

# Managing the Fifth Generation (5G) Wireless Mobile Communication:

A Machine Learning Approach for Network  
Traffic Prediction

Shaden Baradie, **Rekha Reddy**, Christoph Lipps and Hans  
Dieter Schotten

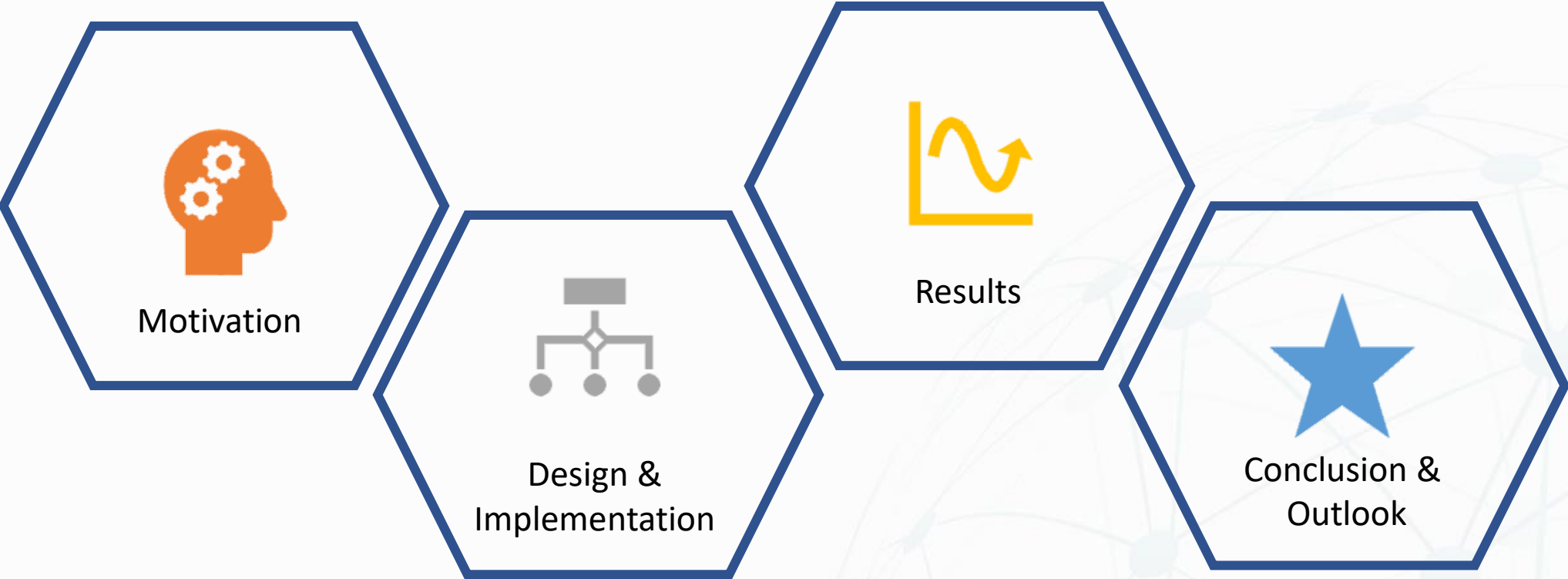
**26. VDE/ITG Fachtagung Mobilkommunikation**

