

General Information

Name: Nikolai Zhivotenko
Date of Birth: 14th July 1994
Location: Moscow, Russia
Languages: Russian, English

Telegram: @niko_zvt
Site: www.zhivotenko.com
E-mail: nikolai@zhivotenko.com
LinkedIn: linkedin.com/in/nikolai-zhivotenko



Experience

Jan 2025 - Now | **Principal Software Engineer (BIM-to-BUILD™ Platform)**

Buildroid, Inc.; Dubai, UAE (Remote).

At Buildroid, I lead core engineering initiatives and shape the technical foundation of the AI platform powering robotic construction systems. My work focuses on translating advanced AI research into production-grade robotic platforms operating in real environments.

Key responsibilities: Development of the BIM-to-BUILD™ Platform (BIM, MES, etc.); Architecting scalable backend and AI infrastructure (GCP, Nebius, etc.); Platform-agnostic architecture for seamless integration with robotics and construction systems; High-impact architectural decisions across distributed engineering teams.

Jan 2025 - Feb 2026 | **Principal AI/ML Engineer (Humanoid Robotics | Physical AI)**

Buildroid, Inc.; Dubai, UAE (Remote).

I'm responsible for the development of humanoid robotics, focusing on the creation and deployment of embodied AI systems that enable robots to perceive, plan, and interact intelligently in real-world construction environments. My contributions centered around integrating advanced machine learning techniques with robotics hardware to achieve robust, adaptive, and physically capable humanoid agents.

Key responsibilities: GPU-accelerated physical simulation (NVIDIA IsaacSim, NVIDIA Omniverse); Designing embodied intelligence systems integrating perception, planning, control, and learning (ML/CV, ROS2, NVIDIA cuOpt, NVIDIA Cosmos, etc.); Reinforcement learning (RL) for real-world robotic autonomy (NVIDIA IsaacLab/IsaacGym).

Apr 2024 - Jan 2025 | **Head of ML Department**

Eurokappa, LLC.; Moscow, Russia.

Led the development and deployment of AI solutions for orthodontic applications, enabling high-precision treatment planning and improving patient outcomes. This role strengthened my ability to operationalize AI in safety-critical, high-precision domains.

Key responsibilities: Development and deployment of AI solutions for orthodontic applications; ML-driven treatment simulation; AI-powered dental planning systems; Team leadership and department scaling; Production AI systems in regulated MedTech environments

Nov 2023 - Jan 2025 | **Head of Digital Engineering Department**

Thrasos 3D, SAPI de CV.; Monterrey, Mexico.

Led the development and deployment of digital platforms enabling carbon-negative additive manufacturing solutions for ocean ecosystem restoration.

Key responsibilities: ICME from R&D to production.

Dec 2021 - Oct 2024 | **Principal Software Engineer**

Mighty Buildings, Inc.; Istanbul, Turkey.

Led the development and deployment of AI/ML solutions and drove the digital transformation of manufacturing processes. Oversaw the implementation of message brokers, OPC UA infrastructure, and digital shadows for robotic units. Responsible for assessing digital maturity, forming comprehensive roadmaps for industrial processes, and designing architectures for MES integration in high-tech micro-factories with connectivity to ERP systems.

Key responsibilities: Development and Implementation of AI/ML solutions; Continuous acquisition and life cycle support initiatives; Analysis of the company's digital maturity; Formation of a complete roadmap of industrial processes within the digital environment; Deployment of message brokers, OPC UA infrastructure; Digital transformation of production.

Mar 2020 - Oct 2024 | Senior Material Scientist (Part-time)*Mighty Buildings, Inc.; Monterrey, Mexico.*

Led simulation and experimental research streams for new composite materials, bridging digital models and practical validation.

Key responsibilities: ICME from R&D to production; Physical and mathematical modeling of effective characteristics of heterogeneous materials; Multiphysics simulation; FEM-based modeling of UV-cured 3D printing; Theoretical support for material scientists; Planning and conducting experiments; Topology optimization of structures made of composite materials.**Mar 2020 - Dec 2021 | Senior CAx Software Developer***Mighty Buildings, Inc.; Oakland (CA), US (Remote).*

I developed automation toolchains and CAD/CAE plugins, advancing digital twin and manufacturing workflows.

Key responsibilities: Development design automation algorithms; Development an internal plugin for Autodesk Revit; Development BIM design simplification tools; Research and modification of CAM tools.**May 2019 - Mar 2020 | Middle C++ Developer (CAD/CAE/3D Geometric Kernel)***Top Systems, Ltd.; Moscow, Russia.*

Contributed to the development of RGK — an advanced geometric modeling kernel used in CAx/PLM systems.

Key responsibilities: Development 3D Geometric Kernel; Development CAD software; Development CAE software.**Feb 2017 - May 2019 | Lead Research Project Engineer***Kompozit, JSC.; Moscow - Korolev, Russia.*

Contributed to research projects on physical and mathematical modeling, investigation, and experimental testing of advanced composites and coatings for space rocket technology.

