

Anton Smerdov

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Experience

Senior Machine Learning Engineer

Berlin

Picsart

Nov 2020 - Present

Developed AI font generation model from data collection to model training and production.

- I've been training GenAI models on font data for over 3 years. Worked on architectures, implemented custom losses and methods from research papers. Came up with several task-specific metrics to evaluate results.
- Collected 10+ huge labelled datasets for training. Automated data filtering and labelling, engineered prompts.
- Developed a library to efficiently operate on font data with 5+ users.
- Proposed and implemented "smart rendering" algorithm to help the deep learning model to generate aligned glyphs.
- Set up documentation, coverage, and tests for library and models. Enabled support for multiple OS and multiple python versions. Integrated all of these in CI/CD.
- Developed a streamlit demo to play with the model. Added features like Google drive export, previous results restoration. Integrated downstream models into demo as well.
- Pre-generated tens of AI fonts for production, see press release. Provided hundreds of AI fonts for user feedback.
- MLOps: prepared API for real-time AI font generation for production, provided a documented and tested package. Public interface is available [here](#).
- Initiated and prepared 5 voluntary internal technical talks(e.g. CI/CD, metaclasses, pytorch), participated in tens of team buildings and paper reading group, conducted several interviews.
- The project team expanded to 5 people since I had joined as the only individual contributor. I helped colleagues to get involved into the project, provided guidance.

Machine Learning Engineer

Moscow

Huawei

Feb 2020 — Nov 2020, Jun 2019 — Jul 2019

Conducted research on domain adaptation and training stability in computer vision, Text2Video with GANs.

- Improved quality for unsupervised domain adaptation of FaceID model from 58% to 69% in terms of TPR.
- Discovered methods to reduce training quality std on ImageNet from $\approx 3\%$ to $\approx 0.5\%$.
- Developed a proof-of-concept for Text2Video generation.

Guest Scientist

Kaiserslautern, Germany

German Research Centre for Artificial Intelligence (DFKI)

Sep 2019 — Dec 2019

Conducted a study on team dynamics in eSports.

- Engineered a sensing system to record data from 5 players simultaneously. It captured hand/head/chair movements, eye tracking, EEG, GSR, pulse, oxygen saturation, face temperature, mouse/keyboard/in-game, and many other sorts of data.
- Organized several experiments with 2 teams of 5 people for data collection.
- Processed and analyzed the data collected. Build ML and DL models to predict if the player will win next fight with ROC AUC 0.706, 73.5% precision, and 88.3% recall.
- Published 2 papers: first on the dataset, second on ML/DL applications.

Data Scientist

Moscow

Mind&Machine

Mar 2018 — Jun 2018

Developed discrete optimization algorithms to make a schedule for retail employees.

- Created a custom genetic optimization algorithm to compose a schedule based on customer requirements, government regulations, and forecasted demand.

Data Science Intern

Moscow

Yandex, Yandex.Talents team

Jul 2017 — Jan 2018

Research in the field of HR. Applied ML and DL to predict employees' performance based on their internet activity.

- Collected and analyzed digital trace of successful/unsuccessful/potential taxi drivers and cashiers.
- Achieved ROC AUC 0.7 in predicting employee performance. Helped to run ad campaigns based on these results.

Education

MSc and BSc in Data Science

Moscow

Moscow Institute of Physics and Technology, Department of Control and Applied Math. 2014 – 2020

Studied in-depth courses on calculus, algorithms, machine learning, statistics, linear algebra, and related subjects. During Masters: Studied and practiced advanced DS techniques, statistics, and Bayesian inference.

MSc in Data Science

Moscow

Skolkovo Institute of Science and Technology, Data Science program. 2018 – 2020

Studied and researched ML, DL, and IoT. Course projects on DL applications in CV, NLP, IoT, etc.

Thesis: "Deep Learning Approach for Modeling Esports Athletes' Behavior Through Heterogeneous Sensors Data."

- Researched sensor data in eSports: proposed ideas, organized experiments, collected/preprocessed/analyzed the data, trained ML/DL models, interpreted the results, wrote 5 papers as a first author.
- Three papers published in peer-reviewed IEEE journals/conference proceedings, one of them got Best Paper Award. Two unpublished papers are available at arxiv.org.
- Got selected for Long-Term Academic Mobility in DFKI, Germany.

Technologies

AI	Stable Diffusion, StyleGAN-T, GPT, Llama 2
Main	Python(torch, numpy, sklearn, pandas, xgboost, lightgbm), Git, Bash, Linux
Auxiliary	CI/CD, Docker, Sphinx, C/C++, metaclasses, L ^A T _E X, SQL, Java, Arduino

Publications

Peer-reviewed:

5. **A. Smerdov**, A. Somov, E. Burnaev, B. Zhou and P. Lukowicz, "Detecting Video Game Player Burnout with the Use of Sensor Data and Machine Learning," in *IEEE Internet of Things Journal*, April 2021. [🔗](#)
4. **A. Smerdov**, E. Burnaev, A. Somov, "eSports Pro-Players Behavior During the Game Events: Statistical Analysis of Data Obtained Using the Smart Chair" in *The 5th IEEE International Conference on Internet of People (IoP 2019)*, August 2019, Leicester, UK, pp. 1768-1775. **Best Paper Award.** [🔗](#)
3. **A. Smerdov**, A. Kishkun, R. Shaniiazov, A. Somov, and E. Burnaev, "Understanding Cyber Athletes Behaviour Through a Smart Chair: CS:GO and Monolith Team Scenario" in *2019 IEEE 5th World Forum on Internet of Things (WF-IoT)*, Limerick, Ireland. April 2019, pp. 973-978. [🔗](#)
2. **A. Smerdov**, E. Burnaev, A. Somov, A. Stepanov, "AI-enabled Prediction of Video Game Player Performance Using the Data from Heterogeneous Sensors". *Multimedia Tools and Applications, Springer, 82(7), 11021-11046. 2022.* [🔗](#)
1. **A. Smerdov**, O. Bakhteev, and V. Strijov, "Optimal recurrent neural network model in paraphrase detection", *Informatika i Ee Primeneniya [Informatics and its Applications]*, 2018, Vol.12(4), pp. 63-69. [🔗](#)

Not peer-reviewed:

- E. Adamenko*, **A. Smerdov***, R. Kostin*, J. Pan, E. Sivets, N. Orlov, A. Wang and H. Shi, "GenFont: Diffusion-guided and Data-driven Consistent Font Generation". Submitted to *ACM Multimedia 2023*.
- **A. Smerdov**, A. Somov, E. Burnaev, B. Zhou and P. Lukowicz, "Collection and Validation of Psychophysiological Data from Professional and Amateur Players: a Multimodal eSports Dataset". [🔗](#)

Awards

- Best Paper Award at IEEE IoP 2019 conference.
- International Physics Olympiad 2014 Silver medal (Russian national team).
- Asian Physics Olympiad 2014 Bronze medal (Russian national team).
- Visual Domain Adaptation Challenge (ECCV 2020), 12th place (3rd on val).
- 3rd place in internal Picsart hackatone in 2021.
- Kaggle top-700 in April 2016.