**18-19 May 2022**

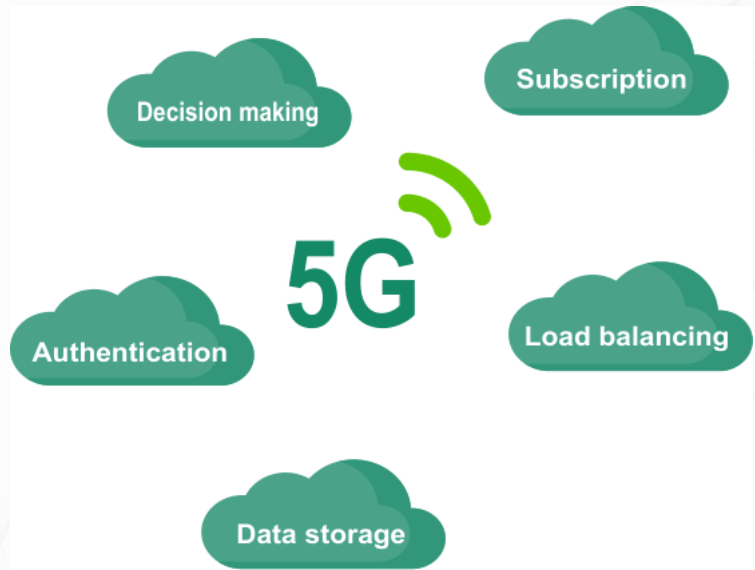
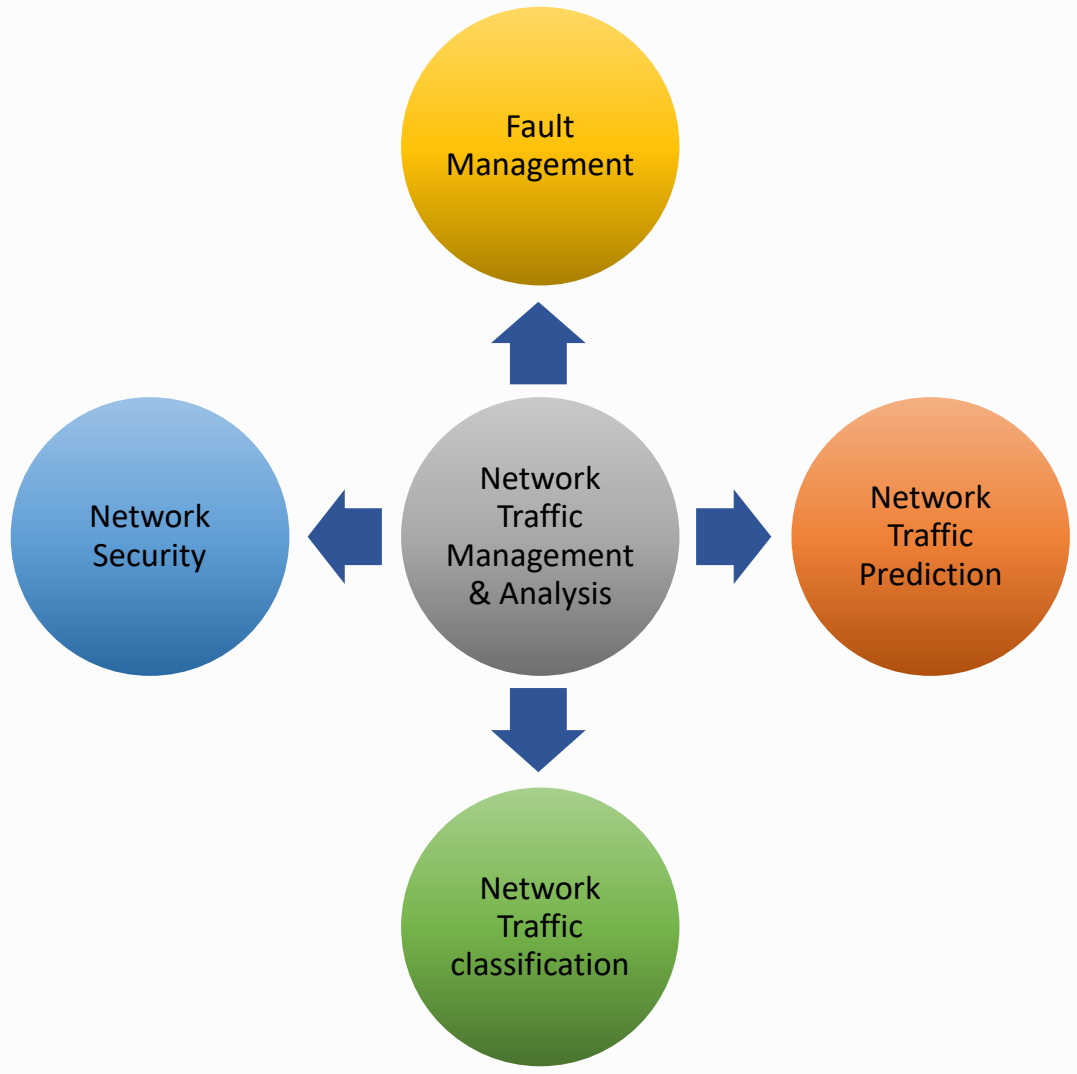
