

# Differential neural ensemble search with diversity control

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*Course:* My first scientific paper  
(Strijov's practice)/Group B05-003

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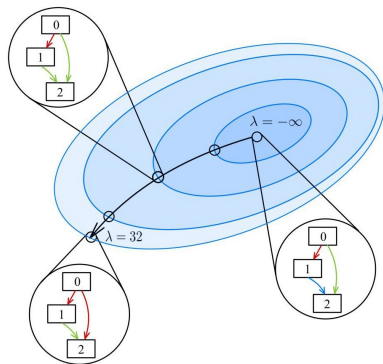
# Goal of research

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# 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:

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

# Problem statement

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# Solution

Column 1

Column 2

# Computational experiment

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# Conclusion

Forecast with hierarchical aggregation of

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