Vladimir Smirnov

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Experience

Computer Vision Director Jan, 2023 – Present
Sportradar *Paphos, Cyprus*
- Headed Optimization Squad with the aims of improving "Time to Market" value and bringing the tribe to a new technical level by designing and forming an MLOps system and components within it.
- Launched Table Tennis AI Scout product, with full replacement of Human Scout by providing fast (x5 times), resilient (0.7% of abandonment), precise (≥97.5% of accuracy, 0.1% of wrong points) solution – see *Project 1.*

Computer Vision Team Lead Dec, 2020 – Dec, 2022
OSAI *Remotely*
- Completed the due diligence process during startup acquisition by preparing a detailed review of the leading Table Tennis AI Scout product and presenting the real demo – see *Project 1.*
- Led the squad to surpass the quality and performance plateaus by bringing advanced models (≥97.5% of accuracy), increasing CPU/GPU utilization (150%/90%), and adopting Numba and TensorRT-based models – see *Project 1.*

Innovation Engineer Sep, 2017 – Nov, 2020
Electrolux *Saint Petersburg, Russia*
- Created automated oven cooking cycle and washing machine cycle definition algorithms by training re-id models served within cloud AWS services and implementing Android client apps – see *Project 2* and *Project 3.*

Software Engineer 2014 – 2020
Upwork.com, Freelancer.com *Remotely*
- Created proof of concept of ASR client and server with ≈7% WER using Vosk and websockets – *link.*
- Clusterized texts by topics using Databricks platform with BERT model and T-SNE/PCA/HDBSCAN – *link.*
- Introduced car & license plate detection model with 82% mAP by fine-tuning modified RCNN – *link.*

Education

Saint Petersburg State University Saint Petersburg, Russia
Bachelor and Master in Computer Science, Research Automation, GPA 5.0 *2011 – 2017*

Projects

1. **Table Tennis AI Scout** | *Docker, Python, PyTorch + Lightning, TensorRT, Hydra, DVC* 2020 – 2024
   - Micro-serviced multi-threaded app with CUDA shared memory, 9 TensorRT models with 120 FPS and 150/95% CPU/GPU utilization, Game Rules module with ≥97.5% of AI Scout accuracy – see *link.*
   - Lightning-based, NVDEC-accelerated training and inference framework with SoTA architectures, GPU augmentations, Hydra configs, automatic converters to ONNX and TensorRT.
2. **In-oven cooking** | *Python, EC2, Android Java, gRPC, Tensorflow + Lite, Faiss* 2017 – 2019
   - Food re-id model trained with triplet loss, Faiss kNN search, 96% acc@1, 100% acc@3 – see *Patent 1* and *link.*
   - Oven mesh & glass reflections removal GAN models trained on manually collected datasets – see *Patent 2.*
3. **Virtual wardrobe** | *Python, EC2, Android Java, gRPC, Tensorflow + Lite, Faiss* 2017 – 2019
   - Textile re-id model trained with lifted structure loss, Faiss kNN search, 91% acc@1, 98% acc@3.
   - Care labels SSD-based detection model trained on synthetic data with 86% mAP – see *link.*

Patents

Electrolux
- Method for treating food in an appliance, food treatment system, and software application - *link.*
- Method, apparatus, and computing device for compensating disturbing objects in an image - *link.*

Skills

Languages: Russian - native, English - fluent, Python - fluent.
Frameworks: Pytorch + Lightning, FFmpeg, ONNX, TensorRT, CoreML, Nvidia VPF.
Libraries: Numpy, Numba, Pandas, Scikit-learn, Faiss, OpenCV, albumentations, Kornia, Hydra, DVC.
DevOps: Github & Gitlab CI/CD, Linux, Docker + Compose, AWS.