# AI/ML Models for NFV Usecases (Research and Develop)

## Internship Projects/Mentors

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| **Title** | AI/ML Models for NFV Usecases (Research and Develop) |
| **Status** | CANDIDATES SELECTED |
| **Difficulty** | HIGH |

# Description

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

1. VNF/CNF resource/performance/failure prediction
2. NFV log analysis with NLP
3. Synthetic monitoring and logging data generation using GANs

| Problem | Model | Link | Comments |
|---|---|---|---|
| Prediction of VNF Resource Demands | RNN, LSTM | https://ieeexplore.ieee.org/document/8806620 | |
| NFV log analysis with NLP | BERT | https://ieeexplore.ieee.org/abstract/document/8109100<br>https://ieeexplore.ieee.org/abstract/document/9534113 | |
| Synthetic monitoring and logging data generation using GANs | GAN,CycleGAN,SeqGAN | https://arxiv.org/abs/1712.02950<br>https://ojs.aaai.org/index.php/AAAI/article/view/10804 | |

## Additional Information

LFN Thoth: https://wiki.anuket.io/display/HOME/Thoth

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

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

Collectd : https://collectd.org/

Repo: https://github.com/opnfv/thoth

## Learning Objectives

ML Techniques: Deep_learning.

ML model development

AI/ML for Telco Usecases.

## Expected Outcome

Develop AI/ML model for NFV/Telco Usecases.

Deploy model with Acumos/Kubeflow framework.

Run Acumos/Kubeflow in Anuket Testbeds.

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

## Relation to LF Networking

Anuket Thoth

## Education Level

At least undergraduate

## Skills

Knowledge of ML and ML-Tools - Tensorflow.

## Future plans

This work can be enhanced to more useful and complex AI for NFV usecases in future.

## Preferred Hours and Length of Internship

Part-Time

## Mentor(s) Names and Contact Info

### Click here to apply

Please read all instructions before applying.  Include Resume, proof of school enrollment, and participation permission from school/employer

Lei Huang <huangleiyjy@chinamobile.com> (Lei Huang)

Sridhar Rao <srao@linuxfoundation.org> (Sridhar Rao)