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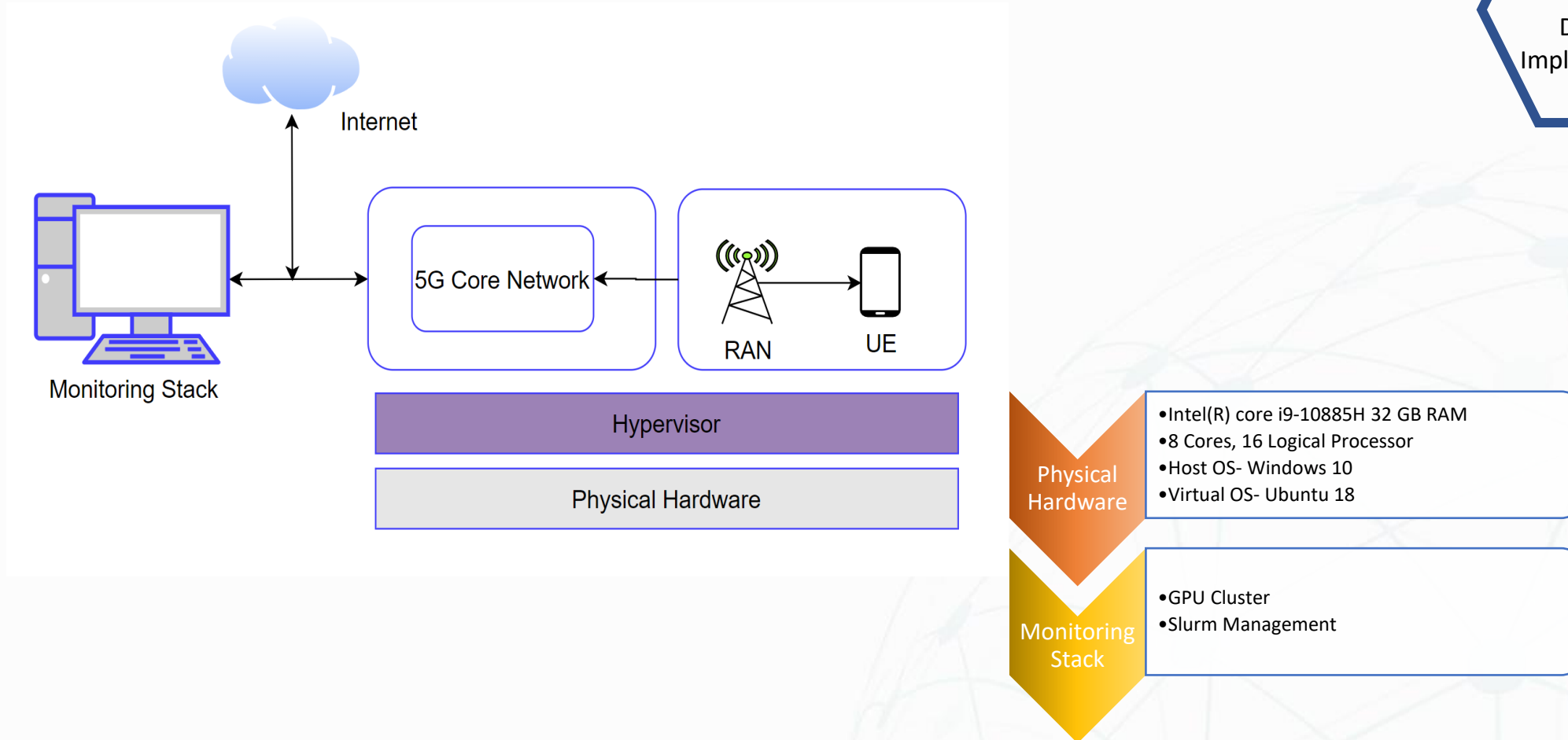
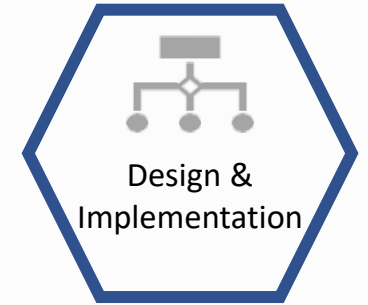
# Outline



