

Pooyan Jamshidi

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RESEARCH INTERESTS

My goal is to understand the **performance** behavior of **highly-configurable software** systems in **dynamic** and **uncertain** environments. I am especially interested in practical approaches that enable software systems to perform as desired and to meet goals (high performance and low energy) when it encounters the unexpected (*e.g.*, abrupt workload changes). **I am a software engineering researcher**, but in my pursuit to build software systems with the desired performance behavior, I incorporate *statistical machine learning*, *control theory*, and *distributed systems*. I have expertise in transfer learning, performance modeling, Fuzzy control, Bayesian optimization, and Gaussian processes. My work has been applied to **Cloud**, **Big Data**, and recently **Robotics** systems.

RESEARCH POSITIONS

- 12/2016–present **Postdoctoral Associate**, *Carnegie Mellon University*, Pittsburgh, US.
Working with Prof. Christian Kästner on performance analysis of highly-configurable software, collaborating very closely with Prof. Norbert Siegmund. Working with Prof. David Garlan on meta-learning for self-adaptive systems. Involved in BRASS, a DARPA sponsored project developing model-based adaptation of mobile robotics software.
- 2/2015–12/2016 **Postdoctoral Associate**, *Imperial College London*, London, UK.
Involved in two EU projects (DICE and MODAClouds), where I developed practical tools and techniques for auto-tuning big data systems (Apache Hadoop and Storm).
- 9/2014–2/2015 **Postdoctoral Researcher**, *Dublin City University*, Dublin, Ireland.
Worked with Prof. Claus Pahl on developing self-learning controllers in IC4 cloud center and in collaboration with Intel (Giovani Estrada) and Microsoft (Niall Moran).
- 9/2010–9/2014 **Research Assistant**, *Dublin City University*, Dublin, Ireland.
Worked with Prof. Claus Pahl on developing a cloud controller for auto-scaling in cloud. I received a scholarship from Lero (the Irish Software Research Centre).
- 7/2008–9/2010 **Research Group Coordinator**, *Shahid Beheshti University*, Tehran, Iran.
Coordinated the Automated Software Engineering Research (ASER) group (10 researchers); my main research was to develop tools for designing service-oriented systems.

QUALIFICATIONS

- 9/2010–9/2014 **Ph.D., Computing**, *Dublin City University*, Ireland.
◦ Thesis: *A framework for robust control of uncertainty in self-adaptive software*
◦ Adviser: Prof. Claus Pahl
◦ External examiner: Prof. Pete Sawyer (Lancaster University, UK)
- 9/2003–2/2006 **M.Sc., Systems Engineering**, *Amirkabir University of Technology*, Iran.
◦ Thesis: *An integrated knowledge-based system for product design support*
◦ Adviser: Dr. Saeed Mansour
- 9/1999–9/2003 **B.A., Computer Science**, *Amirkabir University of Technology*, Iran.

INDUSTRIAL EXPERIENCE

- 2007–2010 **Project Manager**, *System Group*, Tehran, Iran.
Managed a large-scale software project on developing an integrated software system automating business processes in a charity organization at a national scale. My team size was 20-30 people including business analysts, designers and software developers. Technologies: .NET, Microsoft SQL Server, SOA compatible stacks.
- 2006–2007 **Enterprise Architect**, *System Group*, Tehran, Iran.
Developed the enterprise architecture and prepared the ICT business planning using IBM's Business Systems Planning (BSP) and the Zachman Framework. Designed the software architecture of the core systems using an extended ADL in Visual Paradim.
- 2003–2006 **Software Engineer**, *Rayan Pardaz Kavosh*, Tehran, Iran.
Developed server-side software, designed finance and automation software systems. Added a number of new features to a code base of a manufacturing automation system. Technologies: Visual C++, COM/CORBA, Socket programming

HONORS AND AWARDS

- VCC Finalist Shortlisted for the VCC venture capital challenge for automated configuration tuning for big data systems, <https://github.com/dice-project/DICE-Configuration-B04C0>, UK, 2016.
- Travel Grant Awarded a travel grant to visit Sharif University of Technology to give a talk on auto-scaling in cloud and big data, 2016.
- STSM Grant Awarded Short-Term Scientific Missions (STSM) grant (**\$5,000**) by the Management Committee of the COST Action IC1305, 2014.
- Internal Competition Selected as one of the two finalists at DCU for a fully funded research visit to **IBM Research** Brazil for research on automatic synthesis of connectors, 10 weeks, 2014.
- Internal Competition Thesis in 3 finalist, "I bet you didn't know that software can adapt itself on-the-fly", Ireland, 2013.
- Travel Grant ACM-SIGSOFT CAPS award and University of Szeged special support grant (**\$4,000**), ESEC/FSE 2011, Szeged, Hungary, 2011.
- Fellowship Awarded Lero Graduate School in Software Engineering (LGSSE) scholarship on the structured PhD in Software Engineering, 2010-2013, **\$85,000**.
- Iranian University Entrance Exam Ranked **21nd** in the national graduate-level exam among 20,000 participants, 2003.

