# Data evaluation - Baselines

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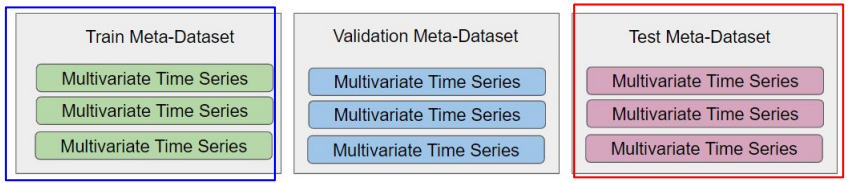
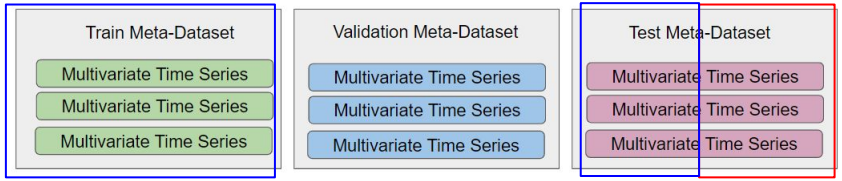
# Evaluation types

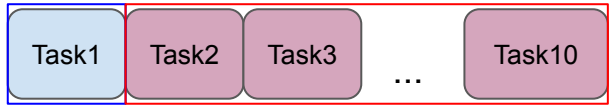
- Without fine-tuning (WOFT)




- On 50% (50-50)




- With fine-tuning  (WFT)



# Baselines

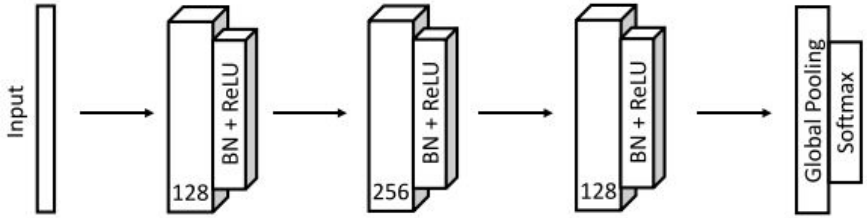
- **Gaussian Processes (GP)**
- **XG-Boost**
- **Resnet** (Wei, W. W. S. (2011). Time Series Regression. In *International Encyclopedia of Statistical Science* (pp. 1607–1609). Springer Berlin Heidelberg).
- **VRADA** (Purushotham, S., Carvalho, W., Nilanon, T., Liu, Y., & Angeles, L. (2017). Variational Recurrent Adversarial Deep Domain Adaptation, (2016), 1–11.)

# To do (Last week)

- Evaluation on VRADA Done
- Evaluation and comparison of LSTM and FCN Done
- Graphical analysis Done

# Base models

- FCN: Kernels [8,5,3] ⇨ 145.665 parameters




- LSTM: 2 layers, 120 Hidden Dimension ⇨ 181.081 parameters

# Results (1)

| | WOFT | | | | | | |
|---|---|---|---|---|---|---|---|
| | **XGBOOST** | **GP** | **RESNET** | **VRADA-S** | **VRADA-C** | **LSTM** | **FCN** |
| **POLLUTION** | 0.043028 | - | 0.048795 | 0.043168 | 0.042705 | **0.041901** | 0.042661 |
| **HR** | 0.076297 | - | 0.072631 | 0.084135 | 0.081985 | 0.079914 | **0.068044** |
| **BATTERY** | 0.002594 | - | 0.002965 | 0.003056 | 0.003013 | 0.002264 | **0.002130** |

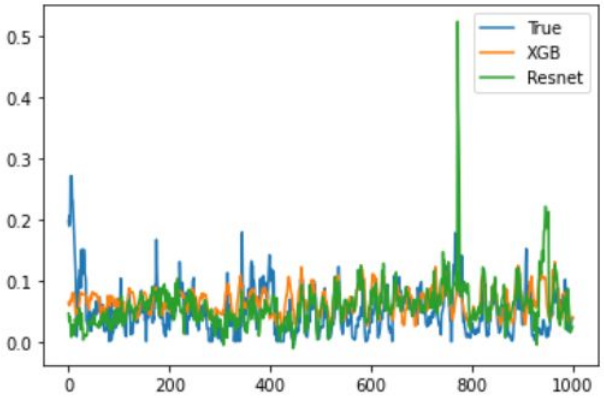
# Results (2)

| | 50-50 | | | | | | |
|---|---|---|---|---|---|---|---|
| | **XGBOOST** | **GP** | **RESNET** | **VRADA-S** | **VRADA-C** | **LSTM** | **FCN** |
| **POLLUTION** | **0.0463201** | - | 0.051086 | 0.046929 | 0.048151 | | |
| **HR** | 0.0600014 | - | **0.059105** | 0.059760 | 0.060270 | | |
| **BATTERY** | **0.0038910** | - | 0.004414 | 0.005359 | 0.005252 | | |

