

3GPP TSG RAN Rel-18 workshop
Electronic Meeting, June 28 - July 2, 2021

RWS-210383



Motivation for AI/ML for PHY enhancements

Agenda item: 4.3
Source: Ericsson
Document for: Discussion

AI/ML on PHY Enhancements

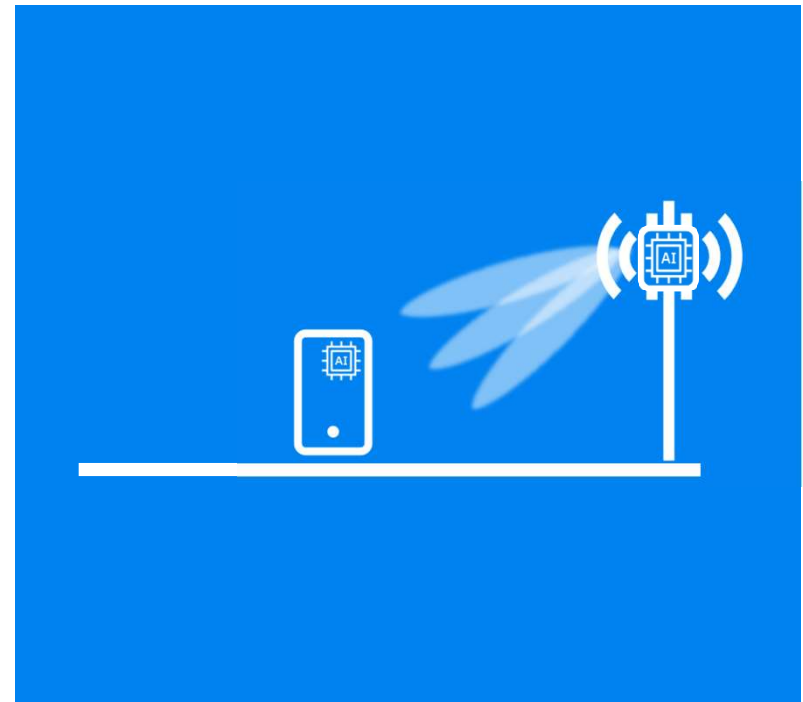


Background

- General expectation that AI/ML can improve PHY layer performance.
 - E.g., CSI acquisition, compression, and feedback.
- Unclear what needs to be specified and how to specify.

Objectives

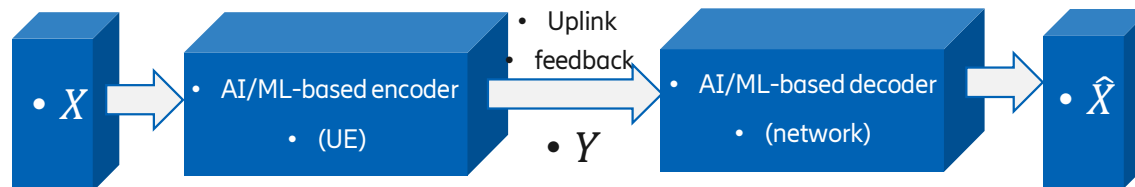
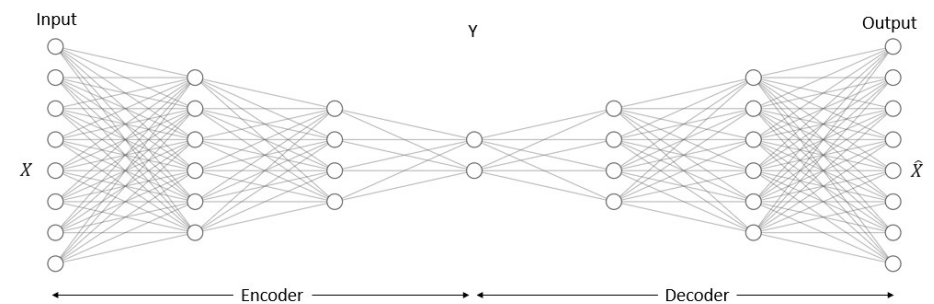
- Part I: Study methodologies required to enable specification of AI/ML-related PHY enhancements
 - AI/ML modelling and evaluation methodologies
 - Standardization impact
 - Include performance requirements and testing aspects.
- Part II: A focused pilot study of AI/ML-enhanced acquisition of high-resolution CSI. This example addresses all aspects of Part I, because it requires the interaction of AI/ML models in the user equipment and network.



Example: AI/ML-based acquisition of high-resolution CSI



- A focussed pilot study to evaluate and quantify AI/ML enhancements for high-resolution *CSI acquisition, compression, and reporting*.
- Learnings from this study may then be used as a template for future AI/ML-enhanced physical-layer use cases.
- AI/ML models compress channel estimates at the user equipment, to enable efficient reporting to the network.



- Input, e.g., downlink
- channel estimate in UE

- Output, e.g., reconstructed
- downlink channel estimate