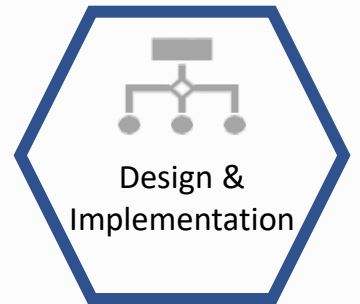
# Motivation



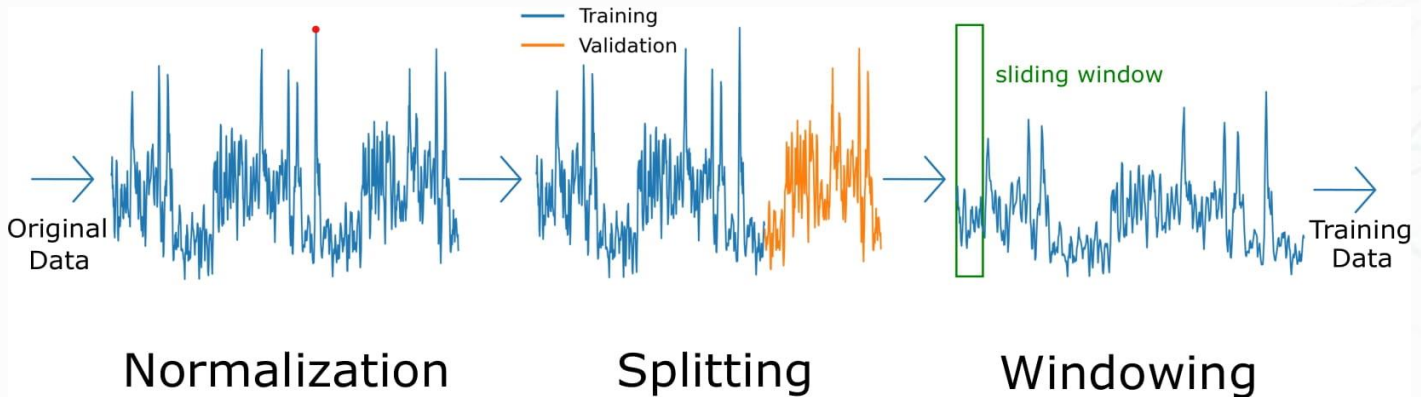
# Design & Implementation



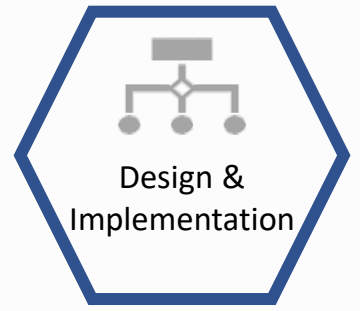
