THE PERFECT STORM

How IoT, 5G and AI will transform automation

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NEW IoT TECHNOLOGIES ARE ACCELERATING DATA COLLECTION
IoT - Internet of Things

ARTIFICIAL INTELLIGENCE
ACCELERATE WITH MORE DATA
Foto: NTNU

THE PERFECT STORM

Dangerous air quality throughout much of Norway

Luftkvaliteten er på rødt nivå

Tørt vær, biltrafikk og vind gjør at luftforurensningen i Trondheim er høy nå. Enkelte grupper av befolkningen bør være minst mulig ute.

Miljø

Luftkvaliteten ... Trondheim ... Tørt vær ... Vi vil prioritere vegskulder, fortau og lignende hvor det gjerne ligger mer støv enn i hjulsporene.

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Høy luftforurensning av svevestøv i Lillehammer

the Oslo rush hour. Photo: Håkon Mosvold Larsen / SCANPIX

IoT PIPELINE FOR AIR QUALITY

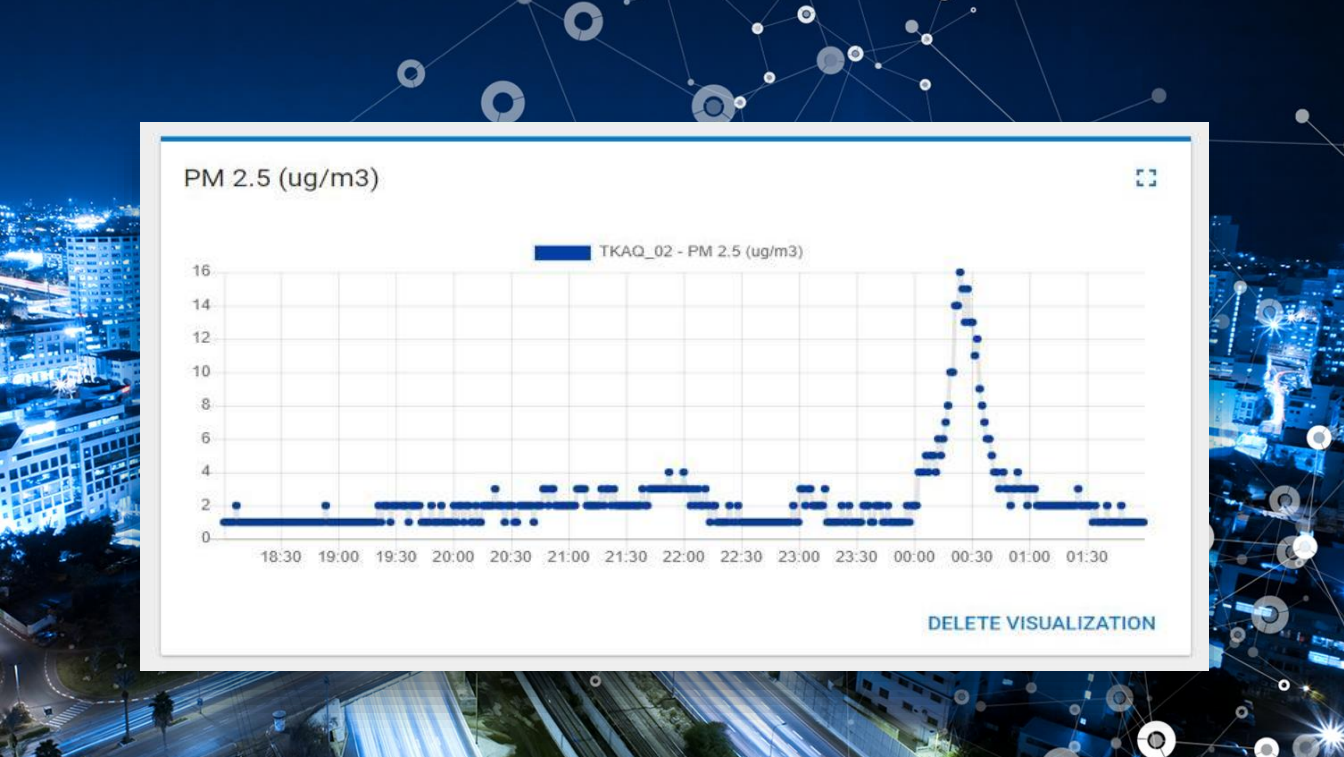
Air quality sensor
NB-IoT

LTE/4G
NB-IoT

