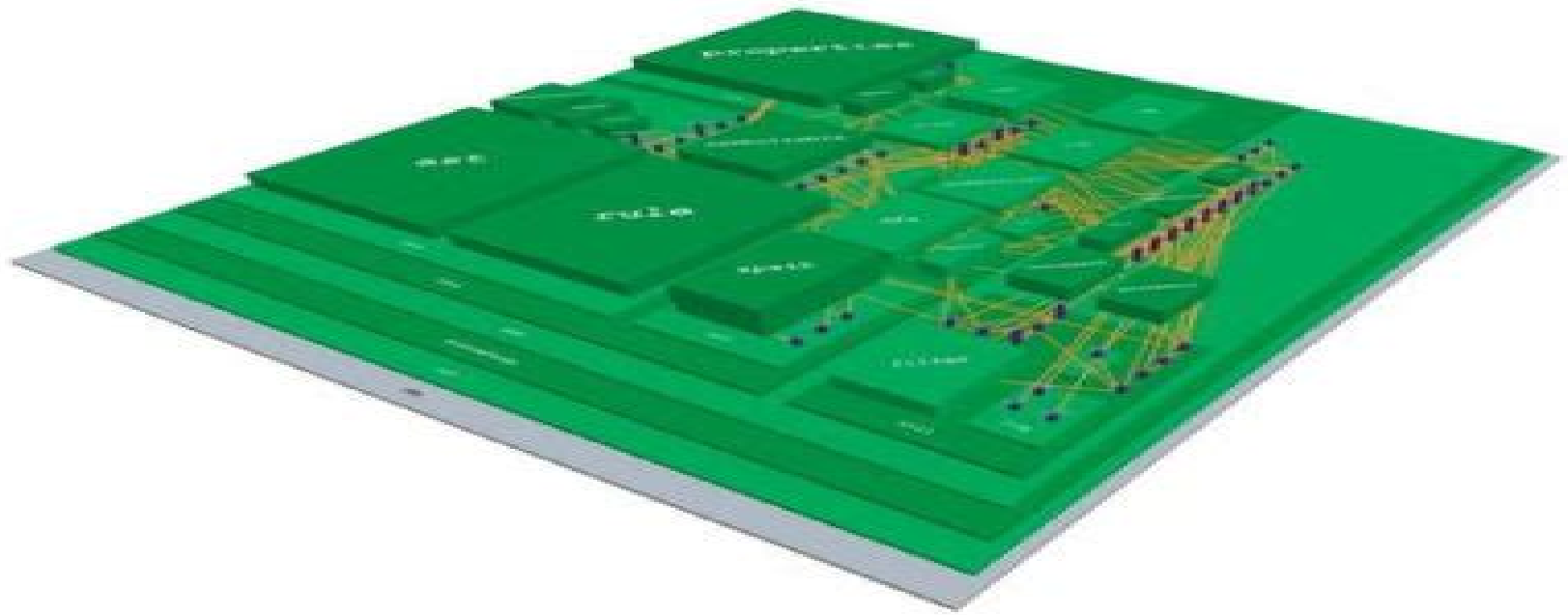


Live Trace Visualization for System and Program Comprehension in Large Software Landscapes

Florian Fittkau



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Visualization Program Comprehension Software Landscapes:

Live Trace Visualization for System and Program Comprehension in Large Software Landscapes Florian Fittkau, 2015-12-03 In many enterprises the number of deployed applications is constantly increasing. Those applications often consist of several hundreds forming large software landscapes. The comprehension of such landscapes is frequently impeded due to, for instance, architectural erosion, personnel turnover, or changing requirements. Furthermore, events such as performance anomalies can often only be understood in correlation with the states of the applications. Therefore, an efficient and effective way to comprehend such software landscapes in combination with the details of each application is required. In this thesis, we introduce a live trace visualization approach to support system and program comprehension in large software landscapes. It features two perspectives: a landscape level perspective using UML elements and an application level perspective following the 3D software city metaphor. Our main contributions are: 1. an approach named ExplorViz for enabling live trace visualization of large software landscapes; 2. a monitoring and analysis approach capable of logging and processing the huge amount of conducted method calls in large software landscapes; and 3. display and interaction concepts for the software city metaphor beyond classical 2D displays and 2D pointing devices. Extensive lab experiments show that our monitoring and analysis approach elastically scales to large software landscapes while imposing only a low overhead on the productive systems. Furthermore, several controlled experiments demonstrate an increased efficiency and effectiveness for solving comprehension tasks when using our visualization. ExplorViz is available as open source software on www.explorviz.net. Additionally, we provide extensive experimental packages of our evaluations to facilitate the verifiability and reproducibility of our results.

