Course: INF8808
Summer 2022

HITACHI ENERGY PROJECT

Dataset Description

The dataset of interest is transmitted by the client, Hitachi Energy Research. It consists of equipment performance indicators from the on-load tap changer of a high voltage power grid transformer, summarizing more than six thousand operations over the years 2015 to 2020. The dataset is in a CSV format, accessible through a shared link by the client.

The following table summarizes different variables of the dataset in terms of typical values and type, and a short description for each variable is presented.

Variable	Description	Typical range (Unit)	Type
fileNr	Arbitrary number, stand in for count of tap change operations	[0, 4868]	Ordinal
Date	Date of file, When the tap was changed.	[2015-05-18, 2020-10-06]	Date (YYYY-MM-DD)
Time	Time of file, When the tap was changed.	[1:0:0 , 12:59:59][AM:PM]	Time (hh:mm:ss)
tapBefore	The tap setting before the tap change	[4, 11]	Nominal
tapAfter	The tap setting after the tap change	[4, 11]	Nominal

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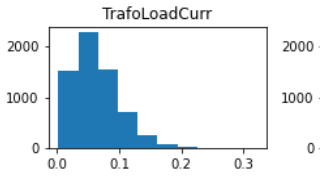
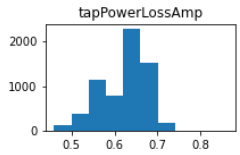
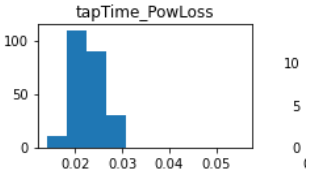
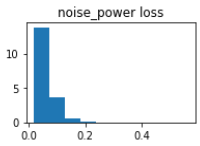
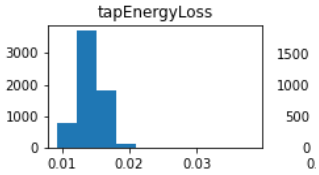
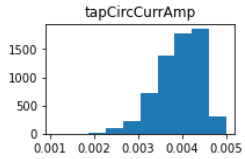
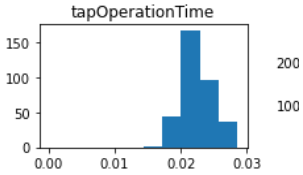
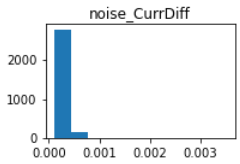
Variable	Description	Typical range (Unit)	Type
TraoLoadCurr	Load on the transformer, measured through high voltage side	[0, 0.32] (KA) Mean: 0.06 	Numerical (continuous)
tapPowerLossAmp	How much of the circulating current is lost as heat?	[0.45, 0.86] Mean: 0.62 	Numerical (continuous)
tapTime_PowLoss	Tap Change Operation Time	[0.01, 0.05] Mean: 0.02 	Numerical (continuous)

Variable	Description	Typical range (Unit)	Type
noise_power loss	Noise in power loss: Measure the uncertainty in power loss estimate	[0.01, 0.56] Mean: 0.06 	Numerical (continuous)
tapEnergyLoss	Energy Loss Quantity = Power loss * Taptime	[0, 0.04] (KJ) Mean: 0.014 	Numerical (continuous)
tapCircCurrAmp	Current that the tap changer withstands during tap time	[0.001, 0.005] (KA) Mean: 0.004 	Numerical (continuous)
tapOperationTime	Commutation time estimated from current	[0.00, 0.028] Mean: 0.02 	Numerical (continuous)
noise_CurrDiff	Noise in current differential	[0.00, 0.0035]	Numerical (continuous)

Variable	Description	Typical range (Unit)	Type
		Mean: 0.0003 	
TapSteps	tapBefore - tapAfter	+1 or -1	Boolean