# Design & Implementation



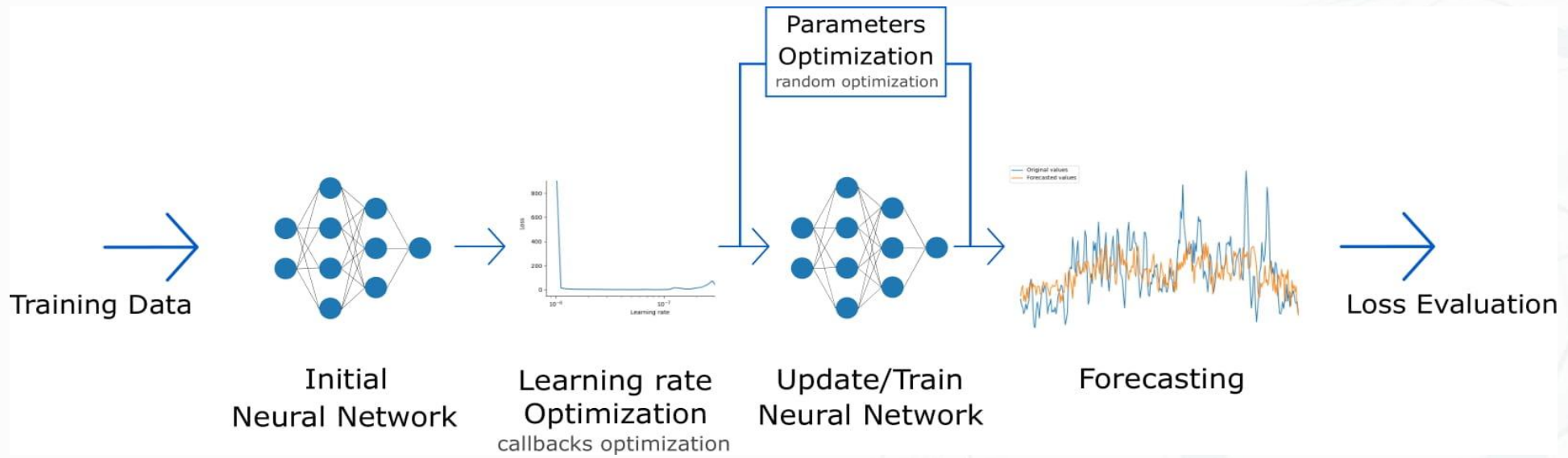
## Data Preparation



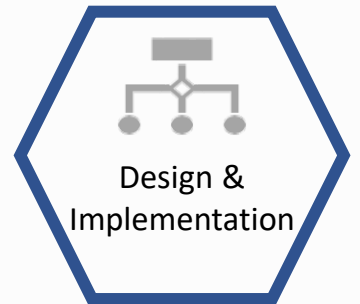
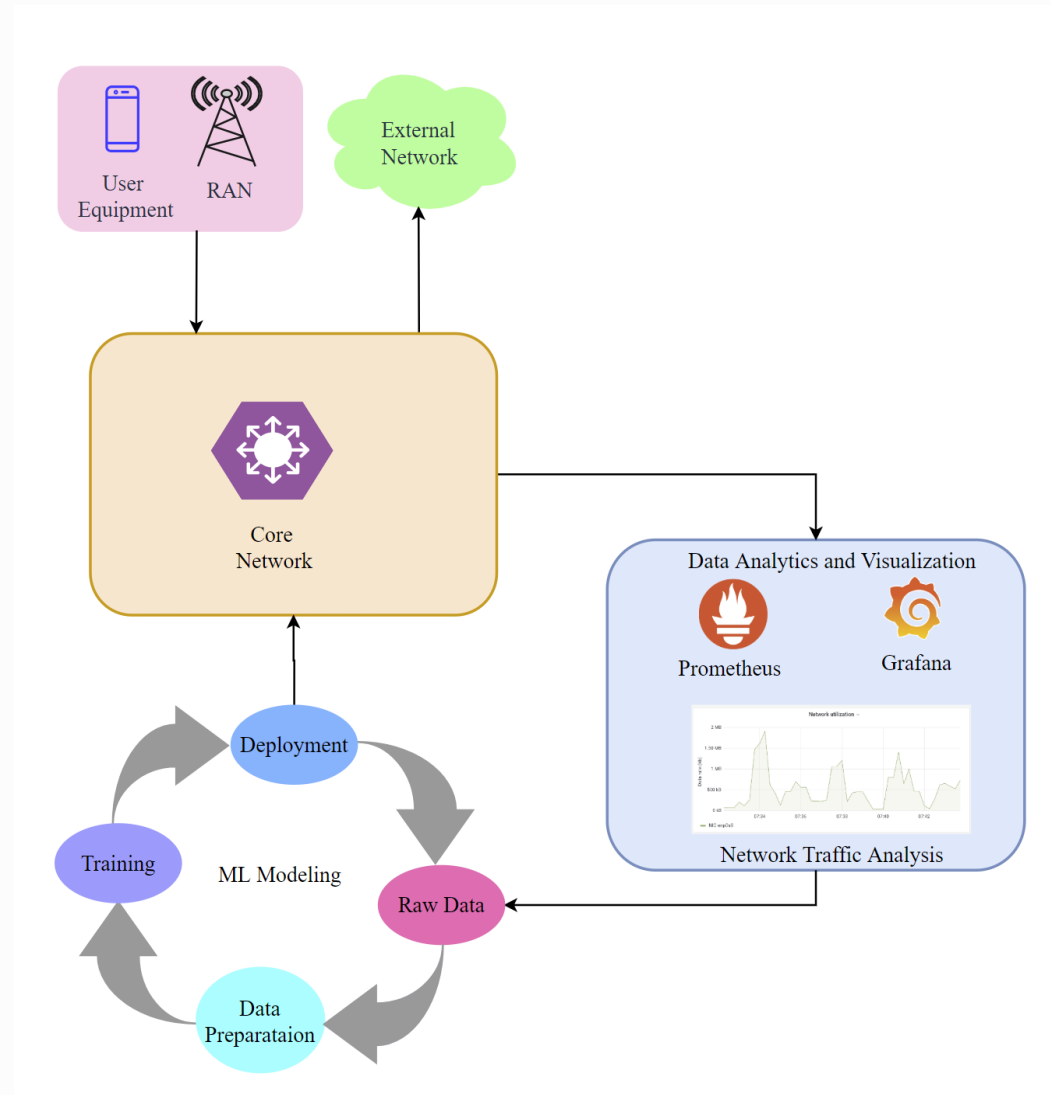
# Design & Implementation