Key responsibilities: Research of the properties of materials and coatings of space rocket technology; Physical and mathematical modeling of composite materials; Investigation of CFRP, GFRP, and organoplastics for critical parts of space rockets; Curator of experimental mechanical and thermal tests of non-metallic composites.**Sep 2016 - Feb 2018 | Research Project Engineer***Contact-Technology NPP, LLC.; Moscow, Russia.*

Carried out engineering calculations, assembly supervision, and component procurement for satellite onboard radio systems in international astrophysics projects. Performed mechanical and thermal analysis; supported equipment development and testing.

Key responsibilities: A set of equipment developed and manufactured as part of the LPI RAS was placed in The National Radio Astronomy Observatory (NRAO) of the United States, located in Greenbank; Performing calculations of mechanical and thermal loads on a satellite onboard signal generator; Supervising the procurement of radio-electronic components for the satellite onboard signal generator.**Education****2012 - 2018 | Master of Science (Hons). Grade 5 out of 5***Bauman Moscow State Technical University, Moscow, Russia.***Focus areas:** Space Applications of Composite Materials; Composite Materials 3D Printing; Scientific research in the field of fundamental and applied problems of designing units and compartments (Artificial earth satellites, Planetary and orbital stations, Space antennas, Reusable spacecraft, Space rockets and rocket engines).**2012 - 2016 | Bachelor of Science (Hons). Grade 4.75 out of 5***Voronezh State Technical University, Voronezh, Russia.***Focus areas:** Solid-state physics, Aerospace Composite Materials; Activities and societies - Ferroelectric Materials Laboratory; Research in the design and manufacture of products from polymer composite materials (Carbon plastics for Sukhoi Superjet 100, Laminated metal-polymer composites for Irkut MC-21).

Core Expertise

Focus areas: Systems Architecture; Simulation Platforms; Digital Twins; AI/ML; Physical AI & Embodied Intelligence; Integrated Computational Materials Engineering; Multiphysics Modeling; Computational Mechanics; GPU/CUDA; Industrial Automation.

Technology Stack

Programming Languages: C++, C#, Python - main languages; CUDA (C/C++), NASM, Lua, QBasic, Pascal, Fortran - have fun.

AI/ML: PyTorch, BoTorch, TensorFlow; ONNX, NVIDIA Triton; OpenCV, YOLO; N8N, LangChain; ClearML, Weights & Biases, CVAT.

Robotics: NVIDIA IsaacSim, NVIDIA Omniverse, MuJoCo; ROS2, NVIDIA cuOpt, NVIDIA Cosmos, NVIDIA IsaacLab/IsaacGym; MoveIt 2, ikpy.

Frameworks, Libs & Tools: SciPy, NumPy, Pandas, SciKit-Learn; STL, Boost, CGal, Eigen, FeResPost; .NET Core, .NET Framework (WPF/WinForms); Git, Docker, CMake, Weedle, AWS, Google Cloud Platform, Nebius; UML (PlantUML), HTML/CSS/Markdown/YAML (Jekyll), LaTeX; CAD - Siemens NX, SolidWorks, Autodesk Revit; CAD Kernels - Parasolid, RGK, ACIS, DevDept Eyeshot, Grasshopper; CAE - COMSOL, ANSYS, NX/Nastran; Math - OriginPro, MATLAB, Maple/Maxima.

Patterns, Principles, Techniques, OS: PDD (Panic Driven Development); OOP, DDD, TDD, Extreme Programming; SOLID, KISS, Scout Principle; Design patterns - MVC/MVVM, Microservices, Client-Server, EAI/ESB (SOA); Messaging protocols - MQTT (RabbitMQ), XMPP (ejabberd), OPC UA; GNU/Linux (Debian/Arch based), Windows.

Academic Interests

Computational Materials Science: Integrated Computational Materials Engineering; Bayesian Optimization and Advanced DoE; Machine Learning for Materials Science.

Materials Science and Engineering: Composites; Nanomaterials; Metamaterials; Micromechanics of Composites; Materials Processing; Materials Testing.

Applied and Computational Mathematics: Mathematical Models; Finite Element Analysis; Multiscale Materials Modeling; Topology Optimization; Shape Optimization.

Additive Manufacturing: 3D Printing of Composite; Rapid Prototyping.

Structural Engineering: Multifunctional Composite Structures; Structural Reliability; Failure Analysis; Fracture Mechanics.

Courses and Certifications

2022:

- University of Michigan. The Finite Element Method for Problems in Physics;
- MESA International. Implementation and integration of MES-systems.

2021:

- TÜV SÜD. D/P FMEA Implementation;
- AgiliX Consulting. AgiliX Consulting, Agile Fundamentals Training Course;
- BasisSoft, LLC. OriginPro Introductory.

2020:

- St. Petersburg University. Introduction to the Mechanics of Deformable Solids.