIM News, No. 88, January 2012, pp. 10 - 11. ERCIM, 2012
- J11. **On Porting Software Visualization Tools to the Web**
Marco D'Ambros, Michele Lanza, Mircea Lungu, Romain Robbes
In International Journal on Software Tools for Technology Transfer (STTT), Vol. 13, No. 2, pp. 181-200. Springer, 2011
DOI: <https://doi.org/10.1007/s10009-010-0171-9>

- J10. **Improving Code Completion with Program History**
Romain Robbes, Michele Lanza
In Journal of Automated Software Engineering, Vol. 17, No.2, pp. 181 - 212. Springer, 2010
DOI: <https://doi.org/10.1007/s10515-010-0064-x>
- J9. **Distributed and Collaborative Software Evolution Analysis with Churrasco**
Marco D'Ambros, Michele Lanza
In Journal of Science of Computer Programming, Vol. 75, No. 4, pp. 276 - 287. Elsevier, 2010
DOI: <https://doi.org/10.1016/j.scico.2009.07.005>
- J8. **The Small Project Observatory: Visualizing Software Ecosystems**
Mircea Lungu, Michele Lanza, Tudor Gîrba
In Journal of Science of Computer Programming, Vol. 75, No. 4, pp. 264 - 275. Elsevier, 2010
DOI: <https://doi.org/10.1016/j.scico.2009.09.004>
- J7. **Visualizing Co-Change Information with the Evolution Radar**
Marco D'Ambros, Michele Lanza, Mircea Lungu
In IEEE Transactions on Software Engineering (TSE), Vol. 35. No. 5, pp. 720 - 735. IEEE, 2009
DOI: <https://doi.org/10.1109/TSE.2009.17>
- J6. **Visual Software Evolution Reconstruction**
Marco D'Ambros, Michele Lanza
In Journal on Software Maintenance and Evolution: Research and Practice (JSME), Vol. 21, No. 3, pp. 217 - 232, May 2009. Wiley, 2009
DOI: <https://doi.org/10.1002/smr.407>
- J5. **A Change-based Approach to Software Evolution**
Romain Robbes, Michele Lanza
In Electronic Notes in Theoretical Computer Science (ENTCS), Vol. 166, pp. 93 - 109, Jan 2007. Elsevier, 2007
DOI: <https://doi.org/10.1016/j.entcs.2006.06.015>
- J4. **The Class Blueprint: Visually Supporting the Understanding of Classes**
Stéphane Ducasse, Michele Lanza
In IEEE Transactions on Software Engineering (TSE), Vol. 31, No. 1, pp. 75 - 90, Jan 2005. IEEE, 2005
DOI: <https://doi.org/10.1109/TSE.2005.14>
- J3. **Polymetric Views - A Lightweight Visual Approach to Reverse Engineering**
Michele Lanza, Stéphane Ducasse
In IEEE Transactions on Software Engineering, Vol. 29, No. 9, pp. 782 - 795, Sep 2003. IEEE, 2003
DOI: <https://doi.org/10.1109/TSE.2003.1232284>
- J2. **The Moose Reengineering Environment**
Stéphane Ducasse, Michele Lanza, Sander Tichelaar
Smalltalk Chronicles, Volume 3, Number 2, pp. 1-8, 2001
- J1. **Towards a Methodology for the Understanding of Object-Oriented Systems**
Stéphane Ducasse, Michele Lanza
In Technique et Science Informatiques, Edition Speciale Réutilisation, Volume 20, Number 4, pp. 539 - 566. Hermes-Lavoisier, 2001

5 Conference & Workshop Papers

- P235. **Forecasting Developer Environments with GenAI: A Research Perspective**
Raula Kula, Christoph Treude, Xing Hu, Sebastian Baltés, Earl Barr, Kelly Blincoe, Fabio Calefato, Junjie Chen, Marc Cheong, Youmei Fan, Daniel German, Marco Gerosa, Jin Guo, Shinpei Hayashi, Robert Hirschfeld, Reid Holmes, Yintong Huo, Takashi Kobayashi, Michele Lanza, Zhongxin Liu, Olivier Nourry, Nicole Novielli, Denys Poshyvanyk, Shinobu Saito, Kazumasa Shimari, Igor Steinmacher, Marieli Wessel, Markus Wagner, Annie Vella, Laurie Williams, Xin Xia
In Proceedings of IDE 2026 (3rd International Workshop on Integrated Development Environments), to be published, ACM, 2026
- P234. **DENIM: Exploring Data Access in Microservices**
Maxime André, Marco Raglianti, Anthony Cleve, Michele Lanza
In Proceedings of ICSME 2025 (41st International Conference on Software Maintenance and Evolution), pp. 900-904, IEEE, 2025
- P233. **Visualizing and Exploring Data Access in Microservices Using Interactive Treemaps**
Maxime André, Marco Raglianti, Anthony Cleve, Michele Lanza
In Proceedings of VISSOFT 2025 (13th Working Conference on Software Visualization), to be published, IEEE, 2025
- P232. **Skylines: Visualizing Object-Oriented Software Systems Through Class Contours**
Mattia Giannaccari, Marco Raglianti, Michele Lanza