INVITED TALKS, LECTURES AND SEMINARS

- SLIDESHARE** The slides of my recent talks are available at: <http://www.slideshare.net/pooyanjamshidi/>
- NC STATE UNIVERSITY** **Learning Software Performance Models for Dynamic and Uncertain Environments**, *Raleigh, US*, 2017.
- SPEC DEVOPS RG** **An Exploratory Analysis of Transfer Learning for Performance Modeling of Configurable Systems**, *Online talk, RG DevOps Performance Working Group*, 2017.
- DAGSTUHL SEMINAR** **Machine Learning meets DevOps**, *Software Performance Engineering in the DevOps World, Dagstuhl, Germany*, 2016.
- BERN UNIVERSITY** **An Uncertainty-Aware Approach to Optimal Configuration of Stream Processing Systems**, *Bern, Switzerland*, 2016.
- SPEC DEVOPS RG** **An Uncertainty-Aware Approach to Optimal Configuration of Stream Processing Systems**, *Online talk, RG DevOps Performance Working Group*, 2016.
- SPEC DEVOPS RG** **Microservices Architecture Enables DevOps: Migration to a Cloud-Native Architecture**, *Online talk, RG DevOps Performance Working Group*, 2016.
- NC4 CONFERENCE** **DevOps: Migration to a Cloud-Native Architecture**, *The National Conference on Cloud Computing & Commerce, Dublin, Ireland*, 2016.
- SHARIF UNIVERSITY** **Fuzzy Self-Learning Controllers for Elasticity Management in Dynamic Cloud Architectures**, *Tehran, Iran*, 2016.
- NII SHONAN MEETING** **Fuzzy Self-Learning Controllers for Elasticity Management in Dynamic Cloud Architectures**, *National Institute of Informatics (NII), Controlled Adaptation of Self-adaptive Systems (CASaS), Shonan, Japan*, 2016.
- TRINITY COLLEGE** **Self-learning Cloud Controllers**, *Trinity College Dublin*, 2015.
- UFC UNIVERSITY** **Self-learning Cloud Controllers**, *Federal University of Ceará, Fortaleza, Brazil*, 2015.
- UECE UNIVERSITY** **Cloud Migration Patterns: A Multi-Cloud Architectural Perspective**, *Ceará State University, Fortaleza, Brazil*, 2015.
- NC4 CONFERENCE** **Fuzzy Q-Learning for Knowledge Evolution**, *The National Conference on Cloud Computing & Commerce, Dublin, Ireland*, 2015.
- SPEC DEVOPS RG** **Self-learning Cloud Controllers**, *Online talk, RG DevOps Performance Working Group*, 2015.
- DAGSTUHL SEMINAR** **Fuzzy Control Meets Software Engineering**, *Control Theory meets Software Engineering, Dagstuhl, Germany*, 2014.

TEACHING ACTIVITIES

HEA CERTIFICATE I am an **Associate Fellow of Higher Education Academy (AFHEA)**. AFHEA is a recognition certified by the Higher Education Academy for professional teaching according to the UK Professional Standards Framework.

POSTGRADUATE TEACHING

- 11/2016 **SMA: Software Modeling and Analysis (Oscar Nierstrasz's course)**, *Bern University, Switzerland*, A guest lecture on Architecture Extraction.
- 10/2015–1/2016 **424H - Learning in Autonomous Systems**, *Imperial College London*, TA.
- 11/2014–12/2014 **CA674 - Cloud Architecture**, *Dublin City University*, Lectures shared with Claus Pahl.
- 3/2014–6/2014 **CA668 E-commerce Infrastructure**, *Dublin City University*, Lectures shared with Claus Pahl.

UNDERGRADUATE TEACHING

- 10/2017 **Foundations of Software Engineering (Chrsitan Kästner and Claire Le Goues's course)**, *Carnegie Mellon University*, A guest lecture on *Microservices Architecture*.
- 9/2008-6/2010 **Software Engineering**, *Tarbiat Moallem University*, Lecturer.
- 9/2001-6/2003 **Introduction to C/C++**, *Amirkabir University of Technology*, TA.
- 9/2002-6/2003 **Data Structures**, *Amirkabir University of Technology*, TA.

