[simula . research laboratory]

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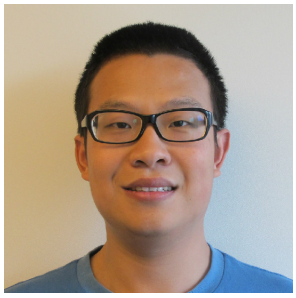
Shuai Wang



Personal Information

Date of Birth:	February 03, 1986
Age:	30
Gender:	Male
Current Place:	Oslo, Norway
Marital Status:	Married
Nationality:	Chinese

Research Interests

- Model-Driven Engineering
- Search-Based Software Engineering
- Empirical Software Engineering
- Software Product Line Testing
- Variability Management

Education

- 2011-2015: PhD on Computer Science, University of Oslo && Simula Research Laboratory, Oslo, Norway
- 2008-2011: Master on Computer Software and Theories, Beihang University, Beijing, China
- 2004-2008, Bachelor on Information and Computing Science, Beihang University, Beijing, China

Positions

- 2015-Present: Postdoctoral Researcher, Software Engineering Department, Simula Research Laboratory, Oslo, Norway
- 2011-Present: Scientific Collaborator with Cisco Systems, Oslo, Norway
- 2015-Present: Scientific Collaborator with Norwegian Cancer Registry, Oslo, Norway
- 2011-2014: PhD Researcher, University of Oslo && Simula Research Laboratory, Oslo, Norway
- 2008-2011: Teach Assistant/Research Assistant, School of Computer Science and Engineering, Beihang University, Beijing China

Projects

- **Technical Project Manager: An Innovative Approach for Longstanding Development and Maintenance of the Automated Cancer Registry System (MBE-CR) 2015.1-now**

Description: The innovation planned in this project is an add-on to the digitization project currently being undertaken by the Cancer Registry of Norway (CR). The project started in 2009 and aims to transform the current paper-based/manual system into an ICT-based Automated Cancer Registry System (ACRS). The planned innovation project aims to develop systematic, automated and cost-effective model-based approaches for ensuring the quality of the evolving ACRS system and therefore significantly improving the efficiency of the patient history registration process. This will positively affect all its end users, including researchers, patients, doctors, and government officials.

- **Project Leader: Testing of Real-Time Embedded Systems 2011.9-now**

Description: Real-time and embedded systems (RTES) are extensively used in varied application domains including communication, aerospace, transport, maritime and energy domains. In addition, RTESs have been increasingly used as business, safety, and mission critical systems. A typical RTES's environment may consist of several physical components (e.g., sensors and actuators) and may even consist of other RTESs. This project aims to devise practical, scalable, cost-effective, automated, and optimized model-based testing techniques for RTESs that meet the requirements of industrial systems and have the following key objectives:

1. Devising a set of novel techniques for testing to significantly improve the quality of industrial RTES;
2. Developing multi-objective test optimization testing techniques;
3. Empirically evaluating cost, effectiveness, and scalability of the testing techniques using well-established methods including controlled experiments, case study research, and surveys;
4. Demonstrating the applicability of the testing techniques on the industrial case studies with the help of proof of concept tools.

- **Management Committee (Representative of Norway): Improving Applicability of Nature-Inspired Optimisation by Joining Theory and Practice (ImAppNIO) 2016.3-2020.3**

Descprition: Nature-inspired search and optimisation heuristics are easy to implement and apply to new problems. However, in order to achieve good performance it is usually necessary to adjust them to the problem at hand. Theoretical foundations for the understanding of such approaches have been built very successfully in the past 20 years but there is a huge disconnect between the theoretical basis and practical applications. The development of powerful analytical tools, significant insights in general limitations of different types of nature-inspired optimisation methods and the development of more practically relevant perspectives for theoretical analysis have brought impressive advances to the theory-side of the field. However, so far impact on the application-side has been limited and few people in the diverse potential application areas have benefitted from these advances.

The main objective of the COST Action is to bridge this gap and improve the applicability of all kinds of nature-inspired optimisation methods. It aims at making theoretical insights more accessible and practical by creating a platform where theoreticians and practitioners can meet and exchange insights, ideas and needs; by developing robust guidelines and practical support for application development based on theoretical insights; by developing theoretical frameworks driven by actual needs arising from practical applications; by training Early Career Investigators in a theory of nature-inspired optimisation methods that clearly aims at practical applications; by broadening participation in the ongoing research of how to develop and apply robust nature-inspired optimisation methods in different application areas.