In Proceedings of VISSOFT 2025 (13th Working Conference on Software Visualization), pp. 64-68, IEEE, 2025
- P231. **Sonifying and Visualizing the Heartbeat of Evolving Software Systems**
Carmen Armenti, Marco Raglianti, Michele Lanza
In Proceedings of VISSOFT 2025 (13th Working Conference on Software Visualization), to be published, IEEE, 2025
- P230. **Visualizing Data Access Traces in Microservices Using Animated Heat Treemaps**
Maxime De Rycke, Maxime André, Marco Raglianti, Anthony Cleve, Michele Lanza
In Proceedings of VISSOFT 2025 (13th Working Conference on Software Visualization), to be published, IEEE, 2025
- P229. **ChangePrism: Visualizing the Essence of Code Changes**
Lei Chen, Michele Lanza, Shinpei Hayashi
In Proceedings of VISSOFT 2025 (13th Working Conference on Software Visualization), pp. 69-73, IEEE, 2025
- P228. **Automatically Augmenting GitHub Issues with Informative User Reviews**
Arthur Pilone, Marco Raglianti, Michele Lanza, Fabio Kon, Paulo Meirelles
In Proceedings of ICSME 2025 (41st International Conference on Software Maintenance and Evolution), pp. 418-429, IEEE, 2025
- P227. **Understanding Data Access in Microservices Applications Using Interactive Treemaps**
Maxime André, Marco Raglianti, Anthony Cleve, Michele Lanza
In Proceedings of ICPC 2025 (33rd International Conference on Program Comprehension), pp. 216-220, IEEE, 2025
- P226. **Telling Software Evolution Stories With Sonification**
Carmen Armenti, Michele Lanza
In Proceedings of ICPC 2025 (33rd International Conference on Program Comprehension), pp. 398-402, IEEE, 2025
- P225. **Terminal Lucidity: Envisioning the Future of the Terminal**
Michael MacInnis, Olga Baysal, Michele Lanza
In Proceedings of ICPC 2025 (33rd International Conference on Program Comprehension), pp. 339-349, IEEE, 2025
- P224. **Code Refactoring in Virtual Reality**
Mattia Giannaccari, Marco Raglianti, Michele Lanza
In Proceedings of IDE 2025 (2nd International Workshop on Integrated Development Environments), to be published, ACM, 2025

- P223. **UML is Back. Or is it? Investigating the Past, Present, and Future of UML in Open Source Software**
Joseph Romeo, Marco Raglianti, Casba Nagy, Michele Lanza
In Proceedings of ICSE 2025 (47th International Conference on Software Engineering), to be published, ACM, 2025
- P222. **Hidden in the Code: Visualizing True Developer Identities**
Stefano Campanella, Michele Lanza
In Proceedings of VISSOFT 2024 (12th Working Conference on Software Visualization), pp. 24-35, IEEE, 2024
- P221. **Manipulating VR-Native User Interfaces for Software Visualization Customization**
Mattia Giannaccari, Marco Raglianti, Michele Lanza
In Proceedings of VISSOFT 2024 (12th Working Conference on Software Visualization), pp. 111-115, IEEE, 2024
- P220. **Using Interactive Animations to Analyze Fine-grained Software Evolution**
Carmen Armenti, Michele Lanza
In Proceedings of VISSOFT 2024 (12th Working Conference on Software Visualization), 36-47, IEEE, 2024
- P219. **Using Animations to Understand Commits**
Carmen Armenti, Michele Lanza
In Proceedings of ICSME 2024 (40th International Conference on Software Maintenance and Evolution), pp. 660-665, IEEE, 2024
- P218. **Understanding Code Change with Micro-Changes**
Lei Chen, Michele Lanza, Shinpei Hayashi
In Proceedings of ICSME 2024 (40th International Conference on Software Maintenance and Evolution), pp. 363-374, IEEE, 2024
- P217. **Immersive Software Archaeology: Collaborative Exploration and Note Taking in Virtual Reality**
Adrian Hoff, Mircea Lungu, Christoph Seidl, Michele Lanza
In Proceedings of ICPC 2024 (32nd International Conference on Program Comprehension), pp. 387-391, IEEE, 2024
- P216. **Capturing and Understanding the Drift Between Design, Implementation, and Documentation**
Joseph Romeo, Marco Raglianti, Casba Nagy, Michele Lanza
In Proceedings of ICPC 2024 (32nd International Conference on Program Comprehension), pp. 382-386, IEEE, 2024
- P215. **Collaborative Software Exploration with Multimedia Note Taking in Virtual Reality**
Adrian Hoff, Mircea Lungu, Christoph Seidl, Michele Lanza
