

Dmitry Ivanov

AI/ML Engineer for CAE & Digital Twin Systems | 14+ years CFD/DEM & HPC · Applying AI inside simulation workflows

Remote | Open to relocation

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Professional Summary

AI/ML Engineer for CAE & Digital Twin Systems: 14+ years leading CFD/DEM simulation teams, now applying AI inside engineering simulation workflows. Delivered CAE Copilot (LangGraph, RAG with citations, golden eval) — an AI copilot for engineering workflows; SoccerPredictAI (950K+ matches, end-to-end MLOps); Chemwatch OCR/NLP pipeline (95% manual reduction). Stack: Python, Ansys APIs, LangGraph, Qdrant, MLflow, DVC, FastAPI, XGBoost, CI/CD. Open to remote and relocation.

Technical Skills

Simulation & CAE: Ansys Rocky/Fluent/Mechanical/Motion/Workbench, STAR-CCM+, EDEM, Nastran/Patran, Adams, SolidWorks, HPC, Teamcenter/Windchill PLM

Machine Learning: Python, scikit-learn, XGBoost, Optuna, pandas, NumPy, Feature Engineering, Model Evaluation

MLOps & Data: MLflow, DVC, Great Expectations, Airflow, Evidently, PostgreSQL, MinIO, Parquet, Data Quality

Deployment: Docker, Kubernetes, Helm, FastAPI, Celery, RabbitMQ, GitLab CI/CD, SOPS, Age

Applied AI: LangGraph, RAG, LLM, Qdrant, Vector Search, Pydantic; Observability: Prometheus, Grafana

Professional Experience

Head of Simulation Modeling Bureau — *Rostselmash, Rostov-on-Don, Russia* Dec 2021 – Present

- Scaled simulation/HPC team 2→10; standardized workflows, simulation model review, and Python data-processing automation (12× faster setup); PLM integration (Teamcenter).
- Led R&D to serial production validation (DEM/CFD, MBD/1D) with <5% deviation between model predictions and field telemetry; H820 harvester awarded AGROSALON Golden Star 2024.

Data Scientist — *Chemwatch (Part-time / Freelance, Remote, Australia)* Jan 2021 – Jan 2022

- Built production OCR + multilingual NLP batch pipeline for 50,000+ MSDS documents across 12+ languages.
- Confidence scoring + human-in-the-loop CAS validation; 95% manual work reduction, 40% faster safety analysis.

Lead CFD/DEM Engineer — *Gomselmash, Gomel, Belarus* Aug 2012 – Dec 2021

- Built CFD/DEM capability from zero (2015); structural FEA analyses; trained 3+ engineers; published calibration methodology in CADFEM Review (2020).

Selected Applied AI Projects

CAE Copilot — Engineering AI Copilot May 2026 – Present

- LangGraph routing, Qdrant RAG with mandatory citations, Pydantic calculation tools; golden Q&A eval (14 cases, 100% offline accuracy).
- Production on Kubernetes (FastAPI + Streamlit, Helm); CAE docs corpus (9 manuals), page-aware chunks.

SoccerPredictAI — Production ML & MLOps Platform May 2025 – May 2026

- End-to-end MLOps: DVC, Great Expectations, MLflow, Optuna; leakage-safe walk-forward CV; FastAPI + Celery on Kubernetes (<500ms p95).
- 950,000+ matches ingested; holdout log-loss 1.006, ECE 0.004; 560+ automated tests; GitLab CI/CD with quality gates.

Education

MSc in Mechanical Engineering, Gomel Technical University P.O. Suhogo, Belarus 2016–2018

BSc in Mechanical Engineering, Gomel Technical University P.O. Suhogo, Belarus 2007–2012

Certifications & Courses

- LLM: From Understanding to Product — ODS.ai (2026)
- MLOps and Production in Data Science (2.0/3.0) — ODS.ai (2023/2024)
- Machine Learning and Data Analysis — Yandex / MIPT (2020)

Languages

English: Professional Working Proficiency (B2). **Russian:** Native.