5G (ENCQOR) Technology Development Challenge - AI for Network Fault Localization and Prediction

Challenge Launch Date	January 15, 2019
Challenge Deadline	February 14, 2019
Challenge Statement	• Wireless software testing and debugging in the lab is expensive and time consuming. Testing and troubleshooting in the network is even more costly and challenging due to network complexity, business impact, and uncontrolled environment. 5G network is much more complex than any previous generations of technologies. With this complexity for deployment, dimensioning, management, maintenance and operation, it is more urgent than ever for automated and proactive fault localization. With test bed network, it is perfect environment to innovate and develop new technologies using AI to address this challenge.
Project Partner	Ericsson Canada Inc.
Timeline	1st year: evaluate and develop a solution for network fault localization through AI using available network data such as performance, event, alarm, configuration, geospatial and demographic info etc.
Available funding	1st year: 300,000
Applicant Type	Ontario based SME scale company
Location	Most work can be completed remotely
Project Details	• Despite being one of the most basic tasks in software development and deployment, debugging in network (as well as in the lab) is still performed in a mostly manual way which leads to high operation cost, low efficiency and high business impact. • Over the years, various techniques including machine learning (such as expert based system) have been studied and tried for no significant improvement to the situation. • With recent development of machine learning, increased amount of data volume and data types available in the network, and with ever changing test bed environment, it is a good opportunity to develop new technology in network fault localization, prediction and potentially for test generation. • There will be multi types of data available such as alarms, events, performance, configuration, features, logs, traffic, weather, census, demographic and geospatial info etc. The challenge is to develop a "low dependency" and "low requirement" AI technology to localize the fault for 5G network where accurate dependencies and prior probabilities are difficult to obtain.
Project Goals/ Outcomes	• A solution prototype will be implemented and demonstrated

Applicant Capabilities	• R&D team of 2-4 in areas of software testing, network management, data science
Additional Information	None