In Proceedings of ICPC 2024 (32nd International Conference on Program Comprehension), pp. 346-357, IEEE, 2024
- P214. **Immersive Software Archaeology: Exploring Software Architecture and Design in Virtual Reality**
Adrian Hoff, Christoph Seidl, Michele Lanza
In Proceedings of SANER 2024 (31st International Conference on Software Analysis, Evolution, and Reengineering), pp. 47-51, IEEE, 2024 **Best Tool Demo Award**
- P213. **SMEAGOL: A Static Code Smell Detector for MongoDB**
Boris Cherry, Csaba Nagy, Michele Lanza, Anthony Cleve
In Proceedings of SANER 2024 (31st International Conference on Software Analysis, Evolution, and Reengineering), pp. 816-820, IEEE, 2024
- P212. **A Multivocal Mapping Study of MongoDB Smells**
Boris Cherry, Jehan Bernard, Thomas Kintziger, Csaba Nagy, Anthony Cleve, Michele Lanza
In Proceedings of SANER 2024 (31st International Conference on Software Analysis, Evolution, and Reengineering), pp. 792-803, IEEE, 2024
- P211. **Contribution-based Firing of Developers?**
Vincenzo Orrei, Marco Raglianti, Csaba Nagy, Michele Lanza
In Proceedings of ESEC/FSE 2023 (31st Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering), pp. 2062-2066, ACM, 2023

- P210. **Understanding the NPM Dependencies Ecosystem of a Project Using Virtual Reality**
David Moreno-Lumbreras, Jesus M. Gonzalez-Barahona, Michele Lanza
In Proceedings of VISSOFT 2023 (11th Working Conference on Software Visualization), pp. 84-94, IEEE, 2023
- P209. **Preparing Software Re-Engineering via Freehand Sketches in Virtual Reality**
Adrian Hoff, Christoph Seidl, Mircea Lungu, Michele Lanza
In Proceedings of ICSME 2023 (39th International Conference on Software Maintenance and Evolution), pp. 317-328, IEEE, 2023
- P208. **On the Rise of Modern Software Documentation**
Marco Raglianti, Csaba Nagy, Roberto Minelli, Bin Lin, Michele Lanza
In Proceedings of ECOOP 2023 (37th European Conference on Object-Oriented Programming), Vol. 263, No. 43, pp. 1-24, LIPIcs, 2023
- P207. **Conversation Disentanglement As-a-Service**
Edoardo Riggio, Marco Raglianti, Michele Lanza
In Proceedings of ICPC 2023 (31st International Conference on Program Comprehension), pp. 59-63, IEEE, 2023
- P206. **SYN: Ultra-Scale Software Evolution Comprehension**
Gianlorenzo Occhipinti, Csaba Nagy, Roberto Minelli, Michele Lanza
In Proceedings of ICPC 2023 (31st International Conference on Program Comprehension), pp. 69-73, IEEE, 2023
- P205. **Uniquifying Architecture Visualization through Variable 3D Model Generation**
Adrian Hoff, Christoph Seidl, Michele Lanza
In Proceedings of VaMoS 2023 (17th International Working Conference on Variability Modelling of Software-Intensive Systems), pp. 77-81, ACM, 2023
- P204. **DiscOrDance: Visualizing Software Developers Communities on Discord**
Marco Raglianti, Csaba Nagy, Roberto Minelli, Michele Lanza
In Proceedings of ICSME 2022 (38th International Conference on Software Maintenance and Evolution), pp. 474-478, IEEE, 2022
- P203. **AIP: Scalable and Reproducible Execution Traces in Energy Studies on Mobile Devices**
Olivier Nourry, Yutaro Kashiwa, Bin Lin, Gabriele Bavota, Michele Lanza, Yasutaka Kamei
In Proceedings of ICSME 2022 (38th International Conference on Software Maintenance and Evolution), pp. 449-453, IEEE, 2022
- P202. **A New Generation of Class Blueprint**
Nour Jihene Agouf, Stephane Ducasse, Anne Etien, Michele Lanza
In Proceedings of VISSOFT 2022 (10th Working Conference on Software Visualization), pp. 187-191, IEEE, 2022
- P201. **Can Git Repository Visualization Support Educators in Assessing Group Projects?**
Mircea Lungu, Rolf-Helge Pfeiffer, Marco D'Ambros, Michele Lanza, Jesper Findahl
In Proceedings of VISSOFT 2022 (10th Working Conference on Software Visualization), pp. 187-191, IEEE, 2022
- P200. **Using Discord Conversations as Program Comprehension Aid**
Marco Raglianti, Csaba Nagy, Roberto Minelli, Michele Lanza
In Proceedings of ICPC 2022 (30th International Conference on Program Comprehension), pp. 597-601, ACM, 2022
- P199. **M3triCity: Visualizing Evolving Software & Data Cities**