Professional Activities

- Reviewers for Journal of Software and Systems Modeling (SoSyM), Journal of Information and Software Technology (IST)
- External Reviewers for IEEE Transactions on Software Engineering (TSE), Journal of Software and Systems Modeling (SoSyM), Journal of Software Testing Verification and Reliability (STVR), Journal of Systems and Software (JSS), Journal of Empirical Software Engineering (EMSE)
- PC member for the 31st ACM/SIGAPP Symposium on Applied Computing (SAC 2015), the 4th International Conference on Model-Driven Engineering and Software Development (MODELSWARD 2015)
- External Reviewers for ACM/IEEE International Conference on Model Driven Engineering Languages and Systems (MODELS), European

Conference on Modeling Foundations and Applications (ECMFA), IEEE International Symposium on Software Reliability Engineering (ISSRE), Genetic and Evolutionary Computation Conference (GECCO), IEEE International Conference on Quality Software (QSIC), Symposium on Search-Based Software Engineering (SSBSE), IEEE International Conference on Software Testing, Verification and Validation (ICST)

Peer Reviewed Publications

Journal Papers (based on the time order)

- **S. Wang**, S. Ali, A. Gotlieb. Cost-Effective Test Suite Minimization in Product Lines Using Search Techniques. *Journal of Systems and Software* (JSS) vol. 103, pp. 370-391, 2015. DOI: 10.1016/j.jss.2014.08.024.
- **S. Wang**, S. Ali, A. Gotlieb, and M. Liaaen. A Systematic Test Case Selection Methodology for Product Lines: Results and Insights From an Industrial Case Study. *Empirical Software Engineering (EMSE)*. 2014. DOI: 10.1007/s10664-014-9345-5.
- **S. Wang**, S. Ali, A. Gotlieb, and M. Liaaen. Automated Product Line Test Case Selection: Industrial Case Study and Controlled Experiment. *Journal of Software and Systems Modeling (SOSYM)*. 2014. DOI: 10.1007/s10270-015-0462-4.
- S. Wang, L. Zhang, **S. Wang**, J. Shen, Y. Liu. Qualitative and Quantitative Representing and Reasoning for Goals Satisfiability. *Journal of Software* (in Chinese), vol 22(4), pp. 593-608, 2011. DOI: 10.3724/SP.J.1001.2011.03736.
- S. Wang, L. Zhang, **S. Wang**, X. Qiu. A Trust Model and Evaluation Approach for Selecting Web Services. *Journal of Computer Science and Technology (JCST)*, vol 25 (6), pp. 1130-1142, 2010. DOI: 10.1007/s11390-010-9394-1.
- S. Wang, L. Zhang, **S. Wang**. A Measurement Approach of Trust Relation in Web Service, *Journal of Communication and Computer*, vol 6(8), pp. 9-17, 2009.

Conference Papers (based on the time order)

- **S. Wang**, H. Lu, T. Yue, S. Ali and J. Nygård. MBF4CR: A Model-Based Framework for Supporting An Automated Cancer Registry System. In: 12th European Conference on Modeling Foundations and Applications (ECMFA), 2016.
- A. Arrieta, **S. Wang**, G. Sagardui and L. Etxeberria. Test Case Prioritization of Configurable Cyber-Physical Systems with Weight-Based Search Algorithms. In: *Genetic and Evolutionary Computation Conference (GECCO)*, 2016.
- D. Pradhan, **S. Wang**, S. Ali and T. Yue. Search-Based Cost-Effective Test Case Selection for Manual Execution within Time Budget: An Empirical Study. In: *Genetic and Evolutionary Computation Conference (GECCO)*, 2016.
- **S. Wang**, S. Ali, T. Yue, Ø. Bakkeli and M. Liaaen. Enhancing Test Case Prioritization in an Industrial Setting with Resource Awareness and Multi-Objective Search In: *the 38th International Conference on Software Engineering (ICSE), Software Engineering in Practice (SEIP) track*, 2016.
- **S. Wang**, S. Ali, T. Yue, Y. Li and M. Liaaen. A Practical Guide to Select Quality Indicators for Assessing Pareto-Based Search Algorithms in Search-Based Software Engineering. In: the *38th International Conference on Software Engineering (ICSE)*, *Technical Research Track,* 2016.
- **S. Wang**, S. Ali, T. Yue, and M. Liaaen. UPMOA: An Improved Search Algorithm to Support User- Preference Multi-Objective Optimization. In: *26th IEEE International Symposium on Software Reliability Engineering*

(ISSRE), 2015.