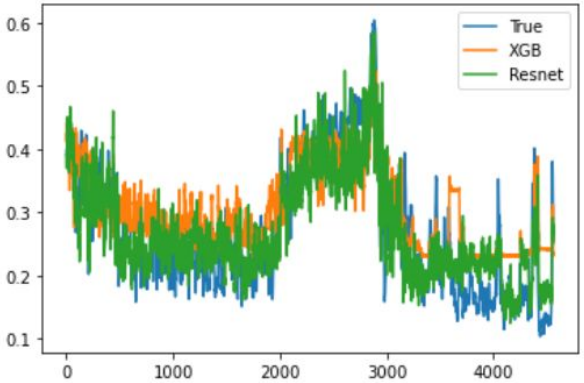
# Results (3)

| | WFT | | | | | | |
|---|---|---|---|---|---|---|---|
| | **XGBOOST** | **GP** | **RESNET** | **VRADA-S** | **VRADA-C** | **LSTM** | **FCN** |
| **POLLUTION** | - | 0.049127 | 0.050516 | 0.042286 | 0.041919 | **0.040666** | |
| **HR** | - | 0.118233 | **0.076403** | 0.082425 | 0.080642 | 0.078851 | |
| **BATTERY** | - | 0.203649 | 0.003109 | 0.003229 | 0.003146 | **0.001645** | |

# Graphical evaluation

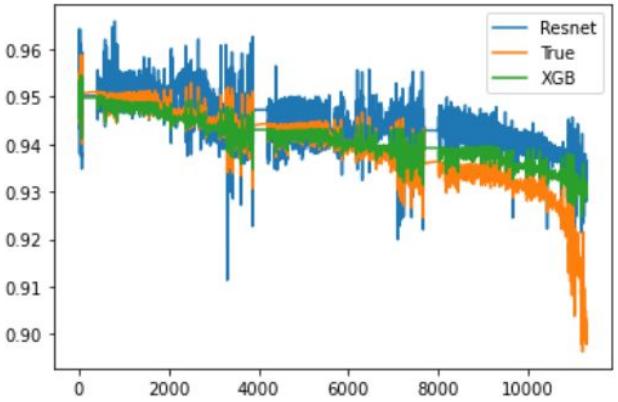


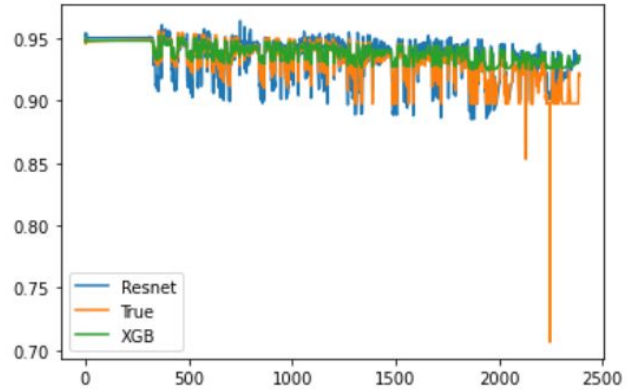

Pollution

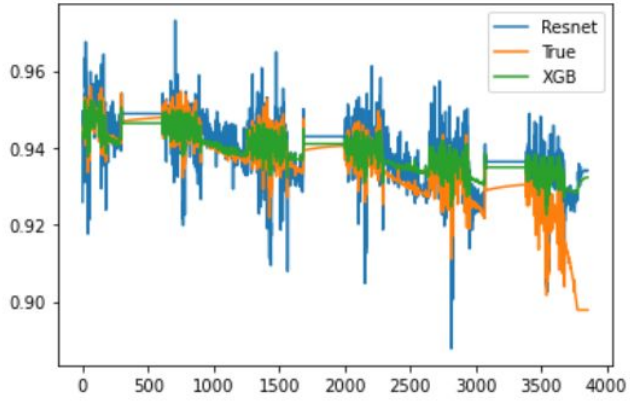


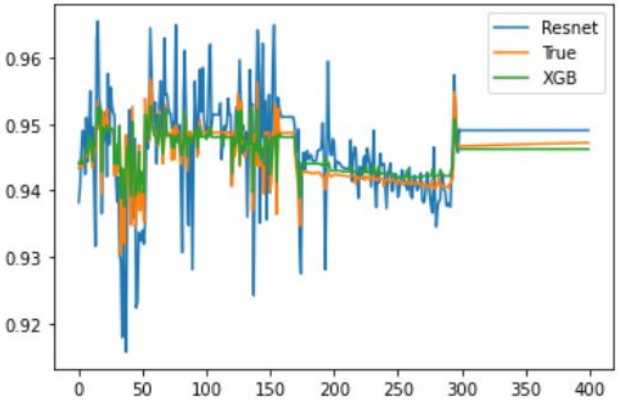

Heart rate

# Graphical evaluation



# Timeline

| Time | Tasks |
|---|---|
| **August** | Literature review, data exploration |
| **September** | Baselines implementation |
| **October** | Proposed model implementation |
| **November** | Experiments on models (Hyper. Tun., etc.) |
| **December** | Results evaluation and adjustments |
| **January** | Results report and thesis finalization |