Susanna Ardigò, Csaba Nagy, Roberto Minelli, Michele Lanza
In Proceedings of ICSE 2022 (44th International Conference on Software Engineering), pp. 130-133, IEEE, 2022
- P198. **Terminals All the Way Down**
Michael MacInnis, Olga Baysal, Michele Lanza
In Proceedings of ICSE 2022 (44th International Conference on Software Engineering), pp. 86-90, IEEE, 2022

Best Artifact Award**Best Paper Award**

- P197. **PyRef: Refactoring Detection in Python Projects**
Hassan Atwi, Bin Lin, Nikolaos Tsantalis, Yutaro Kashiwa, Yasutaka Kamei, Naoyasu Ubayashi, Gabriele Bavota, Michele Lanza
In Proceedings of SCAM 2021 (21st International Working Conference on Source Code Analysis and Manipulation), pp. 136-141, IEEE, 2021
- P196. **CodeCity: On-Screen or in Virtual Reality?**
David Moreno-Lumbreras, Roberto Minelli, Andrea Villaverde, Michele Lanza, Jesus M. Gonzalez-Barahona
In Proceedings of VISSOFT 2021 (9th Working Conference on Software Visualization), pp. 12-22, IEEE, 2021
- P195. **Visualizing Discord Servers**
Marco Raglianti, Roberto Minelli, Csaba Nagy, Michele Lanza
In Proceedings of VISSOFT 2021 (9th Working Conference on Software Visualization), pp. 150-154, IEEE, 2021
- P194. **Voronoi Evolving Treemaps**
Davide Paolo Tua, Roberto Minelli, Michele Lanza
In Proceedings of VISSOFT 2021 (9th Working Conference on Software Visualization), pp. 1-5, IEEE, 2021
- P193. **Visualizing Data in Software Cities**
Susanna Ardigò, Csaba Nagy, Roberto Minelli, Michele Lanza
In Proceedings of VISSOFT 2021 (9th Working Conference on Software Visualization), pp. 145-149, IEEE, 2021
- P192. **Visualizing GitHub Issues**
Aron Fiechter, Roberto Minelli, Csaba Nagy, Michele Lanza
In Proceedings of VISSOFT 2021 (9th Working Conference on Software Visualization), pp. 155-159, IEEE, 2021
- P191. **FeaRS: Recommending Complete Android Method Implementations**
Fengcai Wen, Valentina Ferrari, Emad Aghajani, Csaba Nagy, Michele Lanza, Gabriele Bavota
In Proceedings of ICSME 2021 (37th International Conference on Software Maintenance and Evolution), pp. 589-593, IEEE, 2021
- P190. **Does Refactoring Break Tests and to What Extent?**
Yutaro Kashiwa, Kazuki Shimizu, Bin Lin, Gabriele Bavota, Michele Lanza, Yasutaka Kamei, Naoyasu Ubayashi
In Proceedings of ICSME 2021 (37th International Conference on Software Maintenance and Evolution), pp. 171-182, IEEE, 2021
- P189. **Siri, Write the Next Method**
Fengcai Wen, Emad Aghajani, Csaba Nagy, Michele Lanza, Gabriele Bavota
In Proceedings of ICSE 2021 (43rd International Conference on Software Engineering), pp. 138-149, IEEE, 2021
- P188. **Evaluating SZZ Implementations Through a Developer-informed Oracle**
Giovanni Rosa, Luca Pascarella, Simone Scalabrino, Rosalia Tufano, Gabriele Bavota, Michele Lanza, Rocco Oliveto
In Proceedings of ICSE 2021 (43rd International Conference on Software Engineering), pp. 436-447, IEEE, 2021
- P187. **A Metadata Handling API for Framework Development: a Comparative Study**
Eduardo Guerra, Phyllipe Lima, Joelma Choma, Marco Nardes, Tiago Silva, Michele Lanza, Paulo Mereilles
In Proceedings of SBES 2020 (34th Brazilian Symposium on Software Engineering), pp. 499-508, ACM, 2020
- P186. **Automated Identification of On-hold Self-admitted Technical Debt**
Rungroj Maipradit, Bin Lin, Csaba Nagy, Gabriele Bavota, Michele Lanza, Hideaki Hata, Kenichi Matsumoto
In Proceedings of SCAM 2020 (20th International Working Conference on Source Code Analysis and Manipulation), pp. 54-64, IEEE, 2020
- P185. **Visualizing Evolving Software Cities**
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- P184. **Knowledge Transfer in Modern Code Review**
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- P183. **An Empirical Study of Quick Remedy Commits**
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- P182. **Software Documentation: The Practitioners' Perspective**
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- P181. **On The Quality of Identifiers in Test Code**
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- P180. **Characterizing Leveraged Stack Overflow Posts**