Human Machine Interaction Denis Lalanne, Juerg Kohlas, 2009-03-26 Human Machine Interaction, or more commonly Human Computer Interaction, is the study of interaction between people and computers. It is an interdisciplinary field connecting computer science with many other disciplines such as psychology, sociology, and the arts. The present volume documents the results of the MMI research program on Human Machine Interaction involving 8 projects selected from a total of 80 proposals funded by the Hasler Foundation between 2005 and 2008. These projects were also partially funded by the associated universities and other third parties such as the Swiss National Science Foundation. This state-of-the-art survey begins with three chapters giving overviews of the domains of multimodal user interfaces, interactive visualization, and mixed reality. These are followed by eight chapters presenting the results of the projects grouped according to the three aforementioned themes.

Software Ecosystems Tom Mens, Coen De Roover, Anthony Cleve, 2023-10-05 This book highlights recent research advances in various domains related to software ecosystems such as library reuse, collaborative development, cloud computing, open science, sentiment analysis, and machine learning. A key aspect of software ecosystems is that software products belong to ever more interdependent networks of co-evolving software components. The ever-increasing importance of social coding platforms has made software ecosystems indispensable to software practitioners in commercial as well as

open source settings The book starts with an introductory chapter that provides a historical account of the origins of software ecosystems It provides the necessary context about the domain of software ecosystems by highlighting its different perspectives definitions and representations It also exemplifies the variety of software ecosystems that have emerged during the previous decades The remaining book is composed of five parts Part I contains two chapters on software ecosystem representations Part II two chapters that focus on complementary ways and techniques of analyzing software ecosystems Next Part III includes two chapters that focus on aspects related to the evolution within software ecosystems while Part IV looks at workflow automation and infrastructure as code ecosystems Finally Part V focuses on ecosystems for software modeling and for data intensive software This book is intended for researchers and practitioners interested in data mining tooling and empirical analysis of software ecosystems The reader will appreciate chapters that cover a wide spectrum of social and technical aspects of software ecosystems each including an overview of the state of the art Chapter 2 The Software Heritage Open Science Ecosystem is available open access under a Creative Commons Attribution 4 0 International License via link [springer com](https://www.springer.com) *Fourth Workshop on Program Comprehension* Aniello Cimitile, Hausi A. Müller, 1996

Encyclopedia of Software Engineering Three-Volume Set (Print) Phillip A. Laplante, 2010-11-22 Software engineering requires specialized knowledge of a broad spectrum of topics including the construction of software and the platforms applications and environments in which the software operates as well as an understanding of the people who build and use the software Offering an authoritative perspective the two volumes of the Encyclopedia of Software Engineering cover the entire multidisciplinary scope of this important field More than 200 expert contributors and reviewers from industry and academia across 21 countries provide easy to read entries that cover software requirements design construction testing maintenance configuration management quality control and software engineering management tools and methods Editor Phillip A Laplante uses the most universally recognized definition of the areas of relevance to software engineering the Software Engineering Body of Knowledge SWEBOK as a template for organizing the material Also available in an electronic format this encyclopedia supplies software engineering students IT professionals researchers managers and scholars with unrivaled coverage of the topics that encompass this ever changing field Also Available Online This Taylor E mail e reference [taylorandfrancis com](https://www.taylorandfrancis.com) International Tel 44 0 20 7017 6062 E mail online sales [tandf co uk](mailto:tandf.co.uk) Live Trace Visualization for System and Program Comprehension in Large Software Landscapes Florian Fittkau, 2013 *Fifth International Workshop on Program Comprehension*, 1997 **7th International Workshop on Program Comprehension**, 1999 Contains papers from a May 1999 workshop addressing issues and presenting remedies in program comprehension Research papers and empirical reports deal with topics including software visualization architecture integration frameworks comprehension models parsing program decomposition and analysis Intelligent Communication Technologies and Virtual Mobile Networks G. Rajakumar, Ke-Lin Du, Chandrasekar Vuppapapati, Grigorios N. Beligiannis, 2022-07-19 The book is a collection of high

quality research papers presented at Intelligent Communication Technologies and Virtual Mobile Networks ICICV held at Francis Xavier Engineering College Tirunelveli Tamil Nadu India during February 10 11 2022 The book shares knowledge and results in theory methodology and applications of communication technology and mobile networks The book covers innovative and cutting edge work of researchers developers and practitioners from academia and industry working in the area of computer networks network protocols and wireless networks data communication technologies and network security

IEEE International Conference on Software Maintenance--1999, 1999 Annotation Proceedings of the August 1999 conference on software maintenance Sixty one contributions discuss reverse engineering tools migration visualization and understanding architectures and frameworks management testing object oriented technology reuse and validation models and processes processes and technology measurement and improvement architecture software change and impact analysis software maintenance the future and on the threshold of Y2K Lacks a subject index Annotation copyrighted by Book News Inc Portland OR **Program Comprehension** IEEE Computer Society, 2001 Based on the 9th IEEE International Workshop on Program Comprehension IWPC 2001 this volume covers such topics as software quality analysis architecture recovery reverse engineering tools and environments program comprehension studies metrics and slicing and clustering techniques

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