

Phase-1 Plan

Timeline and Goals

Phase	Time
1	30 November 2021

Phase-1 Goals

1. Running ML-Framework with at least 3 existing (enhanced) models for NFV.
2. Generate Synthetic Data using ML.
3. Identify 3 problems for which ML can be applied in NFV - For which no acceptable models exist.
 - a. Identify the ML technique that can be used for these problems.

Phase-1 Bonus

1. Build Two Tools
 - a. AlgoSelector
 - b. TVLVapp

Phase-1 Weekly Activity

12 weeks, if the Intern is working Full-time.

Sl. No.	Activity by Intern/Researcher (s)	Week	Comment / Support from Advisor (s)	Updates by Rohit Singh Rathaur
1	Understand the state of art - Publications and OS projects Analyze the Gaps. Create a 1-Page report based on the analysis. Identify the problems in NFV for which the techniques are still not good enough.	1.5	Share the State of the art survey. Provide initial gap analysis.	Understand the art of publications and OS projects. Decided to go with LFN Acumos. Chose a problem domain: Failure Prediction to start working with. Completed the reading papers related to Failure Prediction and updated the implementation details till now whatever I have got. Status: Completed 1-page report where mentioned failures and what type of failures. https://docs.google.com/spreadsheets/d/1N9LKZjx117zQHJSLcCFK8dwiOpswWyhZECaNNs6NKHo/edit?ts=60c3613c#gid=0
2	Deploy the ML Framework (Tentative: LFN Acumos). <ul style="list-style-type: none">• Document the usage workflow• Try any existing model.	1.5	Provide access to the server(s). Intel Pod?	Reading about RNNs to work with existing FP models. Agreed to work with Tensorflow and LF Acumos. Got the Intel Pod 12 access and successfully connected. Now working on deploying Acumos. Completed the survey part and working on the installation of Acumos but still, it's failing. I was not able to run docker, so still figuring it out. But In the meantime, I am working on reproducing the failure prediction work using the local environment. Updated the sheet with implementation details but mostly codes are not open-source yet.
3	Collect, analyze and document the implementation of 3 existing models for NFV. Collect the data.	1	Provide the 3 models to use.	
4	Deploy the models on the framework (2) Collect the data (contd).	1	None.	
5	Test and optimize the models - If possible.	2	Suggestions for optimization approaches.	
6	Study ML technique for Synthetic time-series data generation (STSDG)	1	Suggest the right technique	
7	Implement the technique for STSDG	2		
8	Test and optimize STSDG	1		

9	Knowledge Transfer, Handoff (Buffer)	1		
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