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- P179. **Pattern-based Mining of Opinions in Q&A Websites**
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- P178. **Software Documentation Issues Unveiled**
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- P177. **Data-Driven Solutions to Detect API Compatibility Issues in Android: An Empirical Study**
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- P176. **A Large-Scale Empirical Study on Code-Comment Inconsistencies**
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- P175. **On the Impact of Refactoring Operations on Code Naturalness**
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- P174. **A Large-scale Empirical Study on Linguistic Antipatterns Affecting APIs**
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- P173. **Improving Code: The (Mis)perception of Quality Metrics**
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- P172. **Two Datasets for Sentiment Analysis in Software Engineering**
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Distinguished Paper Award**Distinguished Paper Award**

- P171. **Sentiment Analysis for Software Engineering: How Far Can We Go?**
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- P170. **RETICULA: REal Time Code qUality Assessment**
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- P169. **Sympathy for the Devil: Reified Collection of Runtime Errors**
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- P168. **An Annotation-based API for Supporting Runtime Code Annotation Reading**
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- P167. **Investigating the Use of Code Analysis and NLP to Promote a Consistent Usage of Identifiers**
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- P166. **On-Demand Developer Documentation**
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- P165. **Supporting Software Developers with a Holistic Recommender System**
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- P164. **The Code Time Machine** **Best Tool Demo Award**
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- P163. **On the Uniqueness of Code Redundancies**
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- P162. **How Developers Document Pull Requests with External References**
Fiorella Zampetti, Luca Ponzanelli, Andrea Mocci, Gabriele Bavota, Massimiliano Di Penta, Michele Lanza
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- P161. **How to Gamify Software Engineering**
Tommaso Dal Sasso, Andrea Mocci, Michele Lanza, Ebrisa Mastrodicasa
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- P160. **Visualizing the Evolution of Working Sets**
Roberto Minelli, Andrea Mocci, Michele Lanza
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- P159. **What Makes a Satisficing Bug Report?**
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- P158. **Taming the IDE with Fine-grained Interaction Data**
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- P157. **CodeTube: Extracting Relevant Fragments from Software Development Video Tutorials**
Luca Ponzanelli, Gabriele Bavota, Andrea Mocci, Massimiliano Di Penta, Rocco Oliveto, Barbara Russo, Sonia Haiduc, Michele Lanza
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- P156. **Too Long; Didn't Watch! Extracting Relevant Fragments from Software Development Video Tutorials**
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- P155. **Measuring Navigation Efficiency in the IDE**
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- P154. **Use at Your Own Risk: The Java Unsafe API in the Wild**
Luis Mastrangelo, Luca Ponzanelli, Andrea Mocci, Michele Lanza, Matthias Hauswirth, Nathaniel Nystrom
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- P153. **UrbanIt: Visualizing Repositories Everywhere**
Andrea Ciani, Roberto Minelli, Andrea Mocci, Michele Lanza
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- P152. **Blended, Not Stirred: Visualizing All Ingredients of Software Systems**
Tommaso Dal Sasso, Roberto Minelli, Andrea Mocci, Michele Lanza