- **S. Wang**, D. Buchmann, S. Ali, A. Gotlieb, D. Pradhan and M. Liaaen. Multi-Objective Test Prioritization in Software Product Line Testing: An Industrial Case Study. In: *18th International Software Product Line Conference (SPLC 2014),* **One of Three Best Paper Nominees**, pp. 32-41, 2014.
- **S. Wang**, S. Ali, A. Gotlieb. Random-Weighted Search-Based Multi-Objective Optimization Revisited. In: *6th International Symposium on Search-Based Software Engineering (SSBSE 2014)*, pp. 184-198, 2014.
- **S. Wang**, A. Gotlieb, S. Ali, and M. Liaaen. Automated Test Case Selection using Feature Model: An Industrial Case Study, In: *ACM/IEEE 16th International Conference on Model Driven Engineering Languages and Systems (MODELS 2013)*, **Best Application Paper Award (ACM Distinguished Paper Award)**, pp. 237-253, 2013.
- **S. Wang**, S. Ali, T. Yue, and M. Liaaen. Using Feature Model to Support Model-Based Testing of Product Lines: An Industrial Case Study, In: *13th International Conference on Quality Software (QSIC 2013)*, pp.75-84, 2013.
- **S. Wang**, S. Ali, and A. Gotlieb. Minimizing Test Suites in Software Product Lines Using Weight-based Genetic Algorithms, In: *ACM Genetic and Evolutionary Computation Conference (GECCO 2013)*, pp. 1493-1500, 2013.
- **S. Wang**, L. Zhang, S. Wang. A Quantitative Evaluation Approach of Subjective Trust for E-commerce, In: *International Conference on Computational Intelligence for Modeling, Control and Automation*, pp.761-766, 2008.
- S. Wang, L. Zhang, **S. Wang**, N. Ma. An evaluation approach of subjective trust based on cloud model, In: *International Conference on Computer Science and Software Engineering*, Vol. 3w, pp.1062-1068, 2008.

Book Chapter

- T. Yue, S. Ali and **S. Wang**. An Evolutionary and Automated Virtual Team Making Approach for Crowdsourcing Platforms. In *Crowdsourcing: Cloud-based Software Development*, edited by Michael N. Huhns, Wei Li Wei-Tek Tsai and Wenjun Wu, 113-130. Springer, 2014.

Workshop Papers

- **S. Wang**, A. Gotlieb, M. Liaaen and L.C. Briand. Automated Selection of Test Execution Plans from a Video Conferencing System Product Line, In: *VARibility for You Workshop (VARY 2012)* collated with MODELS 2012, pp. 32-37, 2012.
- **S. Wang,** S. Ali. Modeling bCMS Product Line Using Feature Model, Component Family Model and UML. In: *Comparing Modeling Approaches (CMA 2013)* collated with MODELS 2013, pp. 1-6,2013.

Poster Papers

- **S. Wang**, S. Ali and A. Gotlieb. Automated Product Line Methodologies to Support Model-Based Testing, In: *16th International Conference on Model-Driven Engineering Languages and Systems, (MODELS 2013)*, Poster Session, pp. 1-6, 2013.

Awards

- 2014 Chinese Government Award for Outstanding Self-Financed Students Abroad (500 all over the world each year)
- ACM/SIGSOFT Distinguished Paper Award in International Conference on Model Driven Engineering Languages and Systems (MODELS 2013)
- 2010 Tan Suo Scholarship for graduate (The highest honor of school of Computer Science and Engineering, Beihang University)

- 2009 Guang Hua Scholarship for graduate
- 2005,2006 Excellence Student Scholarship of Social Work first prize
- 2005,2006 Excellence Student Scholarship first prize

Implementation Capabilities

- C++
- Java
- Python
- Oracle, MYSQL
- Eclipse, Microsoft Visual C++
- XML, UML

Language Skills

- Chinese (Mother Tongue)
- English (Fluent)
- Norwegian (Limited)

Self-Assessment

- Be enthusiastic and responsible for work
- Be motivated for communication
- Be willing for learning knowledge