Mariia Zhytnikova *(Software Development)*

Location: Helsinki, Uusimaa, Finland
Phone: (+358) 46 57 60 200
Email: allusio@gmail.com
LinkedIn: linkedin.com/in/mariia-zhytnikova
GitHub: https://github.com/MariiaZhytnikova/
Languages: English – Fluent | Ukrainian – Native | Finnish – B1

SUMMARY

Software Developer transitioning from a scientific background with hands-on project experience at Hive Helsinki. Strong systems programming foundation and experience in 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'm highly motivated to learn new technologies and continuously improve my skills.

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, TypeScript, Shell Script, C, C++
Backend Frameworks & APIs: NestJS, Fastify, REST APIs, WebSockets
Frontend: React, Vite, REST API & WebSocket integration
Databases: PostgreSQL, MariaDB, SQL basics
Tools & DevOps: Git, GitHub, Docker, Docker Compose, Nginx, Vite, CI/CD (GitHub Actions), Jest

PROJECTS

Maze is lava — online turn based board game *(Team project, in progress)*

- **Backend** (**NestJS + Fastify + WebSockets + TypeScript**)
  Implemented full game logic and turn rules on the server, player sessions and game state management, designed game APIs, and live update with WebSockets.
- **Frontend** (**TypeScript + Vite**)
  Created game flow UI, connected to backend via WebSockets for live updates.
  Currently working on board mutation and player turn rendering.

Hive — TypeScript, Canvas *(Group)* https://mariiazhytnikova.github.io/Hive-abstract-game/

- Implemented and deployed a turn-based strategy game using Canvas and TypeScript.
- Developed a minimax AI with alpha–beta pruning and heuristic evaluation for efficient decision-making.

AirGuardian — Python, JavaScript *(Team project)*

- Implemented drone telemetry processing, violation detection, and real-time visualization, fetching and parsing telemetry from a JSON API.
- Built backend and PostgreSQL database to store and serve telemetry data.

Webserver — C++ *(Team project)*

- Built an Nginx-like HTTP/1.1 C++ server with socket networking, cookie-based sessions, and production-style request parsing with error handling.

Inception — Docker, Nginx, MariaDB *(Individual project)*

- Deployed a containerized multi-service architecture using Docker Compose, including persistent storage, and service isolation on a virtual machine.

3D Game — C, MLX42 *(Team project)*

- Implemented a raycasting-based 3D engine with texture mapping and real-time rendering, focusing on performance, mathematical correctness, and low-level graphics optimization.

Minishell — C, POSIX *(Team project)*

- Implemented a POSIX-compliant shell supporting pipes, redirections, built-ins, and signal handling using low-level UNIX system calls and explicit memory management.

EDUCATION

Helsinki Hive, Helsinki — Software Development
Nov 2024 - current

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

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.

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 Open (Helsinki University) *ongoing*: JavaScript, TypeScript, Node.js, React, PostgreSQL, REST APIs.