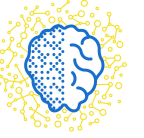# Advances in NLP, 2017

Valentin Malykh,

Neural Systems and Deep Learning lab

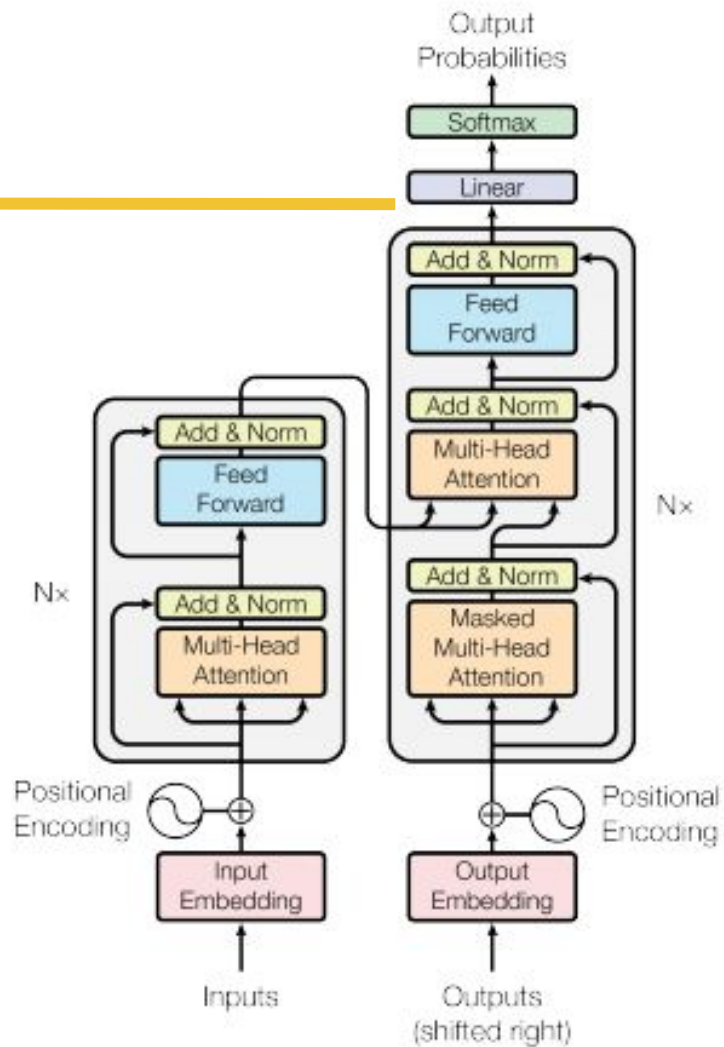**Moscow Institute of Physics and Technology**