«Horde»
integration

Data and analytics
platform

Application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TKAQ_02 - PM 2.5 (ug/m3)
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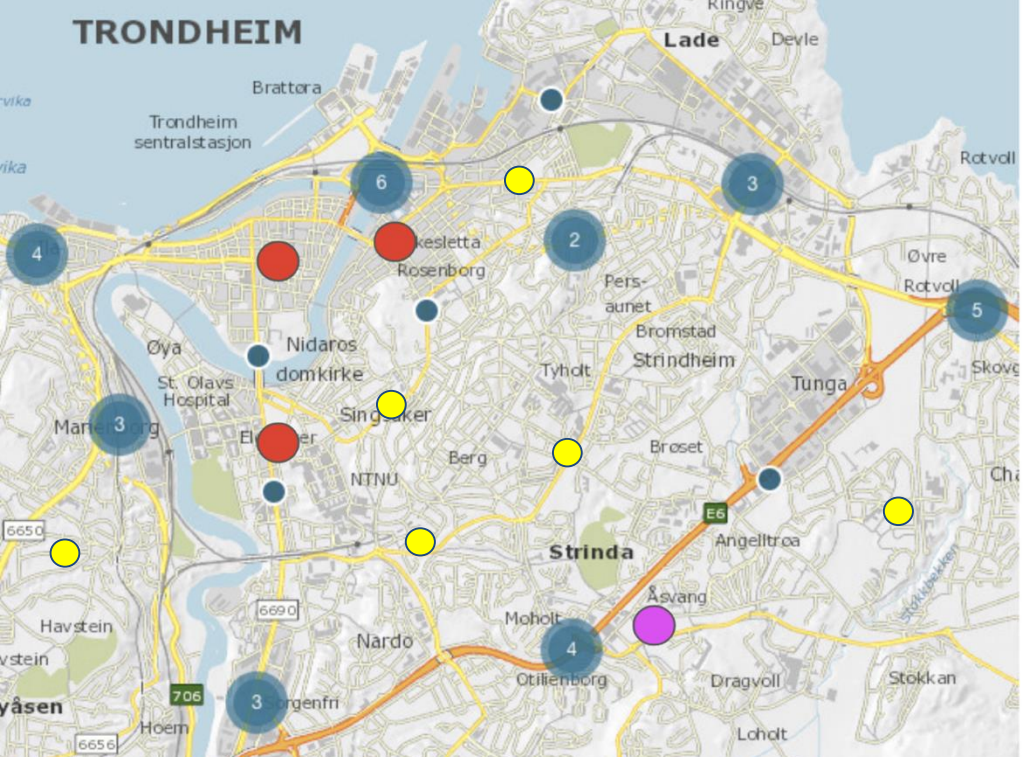
DELETE VISUALIZATION



NILU

Air quality measured at fixed locations

Weather data

telenor

Air quality measured by sensors (on cars)

TRONDHEIM KOMMUNE

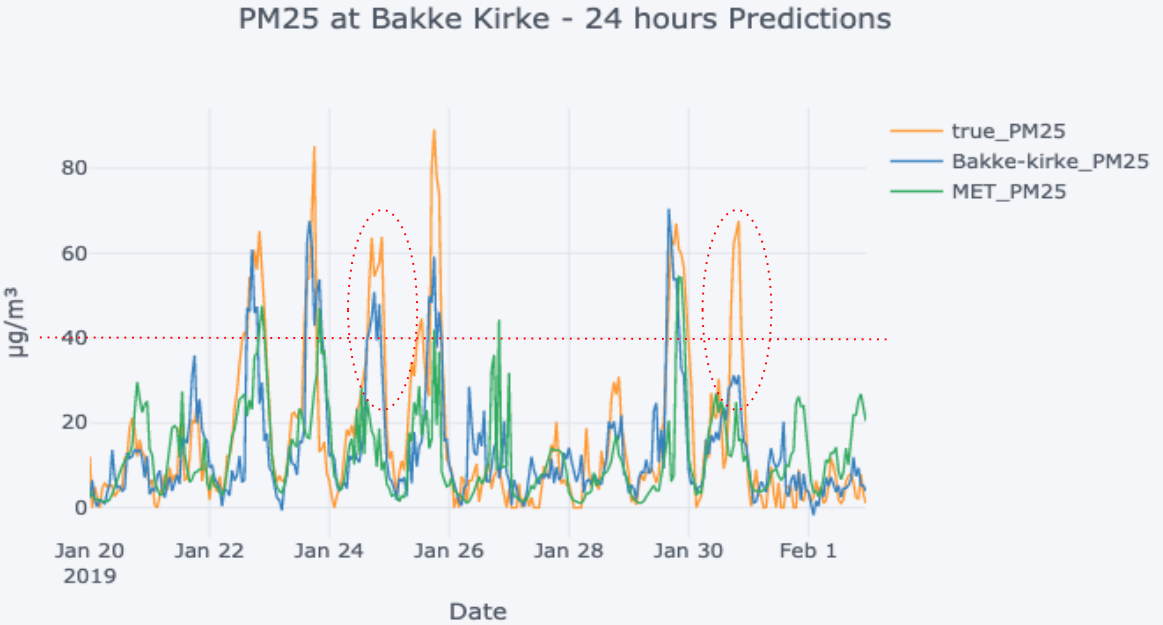
Traffic data, fire ovens

Deep models (RNNs with LSTM and GRU cells) perform best

Catch near-time trends more precisely and predict spikes of high pollution better than official models

(c) Results of anomaly prediction grouped by pollutant type.

Work done by Master student Andreas Jacobsen Lepperød



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THE KEY PROBLEMS TO SOLVE FOR AI4IoT

1. Time series prediction
2. Anomaly detection
3. Data reliability
4. Model explainability

THANK YOU!