RESEARCH CO-MENTORING





- 2017 **Carnegie Mellon University**, *REU Program*, Changming Xu.
Can you fool a self-adaptive software system?
- 2016–17 **Imperial College London**, *Bachelor of Engineering (BEng) final project*, Ka Yan Wong.
Experimental study of performance variations in big data systems.
- 2016 **Imperial College London**, *Master of Engineering (MEng) final project*, Yifan Zhai.
A DevOps canary testbed for Big Data application testing.
- 2015 **Imperial College London**, *BEng final project*, Zhang Haoran, Qiu Jiaxin, Abdeljallal Fahd, Lu Cong, Chadjiminias Ioannis, Liu Yao.
A suite for automated configuration testing and benchmarking for Apache Spark.
- 2016 **Imperial College London**, *MEng final project*, Xidi Chen.
A suite for automated configuration testing and benchmarking for Apache Hadoop.
- 2014–2015 **Dublin City University**, *MSc practicum*, Robert Mason.
Auto-scaling in OpenStack cloud.
- 2014 **Dublin City University**, *MSc practicum*, Brian C. Carroll.
Auto-scaling in the cloud: evaluating a control based technique.
- 2014–15 **Sharif University of Technology**, *MSc thesis*, Armin Balalaie.
Migrating to cloud-native architectures using microservices.
- 2008–10 **Shahid Beheshti University**, *MSc thesis*, Ali Rostampour, Ali Kazemi.
A metric for measuring the degree of entity-centric service cohesion.

PUBLICATIONS

Citations=1050, Key publications are highlighted with ★ based on their importance to my
h-index=16 research goal, <http://scholar.google.com/citations?user=41rV5koAAAAJ>

REFEREED JOURNAL PAPERS

- ELSEVIER JSS [J15] A. Aleti, C. Trubiani, A. van Hoorn, P. Jamshidi, *An Efficient Method for Uncertainty Propagation in Robust Software Performance Estimation*, Elsevier Journal of Systems and Software (JSS), 2017 (accepted). [SJR rating: **Q1**]
- ACM TOIT [J14] C. Pahl, P. Jamshidi, O. Zimmermann, *Architectural Principles for Cloud Software*, ACM Transactions on Internet Technology (TOIT), 2017 (in press). [SJR rating: **Q1**]
- IEEE TCC [J13] C. Pahl, A. Brogi, J. Soldani, P. Jamshidi, *Cloud Container Technologies: a State-of-the-Art Review*, IEEE Transactions on Cloud Computing (TCC). [doi:10.1109/TCC.2017.2702586](https://doi.org/10.1109/TCC.2017.2702586). [SJR rating: **Q1**]
- WILEY JSEP [J12] C Pahl, P. Jamshidi, D Weyns, *Cloud architecture continuity: Change models and change rules for sustainable cloud software architectures*, Wiley Journal of Software: Evolution and Process (JSEP), 29(2), 2017 [doi:10.1002/smr.1849](https://doi.org/10.1002/smr.1849). [SJR rating: **Q2**]
- ACM TAAS [J11] A. Filieri, M. Maggio, K. Angelopoulos, N. D'Ippolito, I. Gerostathopoulos, A. Hempel, H. Hoffmann, P. Jamshidi, E. Kalyvianaki, C. Klein, F. Krikava, S. Misailovic, A. V. Papadopoulos, S. Ray, A. M. Sharifloo, S. Shevtsov, M. Ujma and T. Vogel, *Control Strategies for Self-Adaptive Software Systems*, ACM Transactions on Autonomous and Adaptive Systems (TAAS), invited paper, 11(4), 2017, [doi:10.1145/3024188](https://doi.org/10.1145/3024188). [SJR rating: **Q1**]
- IEEE TCC [J10] F. Fowley, C. Pahl, P. Jamshidi, D. Fang, X. Liu, *A Classification and Comparison Framework for Cloud Service Brokerage Architectures*, IEEE Transactions on Cloud Computing (TCC), 2016, [doi:10.1109/TCC.2016.2537333](https://doi.org/10.1109/TCC.2016.2537333). [SJR rating: **Q1**]
- WILEY SPE [J9] P. Jamshidi, C. Pahl, N. C. Mendonca, *Pattern-based Multi-Cloud Architecture Migration*, Wiley Software: Practice and Experience (SPE), 47(9), 1159-1184, 2016. [doi:10.1002/spe.2442](https://doi.org/10.1002/spe.2442) [SJR rating: **Q2**]
- ★ ELSEVIER FGCS [J8] S. Farokhi, P. Jamshidi, E. B. Lakew, I. Brandic, E. Elmroth, *A Hybrid Cloud Controller for Vertical Memory Elasticity: A Control-theoretic Approach*, Elsevier Future Generation Computer Systems (FGCS), 65, 57 – 72 (2016). [doi:10.1016/j.future.2016.05.028](https://doi.org/10.1016/j.future.2016.05.028), [SJR rating: **Q1**]
- ELSEVIER FGCS [J7] D. Fang, X. Liu, I. Romdhani, P. Jamshidi, C. Pahl, *An Agility-Oriented and Fuzziness-Embedded Semantic Model for Collaborative Cloud Service Search, Retrieval and Recommendation*, Elsevier Future Generation Computer Systems (FGCS), 56, 11 – 26 (2016). [doi:10.1016/j.future.2015.09.025](https://doi.org/10.1016/j.future.2015.09.025), [SJR rating: **Q1**]
- IEEE TCC [J6] P. Jamshidi, A. Ahmad, C. Pahl, *Cloud Migration Research: A Systematic Review*, IEEE Transactions on Cloud Computing (TCC), 1(2), 142 – 157 (2013). [doi:10.1109/TCC.2013.10](https://doi.org/10.1109/TCC.2013.10), [SJR rating: **Q1**]
- Featured Article
- SPRINGER JSEP [J5] A. Ahmad, P. Jamshidi, C. Pahl, *Classification and Comparison of Architecture Evolution Reuse Knowledge - A Systematic Review*, Springer Journal of Software: Evolution and Process (JSEP), 26(7): 654–691 (2014). [doi:10.1002/smr.1643](https://doi.org/10.1002/smr.1643), [SJR rating: **Q2**]

