

Solovyev Alexey

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Summary

Machine Learning Engineer with 6+ years of experience building production AI systems for spatial intelligence, 3D perception, real-time vision, and generative AI. Combines deep computer vision expertise with end-to-end ML systems ownership, from research and data pipelines to optimisation, deployment, and operationalisation across cloud and edge environments. Led scalable digital twin and visual perception initiatives, translating advanced 3D/CV capabilities into automation, operational insight, and product value.

Skills

ML Core	Computer Vision, Neural Rendering, Generative AI, Agentic Systems, Geospatial AI, Synthetic Data
3D & Spatial AI	3DGS / NeRF, Photogrammetry Pipelines, SfM / MVS, Camera Calibration, COLMAP, OpenCV, Open3D
ML Systems & MLOps	PyTorch, ONNX, TFLite, OpenVINO, DDP / FSDP, MLflow, Inference Serving, GPU Benchmarking, Model Optimization
Engineering & Infra	Python, C++, SQL, FastAPI, React / TypeScript, Docker / Kubernetes, Slurm, CI/CD, Prometheus / Grafana, Git
LLM & Agentic Systems	RAG, Vector Search, Tool Calling, Structured Outputs, LangChain / LangGraph, vLLM, LLM Evaluation
Leadership	Technical Roadmapping, Research-to-Production Delivery, Project Planning, Team Leadership, Mentoring

Work Experience

Elm Europe – European R&D arm of a PIF-backed Saudi digital-services leader

London, United Kingdom

SENIOR APPLIED RESEARCH ENGINEER

Nov 2023 - Present

- Led the design and end-to-end development of the company's first multi-modal 3D reconstruction and digital-twin pipelines, fusing ground, drone, and satellite imagery with LiDAR / GNSS / IMU data to produce high-fidelity replicas of large urban areas.
- Developed and integrated novel-view-synthesis pipelines using Gaussian Splatting and Neural Radiance Fields, with diffusion-based inpainting and controllable generative refinement for dynamic urban scenes.
- Extended internal applied-AI capabilities beyond 3D by building OCR, LLM extraction, and RAG-style retrieval workflows to transform regulatory documents into structured requirements and decision-support outputs.
- Owned technical roadmap, research direction, and evaluation strategy for 3D perception and digital-twin R&D; supervised three ML engineers and acted as technical lead across internal and external research collaborations.

Arrival LTD – high-profile EV startup backed by Hyundai, UPS & BlackRock

Moscow -> London

SENIOR COMPUTER VISION ENGINEER

Feb 2021 - May 2023

- Redesigned and delivered a *real-time passenger-counting system* for bus CCTV, *increasing pipeline speed by 23x and accuracy by 18%* while optimizing performance on ultra-low-power embedded hardware.
- Developed a *driver monitoring system* (ADAS) and led the project through its *full lifecycle*, delivering pipeline quality required for *safety certification* readiness.
- Contributed to SDK development for model optimization and deployment on *in-house edge computing hardware* (Unified Computing Platform). Collaborated with systems engineers and other ML teams to enable all ML/vision requirements in the vehicle.

Gradient – consumer photo app with 50M+ users; Niias – computer vision R&D lab

Moscow, Russia

EARLIER EXPERIENCE — DEEP LEARNING & GENERATIVE AI

Jul 2019 - Feb 2021

- Developed production-oriented deep learning features for a large-scale consumer photo app, including *hair recoloring*, *background removal*, *facial filters*, *blemish removal*, and *object removal*.
- Optimized *image segmentation* and *generative models* for *mobile deployment*, balancing visual quality, latency, and device constraints for user-facing photo editing experiences.
- Prototyped and benchmarked generative vision models, including *GANs*, *VAEs*, *image-to-image translation*, and *identity-preserving virtual appearance editing* using photo-based 3D human reconstruction.

Education

National Research University - Higher School of Economics

Moscow, Russia

BACHELOR'S AND MASTER'S IN COMPUTER SCIENCE

2015 - 2021

- Graduated from a *top-tier CS* program, created with *Yandex*, the *top-1* tech company in the country.

Extracurricular Activity

- Winner, HSE Computer Science and Russian Math Competitions (2015, 2019)