

Research Interests

Machine Learning, Geometric Learning, Representation Learning for Graphs and 3D data, and its applications in scientific domains, e.g., Biology and Chemistry.

Education

- 2020 - **Université Grenoble Alpes, Grenoble, France**,
Present Master of Science in Industrial and Applied Mathematics (2nd year).
- 2019 - **Moscow Institute of Physics and Technology, Moscow, Russia**,
Present Master of Science in Informatics and Computer Engineering.
Advisor: Prof. Vadim Strijov.
Thesis: Graph convolutional networks for protein quality assessment.
- 2015 - 2019 **Moscow Institute of Physics and Technology, Moscow, Russia**,
Bachelor of Science in Applied Mathematics and Physics, GPA: 4.53/5.
Thesis: Application of multi-armed bandits in Yandex.Radio.

Research Experience

- Nov 2019 - **Graduate Research Intern, Inria, Nano-D Team, Grenoble, France**.
May 2020 Advisor: Prof. Sergei Grudinin
◦ Created methods VoroCNN and Spherical Graph Convolutional Network (S-GCN) for protein MQA problem.
- Feb 2018 - **Undergraduate Research Project, MIPT, Moscow, Russia**.
May 2018 ◦ Built a hybrid model with SVM and linear regression components for predicting the type of conformation and the value of binding energy of protein-ligand complexes

Publications

- [1] **Ilia Igashov**, Nikita Pavlichenko, Sergei Grudinin. "Spherical convolutions on molecular graphs for protein model quality assessment". *Preprint*. 2020. arXiv: 2011.07980.
- [2] **Ilia Igashov**, Kliment Olechnovič, Maria Kadukova, Česlovas Venclovas, Sergei Grudinin. "VoroCNN: Deep convolutional neural network built on 3D Voronoi tessellation of protein structures". *In revision at Bioinformatics*. 2020. bioRxiv doi: 2020.04.27.063586.

Professional Experience

- Apr 2020 - **Lead of Data Science Team, PeakData, Remote**.
Present ◦ NLP startup in healthcare domain aimed to gather and process information on medical topics.
- Sep 2018 - **Software Developer, Yandex.Music, Recommendation Team, Moscow, Russia**.
Oct 2019 ◦ Launched three smart playlists based on personal recommendation algorithms.
◦ Implemented Multi-Armed Bandits algorithm for optimal recommendation of radio stations for new users.
◦ Created personal recommendations of podcasts and promotions.
- July 2017 - **Summer Intern, Intel, Nizhny Novgorod, Russia**.
Aug 2017 ◦ Implemented and integrated additional split criteria in Decision Tree algorithm for Intel DAAL.

Teaching & Mentorship

- Feb 2020 - **Academic course "My first scientific paper" at MIPT, Mentor**.
May 2020 ◦ Supervised a MIPT student in research project on spherical convolutions for molecular graphs.
- July 2019 - **Sberbank Machine Learning Course, Moscow, Lecturer**.
Aug 2019 ◦ Taught introductory Python and Machine Learning courses for Sberbank employees.

Projects & Activities

- Apr 2020 - **Critical Assessment of protein Structure Prediction**, *Participant*.
- Aug 2020
 - 3 variations of VoroCNN + Spherical Graph Convolutional Network (S-GCN) for CASP14.
 - 2 variations of VoroCNN for CASP Commons, COVID-19.
- Dec 2019 **Tsukuba University - UGA Computer Science Workshop, Grenoble**, *Speaker*.
 - Report "Graph convolutional networks in Structural Biology".
- Oct 2018 **Vk Hackathon, Saint Petersburg**, *Participant*.
 - Created an Android application for recognition composers on wall posters (Moscow Philharmonia project).
- Feb 2018 - **DeepPavlov**, *Contributor*.
- May 2018
 - Took part in building an active-learning process for training a model for NER in Russian language.

Technical Skills

Programming Python, C/C++, Java, SQL

Frameworks PyTorch, TensorFlow, Keras

Utilities Git, Docker, Jupyter, Postgres, MySQL, MongoDB

Language English (TOEFL iBT: 106), French (A2), Russian (Native)