**SAFDAR AQEEL SAFDAR**

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**Summary**

An enthusiastic computer scientist with excellent academic records and 4+ years of experience working on multiple R&D projects that span the area of software modeling, development, testing, search algorithms, and machine learning at two world-reputed research institutes. I am a results-driven, customer-focused, articulate and analytical software engineer who is skilled in software modeling, software development methods, software testing, machine learning and multi-objective search research.

**Education**

* **Ph.D. in Software Product Line Engineering (2015-Expected to be completed in June 2018)**
* University of Oslo, Oslo, Norway
* **MS in Computer Science (2013 – 2015)**
* National University of Computer & Emerging Sciences (FAST-NU), Islamabad, Pakistan
* GPA 3.8/4.0
* **BS in Computer Science (2009 – 2013)**
* National University of Computer & Emerging Sciences (FAST-NU), Islamabad, Pakistan
* GPA 3.1/4.0

**Work Experience**

* **Ph.D. Scholar at Simula Research Laboratory (Currently)**

I have been working as a Ph.D. scholar from July 2015 up till now at Simula Research Laboratory, Oslo, Norway. The object of my Ph.D. thesis is to automate the configuration process in Cyber-Physical System (CPS) Product Lines (PL). Currently, I am working on automated configuration recommendation for interacting products at post-deployment time by applying machine learning and multi-objective search algorithms. I also participated in research activities such as paper reviews, discussions, and reviews for international conferences and journals.

* **Research Assistant at Quest Lab (June 2013-June 2015)**

I worked as Research Assistant from June 2013 to June 2015 at QUEST lab, Islamabad, Pakistan. During this tenure, I worked on industrial problems with the collaboration of other senior researchers. I planned and conducted controlled experiments and wrote a number of research papers. I also participated in research activities such as paper reviews, experiments, discussions, and peer reviews.

* **Public Relation Officer at Sublime Pakistan**

I worked as Public Relation Officer at Sublime Pakistan (An event management company) where my responsibility was to interact with the public. We organized a number of formal and informal events in different cities of Pakistan.

**Technical Skills**

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| **Skills/Proficiency** | **Proficient** | **Prior Experience** |
| **Programming Languages** | Java | Python, R, C#,C++, PHP |
| **Programming Tools** | Eclipse | PyCharm, R-Studio, MS Visual Studio, Dreamviewer |
| **Modeling Languages** | UML and UML Profiles,Feature Model | CVL, BVR |
| **Modeling Tools** | IBM RSA, MagicDraw, Papyrus, Enterprise Architect, Pure::Variants, fmp | CVL tool, BVR tool |
| **Testing Tools** | Junit, Selenium, Sikuli | Nunit |
| **Machine Learning and Statistics Tools** | Weka, R-Studio, IBM SPSS |  |

**Research Interests and Expertise**

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| * Machine Learning | * Search-based Software Engineering | * Empirical Software Engineering |
| * Model-based Testing | * Product Line Engineering | * Model-driven Software Engineering |

**Research Projects**

* *Evaluating UML Modeling Tools:* In this project, we evaluated the capabilities of UML modeling tools in terms of modeler’s productivity using controlled experiment. Evaluation results are published in a conference publication at [ECMFA-2015](https://link.springer.com/chapter/10.1007/978-3-319-21151-0_3).
* *Variability Modeling for Cyber-Physical Systems (CPSs):* In this project, we proposed a set of variation points and modeling requirements to capture the variabilities of *CPS* product lines. Further, we evaluated four existing variability modeling techniques based on framework. Results of this project are published in a conference publication at [SAM-2016](https://link.springer.com/chapter/10.1007/978-3-319-46613-2_1).
* *Mining Cross Product Line Rules:* In this project, we proposed a technique, which combines machine learning and multi-objective search algorithms to mine the rules specifying the abnormal behavior of system. The results are published in one conference paper at [GECCO-2017](http://dl.acm.org/citation.cfm?id=3071261) and a journal paper accepted for International Journal of Systems and Software.
* *Automated Configuration of CPS Product Lines:* In this project, we proposed a conceptual framework to support the automated configuration of CPS product lines, which involves variability modeling, constraint specifications, and different automated functionalities of a configuration tool. The proposed framework is in process of publication at an international journal.
* *Configuration Recommendation:* Currently I am working on this project in which we are proposing a multi-objective search-based approach to recommend the configurations for a system of systems to ensure the correct behavior of the system.

**Publications/Research Work**

* Towards Multi-Stage and Multi-Step Automated Product Configuration of Cyber-Physical Systems, **Safdar Aqeel Safdar**, Hong Lu, Tao Yue, Shaukat Ali, Kunming Nie, submitted to an international, 2018
* Employing Multi-Objective Search and Machine Learning to Mine Cross Product Line Rules, **Safdar Aqeel Safdar**, Hong Lu, Tao Yue, Shaukat Ali, accepted for International Journal of Systems and Software (JSS), 2018
* Mining Cross Product Line Rules with Multi-Objective Search and Machine Learning, **Safdar Aqeel Safdar**, Hong Lu, Tao Yue, Shaukat Ali, published in Genetic and Evolutionary Computation Conference, GECCO, 2017.
* Evaluating Variability Modeling Techniques for Supporting Cyber-Physical System Product Line Engineering, **Safdar Aqeel Safdar**, Tao Yue, Shaukat Ali, Hong Lu published in System Analysis and Modeling Conference, SAM, 2016.
* Evaluating UML Modeling Tools based on Modeler's Productivity - A Replicated Study, **Safdar Aqeel Safdar**, Muhammad Zohaib Iqbal, Muhammad Uzair Khan, submitted to an international, 2018
* An Empirical Evaluation of UML Modeling Tool- An Experiment, **Safdar Aqeel Safdar**, Muhammad Zohaib Iqbal, Muhammad Uzair Khan published in European Conference on Modeling Foundations and Applications, 2015
* A Comparative Study of UML Modeling Tools (MS Thesis), **Safdar Aqeel Safdar**, 2015

**Academic Services**

* Reviewed papers for an international journal Computers in Human Behavior as invited reviewer.
* Reviewed papers for several well reputed international journals and conferences as a sub-reviewer.

**Activities, Honors, and Awards**

* Very High Distinction (Silver Medalist, second highest) in MS degree
* BS degree partially (50%) funded by Punjab Educational Endowment Fund (PEEF) Scholarship
* MS degree fully funded by ICT R&D, Pakistan
* Regarded as a high achiever in the university magazine (2015)
* Student volunteer in an international conference (ICET 2014)
* Volunteer in Software Tester Meetup at FAST-NU (2014)
* Participated in a technical event (NASCON-2013) as IT head at FAST-NU
* Conducted several workshops of basic-level Asp.Net and PHP at FAST-NU

**Personal Skills**

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| * Good Communication Skills | * Problem Solving | * Entrepreneurial Skills |
| * Quick Learner | * Team Player | * Leadership |

**Languages**

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| * English (Proficient) | * Norwegian (A1-A2) | * Urdu (Mother Tongue) |

**References**

References will be provided if required.