- EASST [J4] A. Ahmad, P. Jamshidi, C. Pahl, F. Khaliq, *A Pattern Language for the Evolution of Component-based Software Architectures*, Electronic Communications of the EASST, 59, 1 – 32 (2014).  doi:10.14279/tuj.eceasst.59.931
- IEEE SYSTEMS [J3] A. Khoshkbarforoushha, P. Jamshidi, M. Fahmideh, L. Wang, R. Ranjan, *Metrics for BPEL Process Reusability Analysis in a Workflow System*, IEEE Systems Journal, 1 – 10 (2014).  doi:10.1109/JSYST.2014.2317310, [SJR rating: **Q1**]
- SPRINGER SOSYM [J2] M. Fahmideh, M. Sharifi, P. Jamshidi, *Enhancing the OPEN Process Framework with Service-Oriented Method Fragments*, Springer Software and Systems Modeling (SoSym), 13(1): 361 – 390 (2014).  doi:10.1007/s10270-011-0222-z, [SJR rating: **Q1**]
- SPRINGER SOCA [J1] A. Khoshkbarforoushha, P. Jamshidi, A. Nikraves, F. Shams, *Metrics for BPEL process context-independency analysis*, Springer Service Oriented Computing and Applications (SOCA), 5(3): 139 – 157 (2011).  doi:10.1007/s11761-011-0077-8, [SJR rating: **Q2**]


REFEREED CONFERENCE PAPERS


- ★ASE [C20] P. Jamshidi, N. Siegmund, M. Velez, C. Kästner, A. Patel, Y. Agarwal, *Transfer Learning for Performance Modeling of Configurable Systems: An Exploratory Analysis*, In Proc. of the 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE), Illinois, USA, (Nov 2017) [Acceptance rate: 21%(67/322); CORE rating: rank **A***].
- ★SEAMS [C19] P. Jamshidi, M. Velez, C. Kästner, N. Siegmund, P. Kawthekar, *Transfer Learning for Improving Model Predictions in Highly Configurable Software*, In Proc. of the 12th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS), Buenos Aires, Argentina, (May 2017) [Acceptance rate: 23% (14/61)].
- CCGRID [C18] H. Arabnejad, C. Pahl, P. Jamshidi, G. Estrada, *A Comparison of Reinforcement Learning Techniques for Fuzzy Cloud Auto-Scaling*, in Proc. of The 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), Madrid, Spain, (May 2017) [Acceptance rate: 23% (64/280); CORE rating: rank **A**].
- WICSA [C17] M. Bersani, F. Marconi, D. Tamburri, P. Jamshidi, A. Nodari, *Continuous Architecting of Stream-Based Systems*, In Proc. of The 13th Working IEEE/IFIP Conference on Software Architecture (WICSA), Venice, Italy, (April 2016). [Acceptance rate: 37% (56/149); CORE rating: rank **A**]
- ★MASCOTS [C16] P. Jamshidi, G. Casale, *An Uncertainty-Aware Approach to Optimal Configuration of Stream Processing Systems*, In Proc. of IEEE 24th International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS), London, UK (September 2016). [Acceptance rate: 17% (34/200); CORE rating: rank **A**]
- ★QoSA [C15] P. Jamshidi, A. Sharifloo, C. Pahl, H. Arabnejad, A. Metzger, G. Estrada, *Fuzzy Self-Learning Controllers for Elasticity Management in Dynamic Cloud Architectures*, In Proc. of 12th International ACM SIGSOFT Conference on the Quality of Software Architectures (QoSA), Venice, Italy, (April 2016). [CORE rating: rank **A**]
- ICCAC [C14] P. Jamshidi, A. Sharifloo, C. Pahl, A. Metzger, G. Estrada, *Self-Learning Cloud Controllers: Fuzzy Q-Learning for Knowledge Evolution*, In Proc. of IEEE International Conference on Cloud and Autonomic Computing (ICCAC), Boston, MA, USA, (Sept. 2015). [CORE rating: rank **B**]