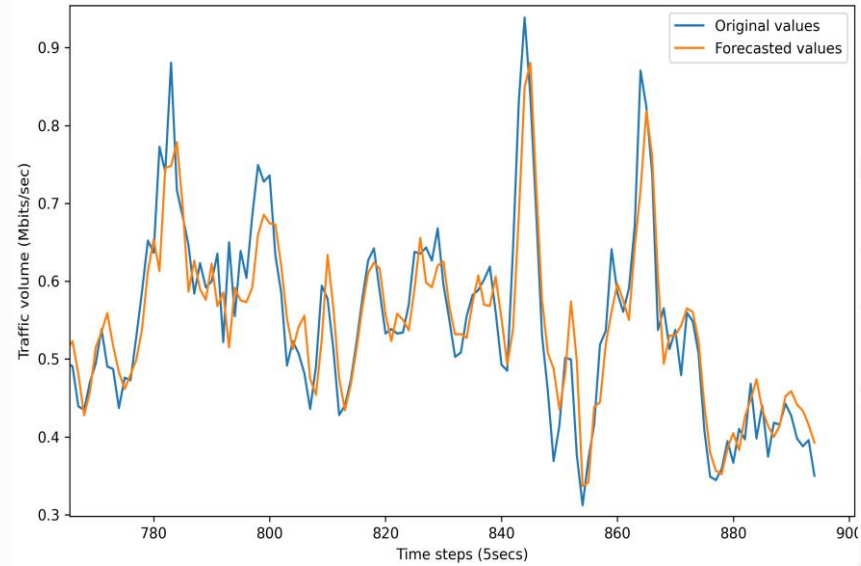
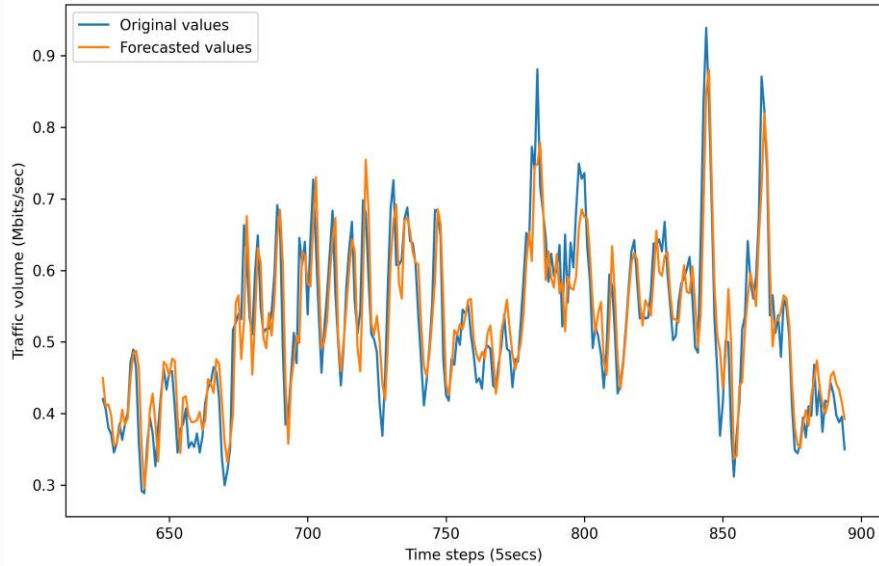
## Model Training and Optimization



