AI/ML Models for NFV Usecases

Internship Projects/Mentors

Title	AI/ML Models for NFV Usecases
Status	APPROVED
Difficulty	HIGH

Description

This project aims to deploy and run AI/ML models for NFV-usecases. Any two of the following three problems can be considered. .

1. VNF/CNF Placement
2. VNF/CNF resource/performance/failure prediction
3. Packet-Loss Classification

Problem	Model	Link	Comments
Prediction of VNF Resource Demands	RNN, LSTM	https://ieeexplore.ieee.org/document/8806620	
VNF Placement	Neural Network Model (MLP)	https://ieeexplore.ieee.org/document/8806631 https://arxiv.org/abs/2001.07787	

Additional Information

LFN Acumos: https://www.acumos.org/

TensorFlow Time Series : https://www.tensorflow.org/tutorials/structured_data/time_series

Collectd : https://collectd.org/

Hosting Repo: As a Subproject under CIRV - https://github.com/opnfv/cirv

Learning Objectives

ML Techniques: Deep_learning.

ML model development

AI/ML for Telco Usecases.

Expected Outcome

Enhance Acumos with model for NFV/Telco Usecases.

Run Acumos with these enhancements in Anuket Testbeds.

Comprehensive report on applications of AI/ML in Networking(*Comparative analysis).*

Relation to LF Networking

Will be part of Anuket.

Education Level

Undergraduate

Skills

Knowledge of ML and ML-Tools - Tensorflow.

Future plans

This work is the first step toward use of AI/ML in Telecom Networks, it can be enhanced to more useful and complex usecases.

Preferred Hours and Length of Internship

Part-Time

Mentor(s) Names and Contact Info

Sridhar K. N. Rao

Spirent Communications

sridhar.rao@spirent.com

Volunteers

Girish L. (PhD Student)

VTU

girishlingappa7@gmail.com