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 4.5 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 ≈3% to ≈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 events, 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 AI 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, goverment regulations, and forecasted demand.

Data Science Intern — Moscow
Yandex, Yandex.Talents team — *Jul 2017 — Jan 2018*

Conducted research in mass recruiting. Trained AI to predict employees' performance based on their internet activity.
- ○ Collected and analyzed digital footprint of succesfull/unsucessfull/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 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 AI and IoT. Accomplished projects on AI 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 were published in peer-reviewed IEEE journals/conference proceedings, one of them got Best Paper Award. Two unpublished papers are available on arxiv.org.
○ Got selected for Long-Term Academic Mobility in DFKI, Germany.

Technologies

Diffusion models, LLM, Python, Git, CI/CD, Docker, Sphinx, C/C++, LaTeX, SQL, Java

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. Kosti*, 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).
○ Kaggle top-700 in April 2016.
○ English C1 (TOEFL 102/120, Nov 2019)
○ Deutsch C1 (telc, Sep 2024)
○ Russian native