

Attention Is All I Need¹

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I'M LOOKING FOR A research position to solve challenging machine learning problems and make scientific publications. Prefer team work, ideally as a member of experienced research group. Prefer remote work or semi-remote from Novosibirsk.

1. Education

Master's degree from Faculty of Information Technologies of Novosibirsk State University.

2. Work experience and contributions

- (i) Engineer in Huawei Russian Research Institute (apr. 2022 – mar. 2024), worked on tabular machine learning and computer vision research tasks.
- (ii) Senior research developer in a startup Siberian Neuronets (may 2024 - now), work on training and evaluating models for speech recognition and text generation.

In **tabular machine learning**, developed a benchmark for autoML systems. I tested neural, linear and boosting models and their various tweaks, researched methods for robust model comparison, feature generation, automatic feature type inference, tabular distributional shifts. I validated a hypothesis that plain baselines (like CatBoost) may be no worse than state-of-the-art tabular autoML systems, if early stopping and ensembling are properly designed.

In **computer vision**, researched semi-supervised few-shot object detection, including dataset preparation, augmentations, multi-stage learning, developing evaluation metrics. I managed to achieve pretty good few-shot detection performance with fine-tuning Cascade R-CNN on top of EVA-02 backbone. After all, I realized that the task of few-shot detection may come in a lot of very different forms, some of which are underexplored in the ML literature and may require completely different approaches.

In **speech recognition**, developed evaluation methods and postprocessing for smart home command recognition and fine-tuned speech recognition models.



Fig. 1: The author.

3. Skills and studying

In **machine learning**, my core skill by own assessment is understanding the difficulties in model evaluation, to maximize the connection between test metric and real performance in production. I am continuously trying to gain a deep understanding of machine learning to find weak spots and limitations of modern algorithms to improve them and reliability of their evaluation.

- (i) I almost fully read **Probabilistic Machine Learning: An Introduction** by Kevin P. Murphy, 2023 (a version with my commentaries at [this link](#)).
- (ii) I'm half read **Reinforcement Learning Textbook** by Sergey Ivanov, 2022 (a version with my commentaries at [this link](#)).
- (iii) Since last year, I write short summaries of some of the papers that I read (more than 500 papers for now at [this link](#)).
- (iv) I have published several longreads on [Habr](#).

In **programming**, I am familiar of Python, Numpy, Pytorch, Tensorflow/Keras, Huggingface, Pandas, Polars, Scikit-learn, Matplotlib, Catboost, Slurm, Detectron/MMDetection (and to varying degrees other tools).

- 1. github.com/sedol1339/speech_recognition
- 2. github.com/sedol1339/tabular_models
- 3. github.com/sedol1339/commonpool_search

¹ This resume is stylized as a famous paper named "Attention is all you need"