# Mariia Zhytnikova *(Software Development)*

Helsinki, Uusimaa, Finland
**Phone:** (+358) 46 57 60 200
**Email:** allusio@gmail.com
**LinkedIn:** linkedin.com/in/mariia-zhytnikova
**GitHub:** https://github.com/MariiaZhytnikova/

---

Software Developer transitioning from a scientific background, combining strong analytical thinking with hands-on experience in C/C++, Linux, and project-based learning at Hive Helsinki. I have a solid foundation in systems programming and experience working with multiple programming languages.

I enjoy breaking down complex problems and troubleshooting challenging technical issues in both individual and team-based projects. My research background strengthened my communication skills, ability to work under pressure, and to meet tight deadlines.

I am highly motivated to continue developing my technical skills, with particular interest in modern development tools, and AI-related technologies.

---

***Languages:*** *English – Fluent | Ukrainian – Native | Russian – Fluent | Finnish – B1*

## TECHNICAL SKILLS:

**Programming Languages:**
C, C++, Python, JavaScript, TypeScript, Shell Script

**Databases:**
PostgreSQL, MariaDB, SQL basics

**Tools & DevOps:**
Git, GitHub, Docker, Docker Compose, Nginx, Vite, CI/CD (GitHub Actions)

## PROJECTS

**Minishell — C, POSIX (Group)** *GitHub*
Implemented a POSIX-compliant shell supporting pipes, redirections, built-ins, and signal handling using low-level UNIX system calls and explicit memory management.

**Webserver — C++ (Group)** *GitHub*
Built an HTTP/1.1 C++ server with socket networking, cookie-based sessions, and production-style request parsing with error handling inspired by Nginx.

**Inception — Docker, Nginx, MariaDB (Individual)** *GitHub*
Deployed a containerized multi-service architecture using Docker Compose, including SSL termination, persistent storage, and service isolation on a virtual machine.

**2D Game — C, MLX42 (Individual)** *GitHub*
Implemented a real-time 2D game engine with event-driven rendering, input handling, and collision detection using a low-level graphics API.

**3D Game — C, MLX42 (Group)** *GitHub*
Implemented a raycasting-based 3D engine with texture mapping and real-time rendering, focusing on performance, mathematical correctness, and low-level graphics optimization.

**Hive — TypeScript, Canvas (Group)** *Lifelink GitHub*

Implemented and deployed a turn-based strategy game featuring interactive canvas rendering and a rule-based AI opponent. Designed a modular TypeScript architecture and implemented a minimax algorithm with alpha–beta pruning, heuristic evaluation, and move pruning to enable efficient decision-making under real-time constraints.

**AirGuardian — Python, JavaScript (Group)** *GitHub*

Implemented a telemetry processing and visualization pipeline for drone data, fetching and parsing telemetry from a JSON API and detecting airspace violations using geospatial logic with real-time canvas rendering.

## EXPERIENCE

*Research officer*
**IRE NASU -** Kharkiv, Ukraine
*Dec 2017 - June 2024*

Performed molecular dynamics simulations and structural analysis of protein–DNA interactions, including molecular dynamics simulations, structural calculations, and data interpretation, working with complex data and computational workflows.

*Senior Scientific Consultant*
**NIBR (external collaboration via IFNUL) -** Lviv (remote), Ukraine
*March 2018 - Apr 2024*

Conducted in-depth literature and clinical database reviews on target–disease associations and related therapeutics. Analyzed and systematized findings, delivering clear analytical reports to support research and decision-making.

## EDUCATION

**Helsinki Hive,** Helsinki — Software Development
*Nov 2024 - current*

**Karazin University,** Kharkiv — *Ph.D. in Biophysics, Mathematical & Physical Sciences*
*June 2017*

**Karazin University,** Kharkiv — *M.Sc. in Biophysics, with honors*
*Completed*

## COURSES

**Supervised Machine Learning: Regression and Classification (Stanford University / Coursera)**
Learned to build and train supervised ML models for prediction and binary classification using Python, NumPy, and scikit-learn, including linear and logistic regression.
**OpenCV (IT Jim):** Image processing, feature detection, object tracking, real-time video analysis.
**Kaggle:** Data preprocessing, model selection, performance evaluation through competitions.
**Data Scientist (Data Quest):** Python, pandas, data cleaning, visualization, statistical modeling.
**Full Stack (Helsinki University)** *ongoing*: JavaScript, TypeScript, Node.js, React, PostgreSQL, REST APIs.