

Research Output

PhD thesis

V. Ferme. Declarative Performance Testing Automation - Automating Performance Testing for the DevOps Era. Università della Svizzera italiana, 2021. [Defended]

Peer-reviewed journal articles

B. Walter, F. Arcelli Fontana, **V. Ferme. Code Smells and their Collocations - A Large-scale Experiment on Open-source Systems.** Journal of Systems and Software, Volume 144, Pages 1-21, **2018**. [[Proceedings](#)]

A. Avritzer, **V. Ferme**, A. Janes, B. Russo, A. van Hoorn, H. Schulz, D. Sadoc Menasché, and V. Rufino. **Scalability Assessment of Microservice Architecture Deployment Configurations: A Domain-based Approach Leveraging Operational Profiles and Load Tests.** Journal of Systems and Software, Volume 165, **2020**. [[Proceedings](#)]

V. Rufino, M. Nogueira, A. Avritzer, D. Sadoc Menasché, B. Russo, A. Janes, **V. Ferme**, A. van Hoorn, H. Schulz, and C. Lima. **Improving Predictability of User-Affecting Metrics to Support Anomaly Detection in Cloud Services.** IEEE Access, **2020**. [[Proceedings](#)]

Peer-reviewed book chapters

V. Ferme, A. Ivanchikj, and C. Pautasso. **IT-Centric Process Automation: Study About the Performance of BPMN 2.0 Engines.** Empirical Studies on the Development of Executable Business Processes, Pages 167-197, **2019**. [[Proceedings](#)]

Peer-reviewed conference proceedings

Conference proceedings

F. Arcelli Fontana, **V. Ferme**, A. Marino, B. Walter, and P. Martenka. **Investigating the Impact of Code Smells on System's Quality: An Empirical Study on Systems of Different Application Domains.** In Proc. of the 29th IEEE International Conference on Software Maintenance, ICSM '13, **2013**. [[Proceedings](#)]

C. Pautasso, V. Ferme, D. Roller, F. Leymann, and M. Skouradaki. **Towards workflow benchmarking: Open research challenges**. In Proc. of the 16th conference on Database Systems for Business, Technology, and Web, BTW 2015, **2015**. [[Proceedings](#)] [[Slides](#)]

M. Skouradaki, D. H. Roller, L. Frank, V. Ferme, and C. Pautasso. **On the Road to Benchmarking BPMN 2.0 Workflow Engines**. In Proc. of the 6th ACM/SPEC International Conference on Performance Engineering, ICPE '15, **2015**. [[Proceedings](#)] [[Slides](#)]

M. Skouradaki, V. Ferme, F. Leymann, C. Pautasso, and D. H. Roller. **“BPELanon”: Protect business processes on the cloud**. In Proc. of the 5th International Conference on Cloud Computing and Service Science, CLOSER 2015, **2015**. [[Proceedings](#)]

V. Ferme, A. Ivanchikj, and C. Pautasso. **A Framework for Benchmarking BPMN 2.0 Workflow Management Systems**. In Proc. of the 13th International Conference on Business Process Management, BPM '15, **2015**. [[Proceedings](#)] [[Slides](#)]

V. Ferme, A. Ivanchikj, C. Pautasso, M. Skouradaki, and F. Leymann. **A Container-centric Methodology for Benchmarking Workflow Management Systems**. In Proc. of the 6th International Conference on Cloud Computing and Service Science, CLOSER 2016, **2016**. [[Proceedings](#)] [[Slides](#)]

M. Skouradaki, V. Ferme, C. Pautasso, F. Leymann, and A. van Hoorn. **Micro-Benchmarking BPMN 2.0 Workflow Management Systems with Workflow Patterns**. In Proc. of the 28th International Conference on Advanced Information Systems Engineering, CAiSE '16, **2016**. [[Proceedings](#)] [[Slides](#)]

C. Jürgen, V. Ferme, and H.C. Gall. **Using Docker Containers to Improve Reproducibility in Software and Web Engineering Research**. In Proc. of the 16th International Conference on Web Engineering, **2016**. [[Proceedings](#)] [[Slides](#)]

V. Ferme, A. Ivanchikj, and C. Pautasso. **Estimating the Cost for Executing Business Processes in the Cloud**. In Proc. of the 14th International Conference on Business Process Management, BPM Forum '16, **2016**. [[Proceedings](#)] [[Slides](#)]

V. Ferme, M. Skouradaki, A. Ivanchikj, C. Pautasso, and F. Leymann. **Performance Comparison Between BPMN 2.0 Workflow Management Systems Versions**. In Proc. of the 18th International Conference on Enterprise, Business-Process and Information Systems Modeling, BPMDS '17, **2017**. [[Proceedings](#)] [[Slides](#)]

A. Ivanchikj, V. Ferme, and C. Pautasso. **On the Performance Overhead of BPMN Modeling Practices**. In Proc. of the 15th International Conference on Business Process Management, BPM '17, 2017. [[Proceedings](#)][[Slides](#)]