- ICAC [C13] Soodeh Farokhi, P. Jamshidi, D. Lucanin, I. Brandic, *Performance-Based Vertical Memory Elasticity*, In Proc. of IEEE International Conference on Autonomic Computing (ICAC), Grenoble, France, (Jul. 2015). [CORE rating: rank B]
- ECSA [C12] C. Pahl, P. Jamshidi, *Software Architecture for the Cloud - A Roadmap Towards Control-Theoretic, Model-Based Cloud Architecture*, In Proc. of Springer European Conference on Software Architecture (ECSA), (Sept. 2015). [CORE rating: rank A]
- SEAMS [C11] A. Filieri, M. Maggio, K. Angelopoulos, N. D'Ippolito, I. Gerostathopoulos, A. Hempel, **Invited** H. Hoffmann, P. Jamshidi, E. Kalyvianaki, C. Klein, F. Krikava, S. Misailovic, A. V. Papadopoulos, S. Ray, A. M. Sharifloo, S. Shevtsov, M. Ujma and T. Vogel, *Software Engineering Meets Control Theory*, In Proc. of the 10th ACM International Symposium on Software Engineering for Adaptive and Self-Managing Systems, Firenze, Italy, (May 2015), [Acceptance rate: 29% (16/55)].
- UCC [C10] L. Zhang, Y. Zhang, P. Jamshidi, L. Xu, C. Pahl, *Workload Patterns for Quality-Driven Dynamic Cloud Service Configuration and Auto-Scaling*, In Proc. of IEEE/ACM 7th International Conference on Utility and Cloud Computing (UCC), London, UK, (Dec 2014), [Acceptance rate: 19% (38/198); CORE rating: rank A]
- SEAMS [C9] P. Jamshidi, A. Ahmad, C. Pahl, *Autonomic Resource Provisioning for Cloud-Based Software*, In Proc. of the 9th ACM International Symposium on Software Engineering for Adaptive and Self-Managing Systems, Hyderabad, India, (Jun. 2014), [Acceptance rate= 18% (15/80)].
- CSMR [C8] P. Jamshidi, M. Ghafari, A. Ahmad, C. Pahl, *A Framework for Classifying and Comparing Architecture-Centric Software Evolution Research*, In Proc. of 17th European Conference on Software Maintenance and Reengineering (CSMR), Genova, Italy, (Mar. 2013), [Acceptance rate: 36% (29/80); CORE rating: rank B]
- CBSE [C7] M. Ghafari, P. Jamshidi, S. Shahbazi, H. Haghghi, *An architectural approach to ensure globally consistent dynamic reconfiguration of component-based systems*, In Proc. of the 15th ACM SIGSOFT symposium on Component Based Software Engineering (CBSE), Bertinoro, Ital, (Sept. 2012). [Acceptance rate: 29%; CORE rating: rank A]
- CAiSE [C6] A. Ahmad, P. Jamshidi, C. Pahl, *Graph-Based Pattern Identification from Architecture Change Logs*, In Proc. of Springer International Conference on Advanced Information Systems Engineering (CAiSE), (Jun. 2012). [Short paper, CORE rating: rank A]
- QSIC [C5] A. Kazemi, A. Rostampour, A. Zamiri, P. Jamshidi, H. Haghghi, F. Shams, *An Information Retrieval Based Approach for Measuring Service Conceptual Cohesion*, In Proc. of 11th IEEE International Conference on Quality Software (QSIC), Madrid, Spain, (Jul. 2011). [Acceptance rate: 17.6%; CORE rating: rank B]
- SCC [C4] A. Kazemi, A. Nasirzadeh, A. Rostampour, H. Haghghi, P. Jamshidi, F. Shams, *Measuring the Conceptual Coupling of Services Using Latent Semantic Indexing*, In Proc. of IEEE International Conference on Services Computing (SCC), Washington, DC, USA, (Jul. 2011). [Acceptance rate: 17%; CORE rating: rank A]
- SERVICES [C3] A. Kazemi, A. Rostampour, P. Jamshidi, E. Nazemi, F. Shams, A. Nasirzadeh, *A Genetic Algorithm Based Approach to Service Identification*, In Proc. of IEEE World Congress on Services (SERVICES), Washington, DC, USA, (Jul. 2011). [Acceptance rate: 17%; CORE rating: rank A]
- SERVICES [C2] A. Khoshkbarforousha, R. Tabein, P. Jamshidi, F. Shams, *Towards a metrics suite for measuring composite service granularity level appropriateness*, In Proc. of IEEE World Congress on Services (SERVICES), Miami, FL, USA, (Jul. 2010). [Acceptance rate: 18% (29/165); CORE rating: rank B]