Trends

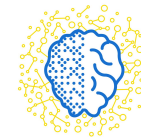- Faster
- Parallel
- Unsupervised
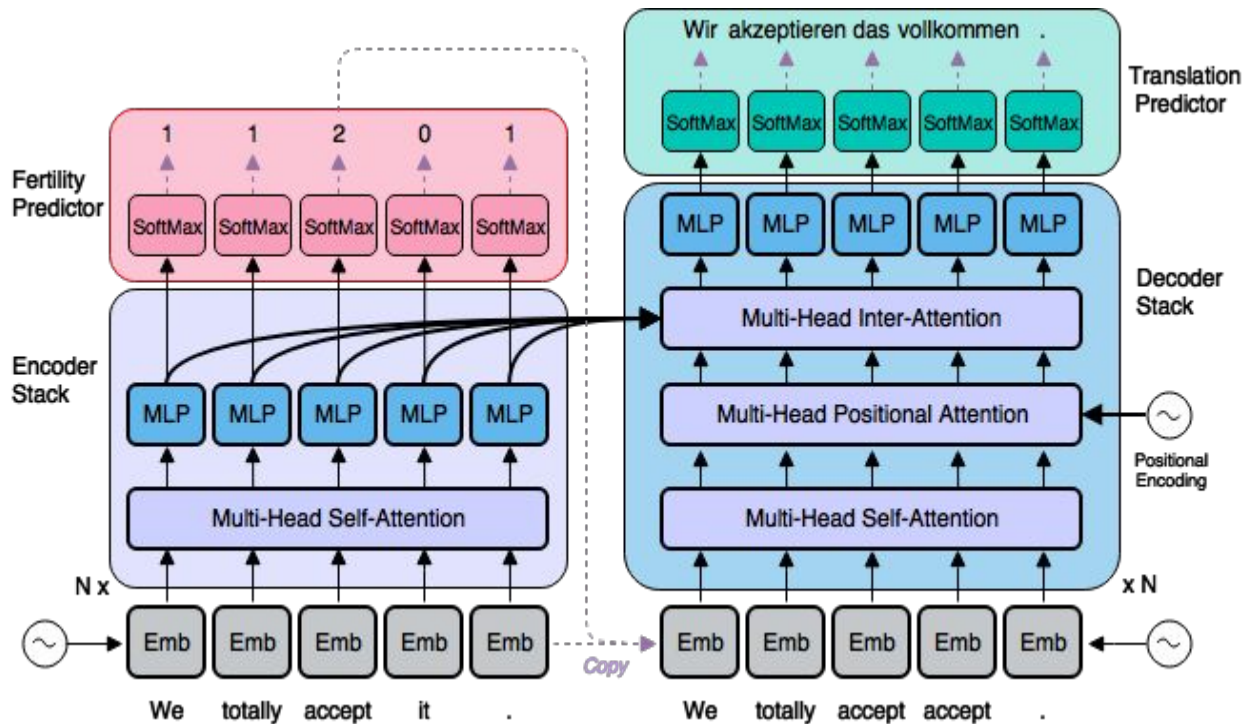
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Attention is All You Need

- self-attention
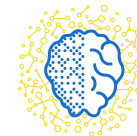- positional encoding
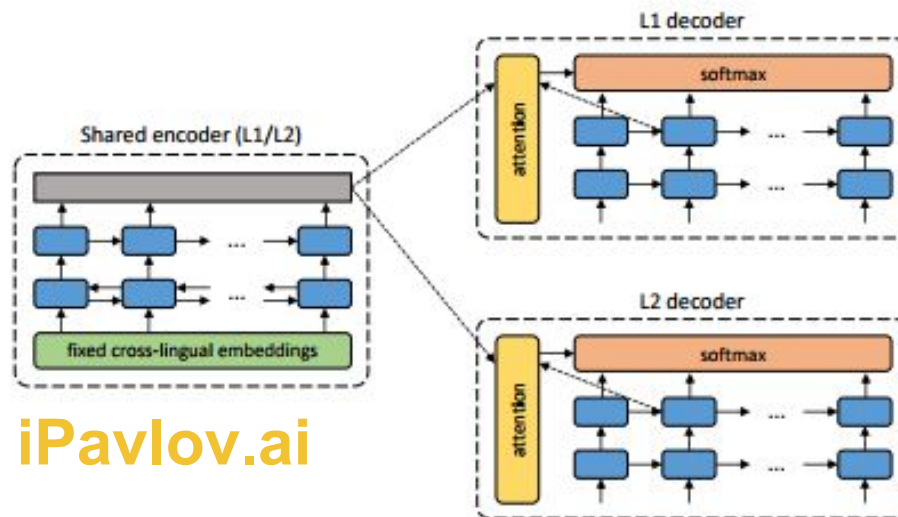- masked generation

Fully parallel Text-Generation for MNT

- fertility
- self-attention
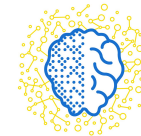- positional encoding

