

Dmitry Ivanov

Lead CFD/DEM Engineer | Simulation, HPC & Digital Twins · Team Leadership | 14+ years

Remote | Open to relocation

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Professional Summary

Simulation engineer and team lead with 14+ years in CFD/DEM for machinery development: built DEM/CFD capability from zero, scaled a simulation/HPC bureau from 2 to 10 engineers, and delivered R&D-to-serial-production validation at <5% deviation vs. field telemetry. Simulation-supported H820 harvester awarded AGROSALON Golden Star 2024; DEM calibration methodology published in CADFEM Review (2020). Python automation of data preparation and processing in simulation workflows (12× faster setup) and PLM integration (Teamcenter). Open to remote and relocation.

Technical Skills

Simulation & Analysis: DEM — Ansys Rocky, Altair EDEM; CFD — Ansys Fluent, Siemens STAR-CCM+; FEA — Ansys Mechanical, MSC Nastran/Patran, SolidWorks Simulation; MBD/1D — Ansys Motion, MSC Adams, RecurDyn, Simcenter Amesim, MATLAB/Simulink; Multiphysics — Ansys Workbench

Optimization & Post-processing: Ansys DesignExplorer, Ansys optiSLang; Ansys CFD-Post, EnSight

CAD & PLM: SpaceClaim, Siemens NX, SolidWorks, Autodesk Inventor, PTC Creo, AutoCAD, KOMPAS-3D; Teamcenter, Windchill (PLM/PDM)

Scripting & Automation: Python (data-processing pipeline automation, Ansys Rocky API), MathCAD, HPC workflows

ML & AI (secondary): Python, XGBoost, MLflow, LangGraph, RAG, Docker, Kubernetes, GitLab CI/CD

Professional Experience

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

- Scaled simulation/HPC team 2→10: hiring, mentoring, simulation model review, standardized computational workflows; PLM integration (Teamcenter).
- Automated data preparation and processing in computational pipelines with Python (12× faster setup); led R&D to serial production validation (DEM/CFD, MBD/RBD & 1D system simulation) with <5% deviation between model predictions and field telemetry.
- Simulation-supported development of the H820 grain harvester (hybrid threshing system); field tests 2024; awarded AGROSALON Golden Star 2024.

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

- Built CFD/DEM capability from zero (2015); trained 3+ engineers; 9 years of simulation-validated machinery projects (grain cleaning, unloading, straw distribution) incl. structural FEA.
- Designed a test rig for crop property calibration; built a digital model of cereal crop material flow; published calibration methodology in CADFEM Review (2020).

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

- Built OCR + multilingual NLP pipeline for 50,000+ MSDS documents; 95% manual work reduction.

Selected Simulation Projects

H820 Grain Harvester — DEM/CFD support of full development cycle 2022 – 2024

- Simulation-driven design of hybrid threshing and cleaning systems; post-cleaning grain loss and impurity deviation <5% vs. field experiments.

Digital Twin of Grain Crop Material Flow — calibration & verification 2018 – 2020

- Test-rig methodology, DEM parameter calibration against physical tests; published in CADFEM Review #7 (2020).

CAE Copilot — AI copilot for engineering workflows (side project) May 2026 – Present

- Traceable RAG copilot for CAE documentation and calculations (LangGraph, Qdrant, citations); production on Kubernetes. [Live demo](#).

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

- Ansys software certification (Mechanical, Fluent, Rocky, SpaceClaim, DesignExplorer) — CADFEM (2020)
- Machine Learning and Data Analysis — Yandex / MIPT (2020)

Languages

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