- SCC [C1] P. Jamshidi, M. Sharifi, S. Mansour, *To Establish Enterprise Service Model from Enterprise Business Model*, in Proc. of IEEE International Conference on Services Computing (SCC), Honolulu, HI, USA, (Jul. 2008). [Acceptance rate: 18%; CORE rating: rank A]

REFEREED MAGAZINE PAPERS

- CLOUD [M2] P. Jamshidi, C. Pahl, N. Mendonca, *Managing Uncertainty in Autonomic Cloud Elasticity Controllers*, IEEE Cloud Computing, 2016.  doi:10.1109/MCC.2016.66

- SOFTWARE [M1] A. Balalaie, A. Heydarnoori, P. Jamshidi, *Microservices Enables DevOps: an Experience Report on Migration to a Cloud-Native Architecture*, IEEE Software, 2016.  doi:10.1109/MS.2016.64, [SJR rating: **Q1**]

Featured Article


TECHNICAL REPORTS


- DAGSTUHL [TR2] A. van Hoorn, P. Jamshidi, P. Leitner, I. Weber, *Software Performance Engineering in the DevOps World*, Report from GI-Dagstuhl Seminar 16394, (Sept. 2017), <https://arxiv.org/abs/1709.08951>.


- SPEC [TR1] A. Brunnert, A. van Hoorn, F. Willnecker, A. Danciu, Wi. Hasselbring, C. Heger, N. Herbst, P. Jamshidi, R. Jung, J. von Kistowski, A. Koziolok, J. Kroß, S. Spinner, C. Vögele, J. Walter, A. Wert, *Performance-oriented DevOps: A Research Agenda*, SPEC Research Group — DevOps Performance Working Group, Standard Performance Evaluation Corporation (SPEC), (Aug. 2015), SPEC-RG-2015-01.


SOFTWARE ARTIFACTS


GitHub Almost all listed software is developed collaboratively. LD: lead developer; CC: contributor.


- LD [S14] **GenPerf**, *GenPerf uses symbolic regression to synthetically generate target performance influence models with different similarities to the source model. GenPerf is used to generate synthetic data for evaluating our TL approach.*, Python,  <https://github.com/pooyanjamshidi/GenPerf>.


- LD [S13] **AutoTL (NOT RELEASED)**, *This tool enables an adaptive sampling that learns from multiple exclusive information origins including influential configuration options, their interactions, and performance distribution of the configurable software*, Python,  <https://github.com/pooyanjamshidi/autotl>.

- LD [S12] **model-learner**, *This tool enables discovering a black box model using regression models and transfer learning. This was used in the BRASS project to enable battery charge/recharge in a self-adaptive loop*, Python,  <https://github.com/cmu-mars/model-learner>.

- LD [S11] **autoscaling-bigdata**, *A library for application level runtime monitoring and runtime change actuators and auto-scaling controllers for Big Data technologies such as Apache Storm, Spark, Hadoop, Matlab+REST APIs*,  <https://github.com/pooyanjamshidi/autoscaling-bigdata>.



- LD [S10] **TL4CO**, *A Machine Learning tool for finding the optimum configuration of Big Data systems by transferring the learning from other system versions in DevOps context*, Matlab+Java,  <https://github.com/dice-project/DICE-Configuration-TL4CO>.

- LD [S9] **Featured Software** **BO4CO**, *A Machine Learning tool for finding the optimum configuration of Big Data systems*, Matlab+Python,  <https://github.com/dice-project/DICE-Configuration-B04CO>.

