

Ivan Podluzhnyi

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➤ Education

- **2015-2020: Saint-Petersburg State University, Master Degree**
 - Academic programme title: Fundamental Mathematics
 - Area of specialisation: Probability Theory and Statistics
- **2020-Present: ITMO University, Ph. D. student**
 - Area of specialisation: Computer Science

➤ Employment history

- **2019-Present: STC group, Speech Research Scientist**
 - Created and released hybrid speech recognition models for different languages (Russian, English, Spanish, Kazakh, Turkish, Arabic) using Kaldi Speech Recognition Toolkit and Pytorch ML Toolkit.
 - Developed various improvements to the WFST decoding algorithm for the hybrid pipeline
 - Conducted extensive research and prototyping of end-to-end ASR models in Pytorch.
 - Developed post-processing NLP models for ASR

➤ Research interests

- Data Science, Machine Learning (ASR,NLP), Deep learning, Computer Science

➤ Skills

- Programming language: Python, R, C++
- Python ML frameworks: NumPy, Sklearn, Pandas, Pytorch and Pytorch-based ASR frameworks (EspNet, k2)
- Experienced at Bash and Bash-based frameworks (Kaldi)
- Strong mathematical background
- Algorithm basics: Dynamic programming, Graph algorithms, WFST-based algorithms
- ML algorithms: Linear Regression models, Classification, Clustering, Dimensionality reduction, Linear and Nonlinear optimization, Markov chains
- Deep learning algorithms: CNN, RNN, LSTM, Transformer-like architectures in ASR and NLP.

➤ Languages:

- English (B2)
- Russian (native)

➤ Achievements

- As a part of the joint STC-innovations Ltd & ITMO University team, won Track 2 of the CHiME-6 challenge.
- Participation in ICAASP, INTERSPEECH conferences in 2020-2021

➤ Publications

- Laptev A., Andrusenko A., Podluzhny I., Mitrofanov A., Medennikov I., Matveev Y. Dynamic acoustic unit augmentation with bpe-dropout for low-resource end-to-end speech recognition // Sensors - 2021, Vol. 21, No. 9, pp. 3063
- Mitrofanov A., Korenevskaya M., Podluzhny I., Khokhlov Y., Laptev A., Andrusenko A., Ilin A., Korenevsky M., Medennikov I., Romanenko A. LT-LM: A Novel Non-Autoregressive Language Model for Single-Shot Lattice Rescoring // Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH - 2021, pp. 4039-4043
- Medennikov I., Korenevsky M., Prisyach T., Khokhlov Y., Korenevskaya M., Sorokin I., Timofeeva T., Mitrofanov A., Andrusenko A., Podluzhny I., Laptev A., Romanenko A. Target-Speaker Voice Activity Detection: a Novel Approach for Multi-Speaker Diarization in a Dinner Party Scenario // Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH - 2020, pp. 274-278
- Podluzhny I., Florinskiy A. Three properties of a discrete dynamical system in the space of infinitely differentiable functions // Differentsialnye Uravneniya i Protsessy Upravleniya- 2019. - № 1. - С. 104-108