Feature generation for classification and forecasting problems

Petr Babkin

Moscow Institute of Physics and Technology

Course: My first scientific paper
(Strijov's practice)/Group 874
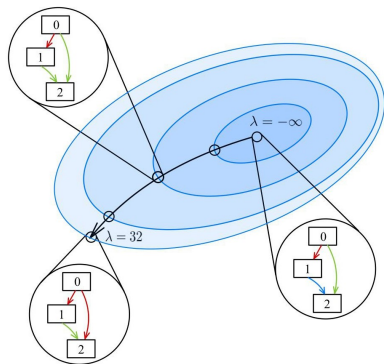
Expert: I. F. Anny

Consultant: I. O. Gordeos

2023

..

Problem of creating NN ensembles

Method:

1. find optimal architecture
2. sample architectures with diversity control
3. give answer as equal voting

Problem of sampling new models for ensemble:

$$\min_{\alpha} \mathbb{E}_{\lambda \sim U(0,\Lambda)}[\mathcal{L}_{val}(w^*, \alpha(\lambda)) - \lambda JS(\alpha^*, \alpha(\lambda))]$$

$$s.t. \ w^* = \arg\min_{w} \mathbb{E}_{\lambda \sim U(0,\Lambda)}[\mathcal{L}_{train}(w, \alpha(\lambda))]$$

..

Solution

Column 1

Column 2

Computational experiment

..

Conclusion

Forecast with hierarchical aggregation of

- types of freight in
- stations, regions, and roads,
- for a day, week, month, and quarter.