- LD [S8] **ElasticBench**, *A cloud application framework to plug-in auto-scaling logic and experimentally evaluate controllers in a feedback control loop on platform as a service environment on Microsoft Azure, .NET*,  <https://github.com/pooyanjamshidi/ElasticBench>.
- CC [S7] **spark-suite**, *A suite for automated configuration testing, automated topology deployment and a benchmarking tool for Apache Spark*, Java,  <https://github.com/pooyanjamshidi/spark-suite>.
- CC [S6] **OSTIA**, *A parser to elicit and represent Storm topologies by reverse engineering Storm-based programs*, Ruby,  <https://github.com/maelstromdat/OSTIA>.
- LD [S5] **pong-engine**, *An engine that runs pong games on Matlab and paddles are controlled by reinforcement learner agents. I implemented this piece of software for a reinforcement learning course*, Matlab,  <https://github.com/pooyanjamshidi/pong-engine>.
- CC [S4] **MDLoad**, *MDload is a model-driven workload generation tool that automatically generates requests to a web application by simulating a set of users*, Java+Matlab,  <https://github.com/imperial-modacLOUDS?query=modacLOUDS-mdload>.
- LD [S3] **Fuzzy-Q-Learning**, *An implementation of Fuzzy Q-Learning for making cloud auto-scaling more intelligent through online policy learning*, Matlab,  <https://github.com/pooyanjamshidi/Fuzzy-Q-Learning>.
- LD [S2] **RobusT2Scale**, *A cloud auto-scaler based on fuzzy reasoning*, Matlab,  <https://github.com/pooyanjamshidi/RobusT2Scale>.
- LD [S1] **ASIM**, *A program that automatically identifies services out of business processes*, Java,  <https://github.com/pooyanjamshidi/ASIM>.

DATA

My research is experimental, I typically release the data that I collect for my research to the public community for replication.

- [D2] **ASE 2017**, *Transfer Learning for Performance Modeling of Configurable Systems: An Exploratory Analysis*, **Subject systems**: SaC, SQLite, SPEAR, X264,  <https://github.com/pooyanjamshidi/ase17>.
- [D1] **MASCOTS 2016**, *An Uncertainty-Aware Approach to Optimal Configuration of Stream Processing Systems*, **Subject systems**: Apache Storm, Apache Spark, Apache Hadoop, Apache Cassandra,  <https://zenodo.org/record/56238>.

SERVICES

GUEST EDITOR

IEEE Software **IEEE Software Special Issue on Microservices, Guest editor, Co-edited with James Lewis (ThoughtWorks), Stefan Tilkov (innoQ), Claus Pahl, and Nabor Mendonça, This special issue attracted 26 submissions, a record number in IEEE Software,** [☞] <https://www.computer.org/software-magazine/2017/02/10/microservices-call-for-papers/>.

CO-ORGANIZER

- SEAMS 2017 The 12th International Symposium on Software Engineering for Adaptive and Self-Managing Systems, publicity and proceedings chair (Co-organized with David Garlan, Bashar Nuseibeh, Javier Cámara, and Nicolás D'Ippolito).
- CloudWays 2017 International Workshop on Cloud Adoption and Migration, Workshop co-chair (Co-organized with Claus Pahl, and Nabor Mendonça).
- Dagstuhl 2016 **Software Performance Engineering in the DevOps World, Seminar co-organizer (Co-organized with Andre van Hoorn, Philipp Leitner, and Ingo Weber.),** [☞] <http://www.dagstuhl.de/16394>.
- CloudWays 2016 International Workshop on Cloud Adoption and Migration, Workshop co-chair.
- CloudWays 2015 International Workshop on Cloud Adoption and Migration, Workshop co-chair.

PROGRAM COMMITTEES (CONFERENCES)

- ICDCS 2018 38th International Conf. on Distributed Computing Systems, Distributed Green Computing and Energy Management track
- SEAMS 2018 13th Intl Symp on Software Eng for Adaptive and Self-Managing Systems
- ECSA 2017 11th European Conf. on Software Architecture
- SEAMS 2017 12th Intl Symp on Software Eng for Adaptive and Self-Managing Systems
- EUSPN 2017 8th International Conf. on Emerging Ubiquitous Systems and Pervasive Networks
- SIGMOD 2016 ACM SIGMOD 2016 Reproducibility
- SEAMS 2016 11th Intl Symp on Software Eng for Adaptive and Self-Managing Systems
- EUSPN 2016 7th International Conf. on Emerging Ubiquitous Systems and Pervasive Networks
- ICSOF 2016 13th International Conf. on Software Technologies
- ICSOF 2015 12th International Conf. on Software Technologies

PROGRAM COMMITTEES (WORKSHOPS)

- DEEPEN 2018 DEpendencies of Extra-functional Properties in software ENgineering
- LTB 2018 Load Testing and Benchmarking of Software Systems
- ASBDA 2017 International Workshop on Autonomic Systems for Big Data Analytics
- AMS 2017 International Workshop on Architecting with MicroServices
- QUDOS 2017 International Workshop on Quality-Aware DevOps
- LTB 2017 Load Testing and Benchmarking of Software Systems
- QUORS 2017 International COMPSAC Workshop on Quality Oriented Reuse of Software
- LTB 2016 Load Testing and Benchmarking of Software Systems
- QUORS 2016 International COMPSAC Workshop on Quality Oriented Reuse of Software

JOURNAL REVIEWS

Brackets indicate the number of papers I reviewed (excluding revisions).

