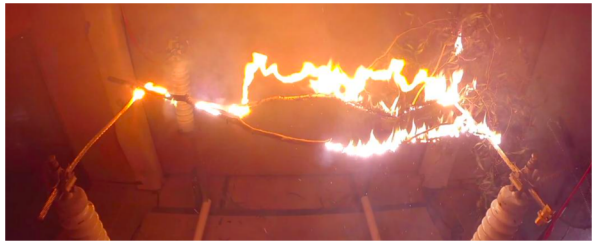
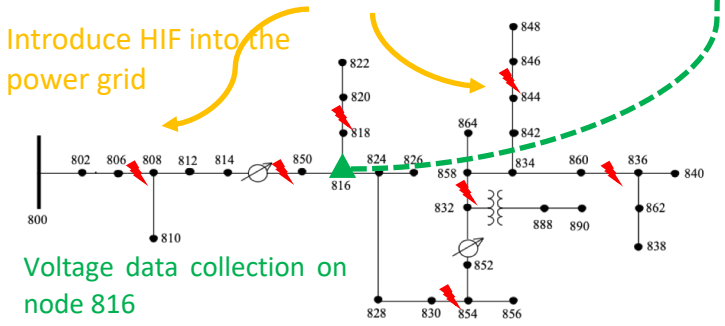
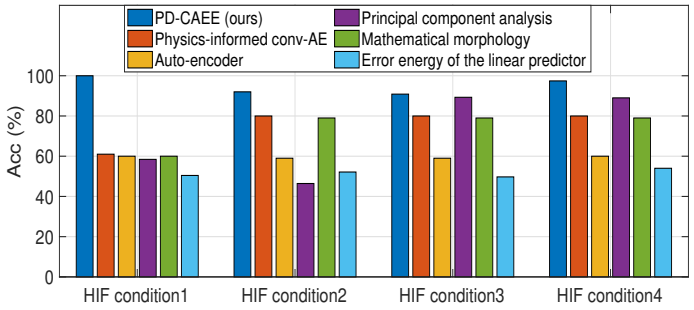
Hybrid Model of Convolutional Auto-Encoder and Ellipse Characteristic for Unsupervised High Impedance Fault Detection



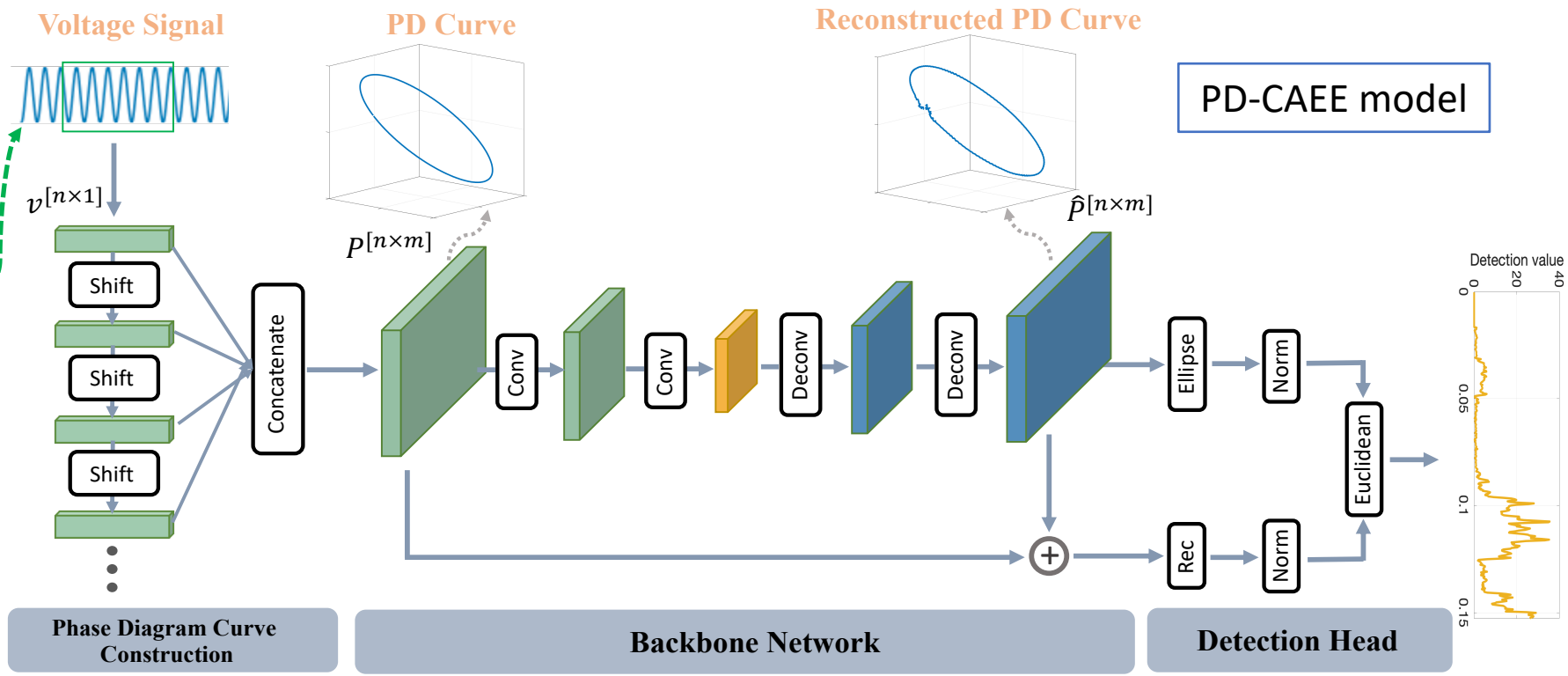
Fire caused by high impedance fault (HIF)



Simulation on IEEE 34-nodes test feeder (data is available[1]) for performance evaluation



The proposed PD-CAEE model outperforms other detection approaches (code is available [2])



Conv One dimensional convolution layer

Deconv One dimensional deconvolution layer

Shift Time shift

Rec Reconstruction error

Euclidean Euclidean distance

Norm Normalization

Ellipse Ellipse error

[1] J. YANG and D. Benoit, "IEEE 34 Nodes Test Feeder Simulation Data for High Impedance Fault Detection and Localization," 2024. [Online]. Available: https://doi.org/10.57745/KRYCYY

[2] J. YANG and D. Benoit, "Hybrid model of convolutional auto-encoder and ellipse characteristic for unsupervised high impedance fault detection," https://github. com/mike2016/PD-CAEE, 2024.