Unsupervised Machine Translation

- Unsupervised Neural Machine Translation (arxiv:1710.11041)
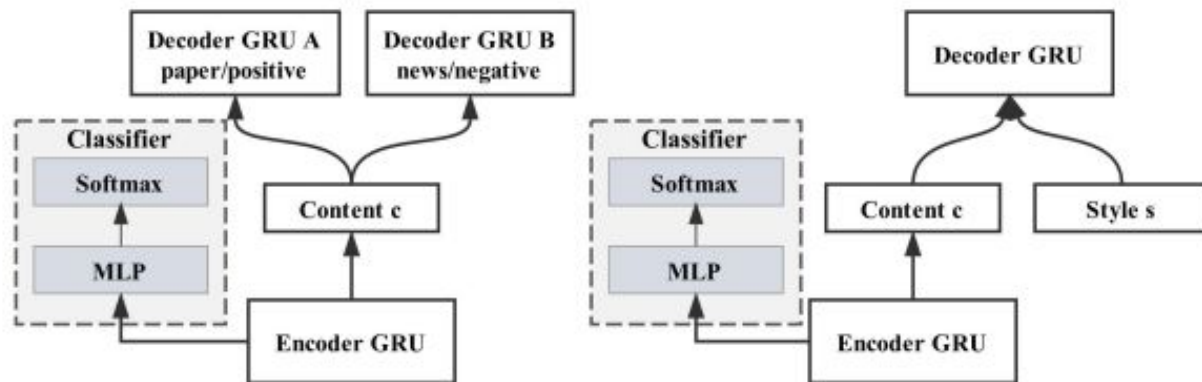- Unsupervised Machine Translation Using Monolingual Corpora Only (arxiv:1711.00043)
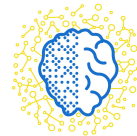

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Style Transfer on Texts

- Style Transfer in Text: Exploration and Evaluation (arxiv:1711.06861)
- Toward Controlled Generation of Text (arxiv:1703.00955)

Simple Recurrent Unit
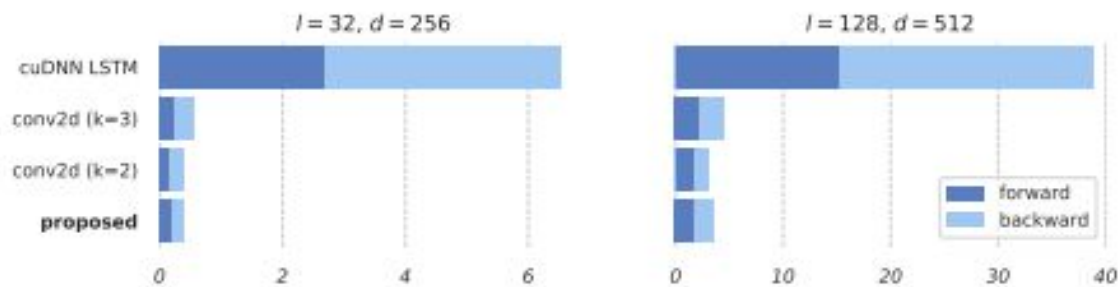
- Training RNNs as Fast as CNNs (arxiv:1709.02755)

$$\bar{\mathbf{x}}_t = \mathbf{W}\mathbf{x}_t$$
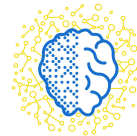$$\mathbf{f}_t = \sigma(\mathbf{W}_f\mathbf{x}_t + \mathbf{b}_f)$$
$$\mathbf{r}_t = \sigma(\mathbf{W}_r\mathbf{x}_t + \mathbf{b}_r)$$
$$\mathbf{c}_t = \mathbf{f}_t \odot \mathbf{c}_{t-1} + (1 - \mathbf{f}_t) \odot \bar{\mathbf{x}}_t$$
$$\mathbf{h}_t = \mathbf{r}_t \odot g(\mathbf{c}_t) + (1 - \mathbf{r}_t) \odot \mathbf{x}_t$$

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Tools

- AllenNLP
- ParlAI
- OpenNMT

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Thank you

for your attention!