



ERCIM "ALAIN BENSOUSSAN"  
FELLOWSHIP PROGRAMME



## Scientific Report

First name / Family name

Abdul Rauf

Nationality

Pakistani

Name of the *Host Organisation*

RISE SICS AB

First Name / family name  
of the *Scientific Coordinator*

Mehrdad Saadatmand

Period of the fellowship

01-03-2019 to 02-03-2021

### I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

During the fellowship, I was involved in different projects. As solution providers, our team was involved to address the different use cases raised from the customers. Two major projects, where I was involved included:

#### 1: The TESTOMAT Project

A research project aimed to improve the testing quality and efficiency in the consortium of 34 European companies which lasted for 3 years. The project aimed to develop an improvement model for Test Automation with key improvements in measurable steps. Project developed certain tools in the broader domain of software testing such as test efficiency, test priority and testing against quality standards. Details can be found at <https://www.testomatproject.eu/>

As a researcher, I have worked on use cases provided by Bombardier Transportation, Sweden on behalf of RISE SICS, Vasteras, and we, as team were successful to bring the required level of coverage and prioritization from variability testing perspective

## 2: AnaRISE

Project has been developed to analyze the resources and the work of RISE. Work has been done using TensorFlow and Keras APIs in Python.

## II – PUBLICATION(S) DURING YOUR FELLOWSHIP

1. Keywords-based test categorization for Extra-Functional Properties in 2020 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW) **Published**
2. Evaluating the Optimized Mutation Analysis Approach in Context of Model-Based Testing published in 2020 International Conference on Emerging Trends in Smart Technologies. **Published**
3. Systematic Literature Review of Recent Trends in Search Based Test Case Optimization, **Pending**
4. Challenge of Adequate Software Testing Concepts Coverage in CS Curricula at Undergraduate Level **Pending**

## III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

1. Chaired a workshop “Software Engineering Automation: A Natural Language Perspective (NLP-SEA)” in conjunction with 35th IEEE/ACM International Conference on Automated Software Engineering on 25 September 2020 held in Australia, participated virtually.
2. Presented a paper in ITEQS workshop collocated with 2020 IEEE International Conference on Software Testing, Verification and Validation, held in Portugal.
3. Chaired First International Workshop on Intelligent Software Engineering Automation in the conference the 27th Asia-Pacific Software Engineering Conference (APSEC 2020) from 1 - 4 December 2020 in Singapore.
4. Presented a paper in 2020 International Conference on Emerging Trends in Smart Technologies held in Karachi Pakistan from March 26-27, 2020

## IV – RESEARCH EXCHANGE PROGRAMME (REP)

Research exchange program was carried out virtually from 15 February 2021 to 21 February 2021 with Dr. Ali Shariq Imran in NTNU Norway.

During the collaboration, presented my work done, collected the feedback and possible enhancements. Dr Ali guided in some relevant research areas and thus a brief review of the relevant literature was planned to look into research gaps and future collaborations.