

Masteroppgave 2022



Knowledge is power

Building ML models of network quality variation

Relevant methods:

- Time-series modeling
- Hierarchical modeling
- Generative models
- Change-point detection

Description and Objectives:

The perfect computer network would deliver packets with zero delay and no chance of loss. Real networks are not that perfect - they all introduce latency and packet loss. ΔQ is a network quality metric that measures latency and packet loss, and ΔQ generative models capture how latency and packet loss changes as a function of time. In this project, you will explore time-series modeling and change-point detection to learn ΔQ generative models from traces of network performance. This is an opportunity to explore the nitty-gritty details of learning algorithms. Nobody has done learning with ΔQ generative models before, so we will have to figure out how.

Approach:

- Use a simple simulator to generate time-series traces from a known model
- Develop a learning algorithm that does better than “the global approach” on the simulated dataset
- Test the algorithm on real-world network data

References:

[1]: Teigen, B. I., Davies, N. J., Thompson, P., Ellefsen, K.O., Skeie, T., Torresen, J. “ ΔQ Generative Models: Modeling Time-Variation in Network Quality”, Under submission (I’ll email it to you)

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