S. Harrer, J. Lenhard, O. Kopp, V. Ferme and C. Pautasso. **A Pattern Language for Workflow Engine Conformance and Performance Benchmarking**. In Proc. of the 22nd European Conference on Pattern Languages of Programs, EuroPLoP '17, 2017. [[Proceedings](#)]

V. Ferme, and C. Pautasso. **A Declarative Approach for Performance Tests Execution in Continuous Software Development Environments**. In Proc. of the 9th ACM/SPEC International Conference on Performance Engineering, ICPE '18, 2018. [[Proceedings](#)] [[Slides](#)]

F. Klinaku, and V. Ferme. **Towards Generating Elastic Microservices: A Declarative Specification for Consistent Elasticity Configurations**. In Proc. of the 44th Euromicro Conference on Software Engineering and Advanced Applications, SEAA '18, 2018. [[Proceedings](#)]

A. Avritzer, V. Ferme, A. Janes, B. Russo, H. Schulz, and A. van Hoorn. **A Quantitative Approach for the Assessment of Microservice Architecture Deployment Alternatives by Automated Performance Testing**. In Proc. of the 12th European Conference on Software Architecture, ECSA '18, 2018. [[Proceedings](#)]

G. Rosinosky, C. Labba, V. Ferme, S. Youcef, F. Charoy, and C. Pautasso. **Evaluating Multi-tenant Live Migrations Effects on Performance**. In Proc. of the 16th Confederated International Conferences "On the Move to Meaningful Internet Systems", OTM '18, 2018. [[Proceedings](#)]

D. Okanović, A. van Hoorn, C. Zorn, F. Beck, V. Ferme, and J. Walter. **Concern-driven Reporting of Software Performance Analysis Results**. In Proc. of the 10th ACM/SPEC International Conference on Performance Engineering, ICPE '19, 2019. [[Proceedings](#)][[Slides](#)]

A. Avritzer, D. Sadoc Menasché, V. Rufino, B. Russo, A. Janes, V. Ferme, A. van Hoorn, and H. Schulz. **PPTAM: Production and Performance Testing Based Application Monitoring**. In Proc. of the 10th ACM/SPEC International Conference on Performance Engineering, ICPE '19, 2019. [[Proceedings](#)]

C-P. Bezemer, S. Eismann, V. Ferme, J. Grohmann, R. Heinrich, P. Jamshidi, W. Shang, A. van Hoorn, M. Villavicencio, J. Walter, and F. Willnecker. **How is Performance Addressed in DevOps? A Survey on Industrial Practices**. In

Proc. of the 10th ACM/SPEC International Conference on Performance Engineering, ICPE '19, **2019**. [[Proceedings](#)][[Slides](#)]

H. Schulz, D. Okanović, A. van Hoorn, **V. Ferme**, and C. Pautasso. **Behavior-driven Load Testing Using Contextual Knowledge - Approach and Experiences**. In Proc. of the 10th ACM/SPEC International Conference on Performance Engineering, ICPE '19, **2019**. [[Proceedings](#)][[Slides](#)]

Workshop proceedings

F. Arcelli Fontana, **V. Ferme**, and S. Spinelli. **Investigating the Impact of Code Smells Debt on Quality Code Evaluation**. In Proc. of the 3rd International Workshop on Managing Technical Debt, MTD '12, **2012**. [[Proceedings](#)] [[Slides](#)]

V. Ferme, A. Marino, and F. Arcelli Fontana. **Is it a Real Code Smell to be Removed or not?**. In Proc. of the International Workshop on Refactoring & Testing, RefTest '13, **2013**. [[Proceedings](#)]

M. Skouradaki, D. H. Roller, F. Leymann, **V. Ferme**, and C. Pautasso. **Technical open challenges on benchmarking workflow management systems**. In Proc. of the 2014 Symposium on Software Performance, SSP 2014, **2014**. [[Proceedings](#)]

F. Arcelli Fontana, **V. Ferme**, M. Zanoni, and A. Yamashita. **Automatic metric thresholds derivation for code smell detection**. In Proc. of the 6th International Workshop on Emerging Trends in Software Metrics, WETSoM '15, **2015**. [[Proceedings](#)]

F. Arcelli Fontana, **V. Ferme**, and M. Zanoni. **Toward assessing software architecture quality by exploiting code smell relations**. In Proc. of the 2nd International Workshop on Software Architecture and Metrics, SAM '15, **2015**. [[Proceedings](#)]

F. Arcelli Fontana, **V. Ferme**, M. Zanoni, and R. Roveda. **Towards a prioritisation of code debt: A code smell Intensity Index**. In Proc. of the 7th International Workshop on Managing Technical Debt, MTD '15, **2015**. [[Proceedings](#)]