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- P151. **SODA: The Stack Overflow Dataset Almanac**
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- P150. **Summarizing Complex Development Artifacts by Mining Heterogenous Data**
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- P149. **StORMeD: Stack Overflow Ready Made Data**
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- P148. **I Know What You Did Last Summer - An Investigation of How Developers Spend Their Time**
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- P147. **Towards Visual Reflexion Models**
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- P146. **The Plague Doctor: A Promising Cure for the Window Plague**
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Best Paper Award

- P145. **ViDI: The Visual Design Inspector**
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- P144. **Free Hugs – Praising Developers For Their Actions**
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- P143. **CEL - Touching Software Modeling in Essence**
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- P142. **Misery Loves Company - CrowdStacking Traces to Aid Problem Detection**
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- P141. **Code Review: Veni, ViDI, Vici**
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- P140. **Prompter: A Self-confident Recommender System**
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- P138. **Visual Storytelling of Development Sessions**
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- P137. **Quantifying Program Comprehension with Interaction Data**
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- P136. **Understanding and Classifying the Quality of Technical Forum Questions**
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- P135. **Quantitatively Exploring Non-code Software Artifacts**
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- P134. **Visualizing Developer Interactions**
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- P133. **Mining StackOverflow to Turn the IDE into a Self-confident Programming Prompter**
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- P132. **Collaboration in Open-Source Projects: Myth or Reality?**
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- P131. **in*Bug: Visual Analytics of Bug Repositories**
Tommaso dal Sasso, Michele Lanza
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- P130. **SAMOA - A Visual Software Analytics Platform for Mobile Applications**
Roberto Minelli, Michele Lanza
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- P129. **A Closer Look at Bugs**
Tommaso dal Sasso, Michele Lanza
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- P128. **Visualizing the Workflow of Developers**
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- P127. **DFlow - Towards the Understanding of the Workflow of Developers**
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- P126. **Seahawk: Stack Overflow in the IDE**
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- P125. **CEL - Modeling Everywhere**
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- P124. **Communication in Open Source Software Development Mailing Lists**
Anja Guzzi, Alberto Bacchelli, Michele Lanza, Martin Pinzger, Arie van Deursen
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- P123. **Manhattan: Supporting Real-Time Visual Team Activity Awareness**
Michele Lanza, Marco D'Ambros, Alberto Bacchelli, Lile Hattori, Francesco Rigotti
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- P122. **Co-Evolution as the Key for Live Programming**
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- P121. **Software Analytics for Mobile Applications - Insights & Lessons Learned**
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- P120. **Leveraging Crowd Knowledge for Software Comprehension and Development**
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Most Influential Paper Award

- P119. **Tracking Human-Centric Controlled Experiments with Biscuit**
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- P118. **Helpful Automatic Development Email Summarization**
