



Stepan Sazonov
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EDUCATION

Degree	Institute/Board	CGPA/Percentage	Year
Bachelor of Science in Nanoengineering / Theoretical Physics	Institute of Natural Sciences and Mathematics at UrFU	3.69 / 5.00	2021 – 2026
Professional Retraining Diploma in Software Engineering	Digital Department at UrFU	Diploma Awarded	2024 – 2025

RESEARCH EXPERIENCE

- Simulation of Atomic Breathers**

Sep 2024 – May 2025

Laboratory of Theoretical physics, UrFU

Student Researcher

 - Objective:** Studied nonlinear dynamics in ferromagnetic chains aimed at observing atomic breather localized modes.
 - Simulation:** Developed a Python solver for the Landau-Lifshitz equation using RK4 integration.
 - Visualization:** Created a real-time rendering module using Python (Matplotlib/NumPy) to visualize 3D magnetic texture dynamics under external fields.
 - Analysis:** Investigated the stability of breathers, processing large datasets of numerical experiments.
 - Key Achievement:** Software prepared for patent registration; results presented at a scientific conference.
- Excitation of Magnetic Breathers via Atomic Modes**

Sep 2025 – Present

Laboratory of Theoretical physics, UrFU

Student Researcher

 - Objective:** Investigating nonlinear excitations in ferromagnetic chains aimed at observing magnetic breathers capable of energy transport.
 - Methodology:** Developing a numerical solver for the Landau-Lifshitz equation to determine frequency and amplitude thresholds for breather generation.
 - Innovation:** Currently optimizing the simulation code to search for coupling conditions where atomic vibrational modes excite magnetic oscillation modes.
- Software Development for Molecular Simulation**

Sep 2024 – May 2025

UrFU

Python Developer & Algorithms Lead

 - Objective:** Collaborated with a team of 6 researchers to create software for Monte Carlo simulation of Polyoxometalates (POMs) functionalization.
 - Engineering:** Architected and developed a desktop application using Python (DearPyGui) for molecular data processing. Implemented multi-threading for background calculations.
 - Algorithms:** Designed graph-based algorithms to convert .mol files into mathematical models for stochastic simulations.
 - Integration:** Built a bridge between the calculation module (Go) and visualization engine (PyMOL), enabling real-time 3D rendering of docking processes.
 - Outcome:** Reduced data preparation time for simulations; defended the project with the highest grade.

CREATIVE PRODUCTION & EDUCATION PROJECTS

- Project Lead & Executive Producer**

Jan 2019 – Aug 2024

Various Creative Agencies

[more info](#)

- Executive Leadership** Directed operations for a private Music Academy; scaled the team to 60 employees and managed 230 active students.
 - Film Production** Served as Executive Producer for an independent feature film (Budget: \$20,000) and a vertical web-series. Managed fundraising, logistics, and post-production timelines.
 - Multimedia Engineering** Led the technical implementation of an interactive Museum Installation (Budget: \$100,000), integrating hardware sensors with visualization software.

TECHNICAL SKILLS

- Programming & Scripting:** Python (NumPy, SciPy, Matplotlib, Pandas), C++, LaTeX.
- Scientific Software:** Gwyddion (SPM/AFM data analysis), OriginPro (Data plotting), ImageJ.
- Design Media:** Adobe Creative Suite (Premiere Pro, After Effects, Photoshop) Advanced level in scientific visualization, 3D modeling and video presentation.
- Languages:** Russian (Native), English (IELTS B2 / Upper-Intermediate).

PUBLICATIONS & PATENTS

- Sazonov S.A., Sinityn V.E.,** "Modeling of Atomic Breathers", Ufa Autumn Mathematics School *UUST, 2025*
- Software Patent (Pending),** Currently in process *UrFU, 2025*

INTERESTS

- Alpinism:** Endurance sports and route planning.
- Independent Filmmaking:** Visual storytelling and technical video production.