# Design & Implementation



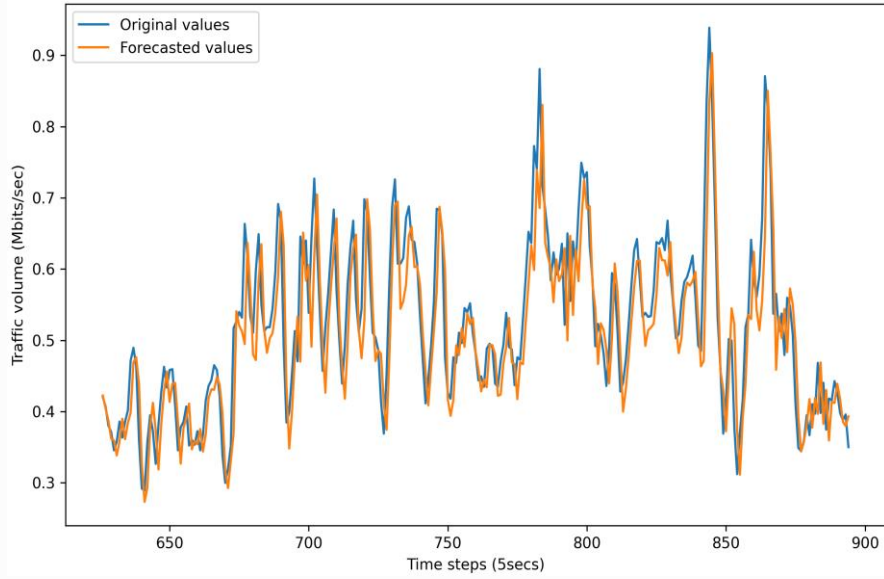
# Results



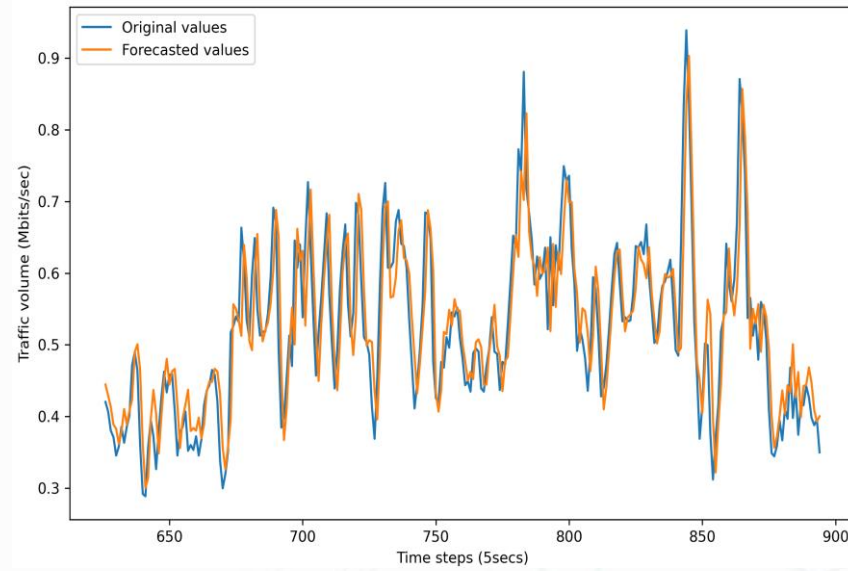
Results of Recurrent Neural Networks (RNN) and closer view



# Results



Results of Long Short Term Memory (LSTM)



Results of Bidirectional LSTM

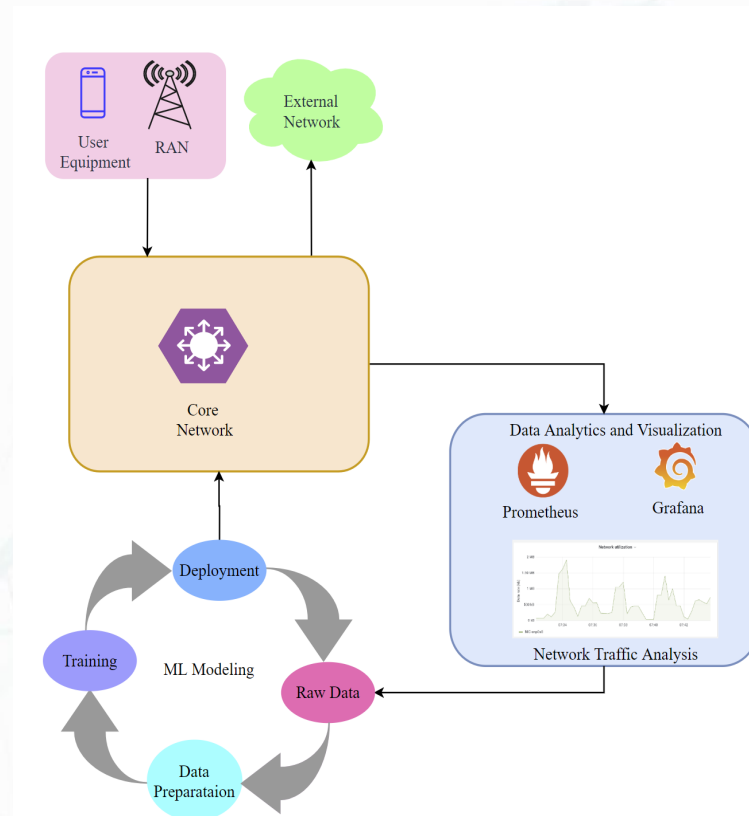
# Results

## Comparison Metrics of Loss Function



# Conclusion & Outlook

- Automation and Orchestration of Wireless Mobile Communication
- Network Traffic prediction through Deep learning modeling
- Enhancement of the model for larger datasets
- Strengthen the overall network performance
- Extending further the real time decision making



# THANK YOU

Rekha.reddy@dfki.de