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- P117. **On The Road to Hades–Helpful Automatic Development Email Summarization**
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- P116. **A Qualitative User Study on Preemptive Conflict Detection**
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- P115. **Ronda: A Fine Grained Collaborative Development Environment**
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- P114. **Content Classification of Development Emails**
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- P113. **Harnessing Stack Overflow for the IDE**
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- P112. **Extracting Structured Data from Natural Language Documents with Island Parsing**
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- P111. **Enabling Program Comprehension through a Visual Object-focused Development Environment**
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- P110. **Telling Stories about GNOME with Complicity**
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- P109. **REmail - Blending Talk and Work in Eclipse**
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- P108. **Manhattan - 3D City Visualizations in Eclipse**
Alberto Bacchelli, Francesco Rigotti, Lile Hattori, Michele Lanza
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- P107. **GaUCHO: Programming == Modeling**
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- P106. **Erase and Rewind - Learning by Replaying Examples**
Lile Hattori, Alberto Bacchelli, Michele Lanza, Mircea Lungu
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- P104. **Collective Code Bookmarks for Program Comprehension**
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- P103. **Miler: A Toolset for Exploring Email Data**
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- P102. **Software Systems as Cities: A Controlled Experiment**
Richard Wettel, Michele Lanza, Romain Robbes
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- P101. **RTFM (Read The Factual Mails) - Augmenting Program Comprehension with Remail**
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- P99. **Recovering Inter-Project Dependencies in Software Ecosystems**
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- P98. **On the Impact of Design Flaws on Software Defects**
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- P97. **Extracting Source Code from E-Mails**
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- P93. **An Extensive Comparison of Bug Prediction Approaches**
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- P91. **Gaicho: From Integrated Development Environments to Direct Manipulation Environments**
Fernando Olivero, Michele Lanza, Romain Robbes
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- P90. **Towards Integrating E-Mail Communication in the IDE**
Alberto Bacchelli, Michele Lanza, Vitezslav Humpa
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- P89. **Commit 2.0**
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- P88. **Are Popular Classes More Defect Prone?**
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- P87. **Supporting Collaboration Awareness with Real-time Visualization of Development Activity**
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- P86. **Benchmarking Lightweight Techniques to Link E-Mails and Source Code**
Alberto Bacchelli, Marco D'Ambros, Michele Lanza, Romain Robbes
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- P85. **On the Relationship Between Change Coupling and Software Defects**
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- P84. **Promises and Perils of Porting Software Visualization Tools to the Web**
Marco D'Ambros, Mircea Lungu, Michele Lanza, Romain Robbes
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- P83. **Lumière: a Novel Framework for Rendering 3D graphics in Smalltalk**
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- P82. **Miler - A Tool Infrastructure to Analyze Mailing Lists**