V. Ferme, and C. Pautasso. **Towards Holistic Continuous Software Performance Assessment**. In Proc. of the 3rd International Workshop on Quality Aware DevOps, QUDOS '17, **2017**. [[Proceedings](#)] [[Slides](#)]

J. Lenhard, V. Ferme, S. Harrer, M. Geiger, and C. Pautasso. **Lessons Learned from Evaluating Workflow Management Systems**. In Proc. of the 13th International Workshop on Engineering Service-Oriented Applications and Cloud Services, WESOACS '17, **2017**. [[Proceedings](#)]

Contributions to international conferences

Demos

M. Palmonari, A. Rula, R. Porrini, A. Maurino, B. Spahiu, and V. Ferme. **ASBTAT: Linked Data Summaries with ABstraction and STATistics**. In Proc. of the 12th Extended Semantic Web Conference [Demonstrations Track], ESWC '15, **2015**. [[Proceedings](#)]

A. Ivanchikj, V. Ferme, and C. Pautasso. **BPMeter: Web Service and Application for Static Analysis of BPMN 2.0 Collections**. In Proc. of the 13th International Conference on Business Process Management [Demo], BPM '15, **2015**. [[Proceedings](#)] [[Screencast](#)]

V. Ferme, and C. Pautasso. **Integrating Faban with Docker for Performance Benchmarking**. In Proc. of the 7th ACM/SPEC International Conference on Performance Engineering, ICPE '16, **2016**. [[Proceedings](#)]

Posters

F. Arcelli Fontana, V. Ferme, and M. Zanoni. **Poster: Filtering code smells detection results**. In Proc. of the 37th International Conference on Software Engineering, ICSE '15, **2015**. [[Proceedings](#)]

V. Ferme, J. Lenhard, S. Harrer, M. Geiger, and C. Pautasso. **Workflow Management Systems Benchmarking: Unfulfilled Expectations and Lessons Learned**. In Proc. of the 39th International Conference on Software Engineering, ICSE '17, **2017**. [[Proceedings](#)] [[Poster](#)]

Research Projects

Title: Declarative Continuous Performance Testing for Microservices in DevOps [[Project](#)]

Grantee: V. Ferme

Dates: 01.02.2018 - 31.07.2018

Awarded by: Swiss National Science Foundation (Doc.Mobility Program)

Title: DevOps-oriented Declarative Performance Testing for Microservices
[\[Project\]](#)

Grantees: A. van Hoorn, V. Ferme, H. Schulz

Dates: 01.05.2018 - 31.07.2018

Awarded by: HPI Future SOC Lab

Outreach activities

Invited Speaker

Title: Towards a Benchmark for BPMN Engines [\[Slides\]](#)

Authors: V. Ferme

03.11.2015 - TIM Solutions (Company), Munich, Germany

Title: Towards a Benchmark for BPMN Engines [\[Slides\]](#)

Authors: V. Ferme, and C. Pautasso

04.11.2015 - W-JAX Conference, Munich, Germany

Title: Towards a Benchmark for BPMN Engines [\[Slides\]](#)

Author: V. Ferme

06.09.2016 - 1st International Workshop on Performance and Conformance of Workflow Engines

Title: BenchFlow: A Platform for End-to-end Automation of Performance Testing and Analysis [\[Slides\]](#)

Author: V. Ferme

12.05.2017 - SPEC RG DevOps Meeting

Title: Continuous Performance Testing for Microservices [\[Slides\]](#) [\[Recording\]](#)

Author: V. Ferme

17.04.2018 – HPI Future SOC - Lab Day (Spring 2018)

Tutorials

Title: Using Docker Containers to Improve Reproducibility in Software and Web Engineering [\[Slides\]](#)

Authors: Jürgen Cito, V. Ferme, and Harald C. Gall

Editions:

2016 - 16th International Conference on Web Engineering (ICWE '16)

Speakers: Jürgen Cito, and *V. Ferme*

2016 - Seminar at University of Milano-Bicocca

Speaker: *V. Ferme*

Webinars

Title: Application Testing in DevOps with SauceLabs [[Slides and Recording](#)]

Author: *V. Ferme*, G. Rago (SauceLabs)

29.09.2019 – Kiratech (Milan)

Title: Development of Cloud-native Applications with Kubernetes

Author: *V. Ferme*

30.04.2020 – Kiratech (Online)

Title: Automation and Orchestration of the Software Development Lifecycle

Author: *V. Ferme*, M. Schuller (CloudBees)

08.05.2020 – Kiratech (Online)

Title: DevOps Methodology and Cloud-native Approach - Results and Benefits

[[Slides and Recording](#)]

Author: *V. Ferme*, P. Spagnolatti (Banca Popolare di Sondrio)

14.07.2020 – Kiratech (Online)

Other artefacts with documented use

BenchFlow Framework - <https://github.com/benchflow/benchflow>

PPTAM - <https://github.com/pptam/pptam-tool>

BPMeter - <http://benchflow.inf.usi.ch/bpmeter> [[Screencast](#)]