Secondment report

Name: ESR2.3 Aneesh Balakrishnan
IRP title: A synthetic, hierarchical abstraction approach for modelling and managing complex systems quality and reliability

From: IROC
To: TUT
Period: 3 days (October 30 – November 1 2019) The secondment will continue from January 15 till February 2020.

Activities during the secondment

- **Scope and objectives**.
    - An active investigation of Machine Learning applications in the reliability analysis

- **Activities.**
    - Demonstrated two different scientific works which published by myself in this domain at TUT:
        1. Modeling Gate-Level Abstraction Hierarchy Using GraphConvolutional Neural Networks to Predict Functional De-RatingFactors (Conference: 2019 NASA/ESA Conference on Adaptive Hardware and Systems (AHS));
        2. The Validation of Graph Model-Based, Gate LevelLow-Dimensional Feature Data for Machine Learning Applications (Conference: 2019 IEEE NorCAS Conference).

        And I am also trying to extend the work with some collaborative ideas.

- **Main results achieved.**
    - A good and healthy scientific discussion about the works has done already.
    - Also, a new collaborative work is going to start regarding the topic: Explainable Artificial Intelligence (XAI)

- **Next steps.**
    - The secondments will continue towards next year January / February to finish with a good conference or journal paper.

- **Optional request for support or a technology/tool available at host:**
    - Already providing some EDA tools from the university side.

Self-evaluation

Overall score: 80 out of 100
I consider this secondment successful, with regards to the research objectives achieved, skills developed, supervision quality, diversity of the resources. (Agree = 5)
Optional comments: None

Date of the report approval by the supervisor: 05/12/2019