Beyond connectivity – Brainstorm5G

A key concern for any Mobile Network Operator is how to meet the ever-increasing network demands with an efficient use of resources. Customers expect improved bandwidths, lower latencies, and increased availability, while the capital investments and operating costs should stay within reasonable levels. This challenge will only be exacerbated with the more demanding network use-cases expected with 5G.

We believe the utilization of AI/ML techniques will be part of the solution for operators. Sophisticated data analysis and forecasting methods can aid in network rollouts and investment planning. Anomaly detection and root-cause analysis can help troubleshoot and resolve issues in the network. However, we also believe there is great potential in the network components *themselves* becoming smarter, such as the base stations incorporating AI algorithms and ML models directly into their internal control logic. If the network equipment itself can make better decisions at the millisecond level, the end result could be a better customer experience for everyone.

While we expect that these innovations will ultimately be delivered by the network equipment industry, we believe it is also important for Telenor to develop our own insights into these emerging possibilities. We are thus exploring how AI methods such as Reinforcement Learning can be applied to various problems in the mobile technology stack. This research is conducted in an academic manner, using the open-source network simulator ns-3. By gathering early knowledge about AI/ML use-cases in simulated mobile networks, we also will be better prepared for an eventual deployment of similar technologies in our real networks.

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