



KUMPAN VIKTOR VIKTOROVICH

Junior Deep learning / Data science / Software engineering

OBJECTIVE

Improvement, development of professional competencies and team product development skills. Contribute to the development of your company!

EDUCATION

ITMO UNIVERSITY • ST. PETERSBURG • 2019-2023 BACHELOR

Faculty of information technology and programming FITaP, the direction of training is applied mathematics and programming. Average score 4.9. In the ranking of students in the 5 best (for the entire period of study).

SKILLS

- English proficiency B2 (Upper Intermediate)
- Fundamental knowledge of mathematical and functional analysis, as well as discrete mathematics.
- Knowledge of methodologies DevOps - CI/CD. Work experience with Docker, GIT.
- Confident knowledge of Algorithms and STL, the ability to estimate the asymptotics of the solution.
- Good knowledge Python, C++, OOP and Functional programming..
- Good knowledge PyTorch, Transformers, NumPy, Scikit-learn.
- Experience working with data: Pandas, Matplotlib, Seaborn
- Good knowledge SQL and design experience database

PROJECT WORK EXPERIENCE

RESEARCH WORK • INFLUENCE ADVERSARIAL ATTACKS ON THE MRI IMAGES OF THE BRAIN

The work was carried out on the Brats dataset (3d images brain), the data analysis was performed, CNN ResNet-18 was taken as a basis. The architecture was customized for 3d images using transfer learning. CNN training was performed with various activation functions of ReLu and BReLU and its fine-tuning. To test the hypotheses, data augmentation was performed, CNN training was performed on FGSM attacks. It was possible to achieve an F-score of about 94%.

RESEARCH WORK • DETECTION OF STEEL DEFECTS

The work was carried out on the Severstal dataset, the task of segmentation. The U-net encoder and Res-Net 18 decoder were taken as the basis, NN fine-tuning was performed. The dataset is analyzed for possible correlations and variance in the data. Data augmentation and preprocessing were performed. I checked the quality of the model on the IOC – it was possible to achieve about 65 % on validation. Methods of combating overfitting were applied, the visualization of the work of NN was performed.

RESEARCH WORK • ANALYSIS OF THE TONALITY OF POSTS IN SOCIAL NETWORKS

The model was trained on its own dataset and with more "advanced" labels. Preprocessing of the text was performed, tailored specifically for my task, and the dataset was also analyzed for a deeper understanding of the text parameters. At the very initial stage, classical ML algorithms were applied: LogRegCV, AdaBoost, SVM with various vectorizers: TF-IDF, CountVect, HashingVec. On binary classification, algorithms with



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ITMO

- Experience working with cloud systems AWS, Azure, OpenStack.
- Ability to develop rapidly in a highly qualified environment
- Ability to communicate freely with people and work productively in a team
- Understanding project management Kanban, Scrum, Agile.

fine-tuning and adaptive stopwords have f-score indicators of the order of 75 %. The Bert architecture was taken as the BaseLine for DL. The problem of a small dataset (2500/2500) was solved by the transfer learning method, weights and embeddings trained on similar tasks were taken and fine-tuning certain layers and training parameters NN. We managed to achieve an f-score of about 85% without retraining.

APPLICATION PROGRAMMING • C ++

1. Implementation of a template vector with all the basic operations and with dynamic memory release.
2. Implementation of a loaded tree (trie) with an emphasis on execution time and memory consumed.
3. Implementation of the sea battle game based on the OOP principle and writing a smart bot for the game. Virtualization.
4. Implementation of a smart phone book based on STL, optimized for operating time and memory.
5. The implementation of the Sudoku solver (number of solutions, solution) is optimized in time and in memory.

APPLICATION PROGRAMMING • PYTHON

1. **First place at the All-Russian Congress of Young Scientists.** Software for automated search in open scientific sources of information for the study of the subject area.
2. Implementation of game life, based on OOP, working with GUI and user interface.
3. Implementation of a version control system with basic commands and operating principles.
4. Implementation of a process pool with memory management and workers, if the memory during the calculations goes beyond the allocated one, then this calculation is sent and processed in the second round.
5. Implementation of the "notebook " web service on Django, with the implementation of the REST API and packaging in a Docker container and covering Unit tests.