IEEE TSE (7) IEEE Transactions on Software Engineering
 IEEE TCC (2) IEEE Transactions on Cloud Computing
 IEEE TSC (2) IEEE Transactions on Service Computing
 IEEE Software (2) IEEE Software
 ACM TAAS (2) ACM Transactions on Autonomous and Adaptive Systems
 Springer SoSyM (2) Springer Software & Systems Modeling
 Elsevier IST (2) Elsevier Information and Software Technology
 Oxf Comp Jrnl (2) Oxford Academic Computer Journal
 Wiley JSEP (2) Wiley Software Process: Improvement and Practice
 Elsevier ASC (1) Elsevier Applied Soft Computing
 Computer (1) IEEE Computer
 Elsevier JNCA (1) Elsevier Journal of Network and Computer Applications
 IEEE TNSM (1) IEEE Transactions on Network and Service Management
 Springer JCST (1) Springer Journal of Computer Science and Technology
 Springer JCC (1) Springer Journal of Cloud Computing
 Springer SOCA (1) Springer Service Oriented Computing and Applications
 Wiley SPE (1) Wiley Software: Practice and Experience
 Elsevier JSA (1) Elsevier Journal of Systems Architecture
 Springer JBCS (1) Springer Journal of the Brazilian Computer Society
 Elsevier JSS (1) Elsevier Journal of Systems and Software
 JWE (1) Journal of Web Engineering
 Computing (1) Springer Computing
 IBM (1) IBM Journal of Research and Development
 IEEE Cloud (1) IEEE Cloud Computing

SUB-REVIEWER

ICSE 2018 International Conference on Software Engineering
 ASE 2017 International Conference on Automated Software Engineering
 FSE 2017 ACM SIGSOFT Symposium on the Foundations of Software Engineering
 ICCAC 2016 International Conference on Cloud and Autonomic Computing
 CLOUD 2016 International Conference on Cloud Computing
 CLOUD 2015 International Conference on Cloud Computing
 ICAC 2015 International Conference on Autonomic Computing
 ICDCS 2015 International Conference on Distributed Computing Systems
 ICPE 2015 International Conference on Performance Engineering
 PESOS 2015 International Workshop on Principles of Engineering Service-Oriented and Cloud
 SBRC 2015 The Brazilian Symposium on Computer Networks and Distributed Systems
 ESOC 2014 European Conference on Service-Oriented and Cloud Computing
 ECSA 2013 European Conference on Software Architecture

GRANT PROPOSAL REVIEW

2016 Dutch Technology Foundation STW

OTHER REVIEWS

2016 Elsevier book proposal review

INDUSTRY SERVICES

- SPEC During my postdocotoral research at Imperial, I was actively collaborating with the DevOps RG group for developing a DevOps framework by consolidating tools to better integrate performance monitoring and architectural refactoring.
- Intel and Microsoft During my postdocotoral research in IC4 (Irish cloud center with 40+ industry members), I was actively collaborating with with Giovani Estrada and Chris Woods from Intel and Niall Moran from Microsoft for developing auto-scaling mechanisms for OpenStack and Azure platforms, see [C15, C14, C18].
- IPMA Project Management Excellence My responsibility was to *assess* the quality of the projects submitted for the “National Project Management Excellence Award” and to judge its excellence by exploiting the IPMA Project Excellence Model. The assessment process included individual assessments, consensus meetings, site visits and report writing.
- Apache I am active in the Apache Storm community contributing to the auto-scaling feature of the framework: <https://issues.apache.org/jira/browse/STORM-594>
- Imperial Consultants I was a research consultant on Big Data and Machine Learning in Imperial Consultants, a self-funding, wholly owned company of Imperial College London.

OUTREACH ACTIVITIES

- Outreach High school student mentor for CREST Awards 2015, Project title: “Can a program beat the Turing test?”, Queens Park School, UK.
- Outreach Young Scientists Exhibition 2013, Lero stands, Dublin, Ireland, 2013.

RESEARCH VISITS

- OCT 2014 **Vienna University of Technology**, *Host: Ivona Brandic, Soodeh Farokhi*, Austria, 1-month.
- AUG 2014 **Edinburgh Napier University**, *Host: Xiaodong Liu*, UK, 1-month visit.
- JAN 2015 **University of Fortaleza**, *Host: Nabor Mendonca*, Brazil, 1-month visit.

MEMBERSHIP IN TECHNICAL COMMUNITIES

- 2015– SPEC RG DevOps Performance Group.
- 2011– IEEE, ACM, ACM SIGSOFT
- 2011– Irish Software Association (ISA)

REFERENCES

- Christian Kästner** (advisor) Assistant Professor, Carnegie Mellon University, US.
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