

Uladzislau Yorsh

Teplická 604/15
190 00 Praha 9, Praha
☎ +420 777 162 444
✉ vladzorsh@gmail.com

Education

- 2022–present **Charles University in Prague**, PhD.
2020–2022 **Czech technical university in Prague**, Ing, graduated with honors.
2016–2020 **Czech technical university in Prague**, Bc.

Experience

- Apr **Research Assistant**, THE BIGCODE PROJECT.
2021–present
 - Implemented Transformer model variants for code processing tasks, including classification and auto-completion.
 - Proposed, implemented and evaluated two architectures for processing sequential inputs with $O(n)$ complexity w.r.t. a sequence length.

May **Data Science Intern**, RECOMBEE S.R.O.
2021–Oct
 - Proposed and developed a new model for the next basket prediction task, which improved the IoU score by 10%.
 - Worked on application of Transformers for recommendation.

Mar **Research Assistant**, INFERENCE TECHNOLOGIES.
2021–May
 - Proposed and implemented an unsupervised classification algorithm of wafer bin map defects, which improved the existing system performance from 0.76 to 0.81 kappa score.
 - Used autoencoder to embed WBMs into a latent space, a denoising variant to make a more robust embedding for classes with defects looking similar to noise.
 - Additionally experimented with several variational and adversarial autoencoder variants

Publications

- ICANN 2022 **Linear Self-Attention Approximation via Trainable Feedforward Kernel.**
 - Proposed and implemented a new attention mechanism with a linear complexity w.r.t. an input sequence length.
 - Evaluated the model on the LRA benchmark and beaten most of the baseline models.

ITAT 2022 **Text-to-Ontology Mapping via Natural Language Processing Models.**
 - Explored the possibilities of an automatic assignment of an ontology to a text document.

Other Projects

- Aug **SimpleTRON: Simple Transformer with $O(N)$ Complexity.**
2021–Feb
 - Proposed and implemented a new attention mechanism with a linear complexity w.r.t. an input sequence length.
 - Evaluated the model on the LRA benchmark and beaten baseline models.

Skills

- Languages Python, C, C++, Scala, Java, JavaScript, R
Domains Machine Learning, Computer Vision, Signal Processing, Natural Language Processing, Data Preprocessing, Theoretical Informatics
Technologies PyTorch, Tensorflow, Keras, JAX, SQL, Docker, Apache Cassandra, Elasticsearch, MongoDB, Hadoop, SPARK, git, REST
Communication English (B2), Czech (B2), Russian (native)

Research Interests

My research interest includes processing an order of 10,000s tokens sequences with neural networks. Furthermore, I am interested in state-of-the-art architectures being asymptotically faster with less parameters while keeping same performance, and in theoretical approach to designing sequence processing models.