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- P80. **Mining the History of Synchronous Changes to Refine Code Ownership**
Lile Hattori, Michele Lanza
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- P79. **Visualizing Gnome with The Small Project Observatory**
Mircea Lungu, Jacopo Malnati, Michele Lanza
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- P78. **An Environment for Synchronous Software Development**
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- P75. **Logical Coupling Based on Fine-Grained Change Information**
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- P73. **How Program History Can Improve Code Completion**
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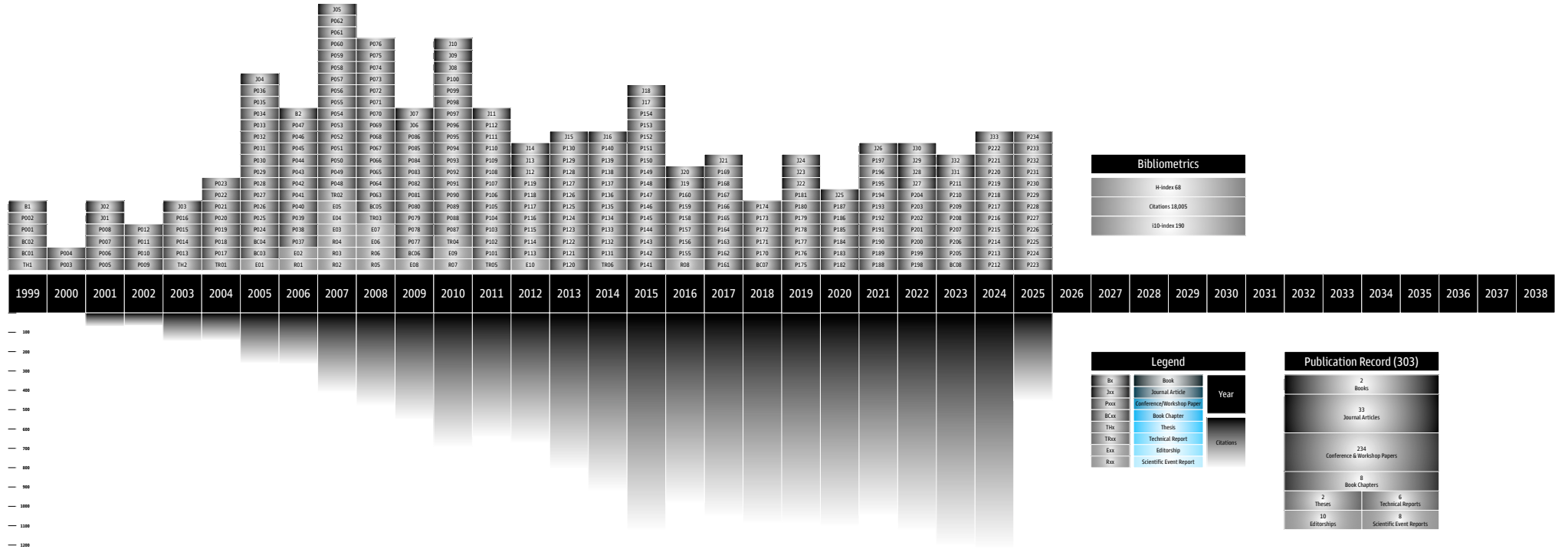
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Overview



Glossary

ACM	Association of Computing Machinery. ACM is the world's largest educational and scientific computing society. See https://www.acm.org	LNCS	Lecture Notes in Computer Science
ASE	ACM/IEEE International Conference on Automated Software Engineering	MIP	Most Influential Paper
CSMR	IEEE European Conference on Software Maintenance and Reengineering. Merged in 2014 with WCRE to become the SANER conference series	MODELS	ACM/IEEE International Conference on Model Driven Engineering Languages and Systems
ECOOP	European Conference on Object-Oriented Programming	MSR	IEEE International Conference on Mining Software Repositories. Started in 2004 as an International Workshop, it transformed in 2008 into a Working Conference and in 2016 into its current format
ESEC/FSE	Joint meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering	Onward!	ACM Conference on Emerging and New Ideas in Software
EMSE	Journal of Empirical Software Engineering, Springer	OOPSLA	ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications
ESUG	International Smalltalk Conference organized by the European Smalltalk User Group, see http://esug.org	QAOOSE	International Workshop on Quantitative Approaches in Object-Oriented Software Engineering
EVOL	International Workshop on Challenges in Software Evolution	SANER	IEEE International Conference on Software Analysis, Evolution, and Reengineering
FAMOOSr	International Workshop on FAMIX and Moose in Reengineering	SCP	Journal of Science of Computer Programming, Elsevier
Flexitools	Workshop on Flexible Modeling Tools	Softvis	ACM Symposium on Software Visualization
ICPC	IEEE International Conference on Program Comprehension	SQJ	Journal of Software Quality, Kluwer Academic Publishers
ICSE	ACM/IEEE International Conference on Software Engineering	TOSEM	ACM Transactions on Software Engineering and Methodology
ICSM	IEEE International Conference on Software Maintenance. Turned into ICSME in 2014.	TSE	IEEE Transactions on Software Engineering
ICSME	IEEE International Conference on Software Maintenance and Evolution	USI	Università della Svizzera italiana, the official name of the "University of Lugano"
IDE	International Workshop on Integrated Development Environments	VASE	International Workshop on Visual Analytics in Software Engineering
IEEE	Institute of Electrical and Electronics Engineers. IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. See https://ieee.org	VISSOFT	IEEE Working Conference on Software Visualization, resulted from merging VISSOFT (the IEEE International Workshop on Visualizing Software) and Softvis (the ACM Symposium on Software Visualization)
IEEE CS	IEEE Computer Society. See https://www.computer.org	WaSDeTT	International Workshop on Advanced Software Development Tools and Techniques
IWPSE	IEEE International Workshop on Principles of Software Evolution	WCRE	IEEE Working Conference on Reverse Engineering. Merged in 2014 with CSMR to become the SANER conference series
IWPSE-EVOL	Joint International Workshop on Principles of Software Evolution and Workshop on Software Evolution	Web2SE	International Workshop on Web 2.0 for Software Engineering
IWPC	IEEE International Workshop on Program Comprehension. Turned into ICPC in 2007.		
JSS	Journal of Systems and Software, Elsevier		
LMO	Conference on Languages et Modèles à Objets		