

Mariia Zhytnikova (Software Development)

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Software developer transitioning from a scientific career, combining analytical thinking with practical experience in C/C++, Linux, and project-based learning at Hive Helsinki. I have a strong foundation in systems programming and multiple programming languages. I enjoy breaking down complex problems and troubleshooting intricate technical issues in both individual and team projects. My research experience strengthened my communication skills and ability to stay focused under pressure and tight deadlines. I'm open to different development roles and naturally curious about AI and modern tools.

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)

Practices & Methodologies:

Clean code, debugging (gdb, valgrind), memory management, version control workflows, peer code reviews, problem-solving, project-based learning

PROJECTS

Minishell - C, POSIX

Implemented a Bash-like shell with pipes, redirects, built-ins, and signal handling.

Skills: system calls, processes, environment variables, memory management, debugging.

Webserver - C++

Built an HTTP server with request handling and CGI execution.

Skills: sockets, HTTP protocol, CGI, multiprocessing / multithreading.

Inception - Docker, Docker Compose, Nginx, MariaDB, WordPress, SSL, virtualization

Designed and deployed a containerized service stack using Nginx, MariaDB, and WordPress on a virtual machine.

Skills: Docker orchestration, service isolation, SSL configuration, virtualization.

2D Game - C, MLX42 (graphic)

Created a 2D game with event-driven rendering and basic collision logic.

Skills: graphics rendering, input handling, sprites.

3D Game - C, MLX42 (graphic)

Developed a Wolfenstein-style engine using raycasting and texture mapping.

Skills: raycasting, real-time rendering, math & geometry.

Hive - TypeScript, Canvas

Implemented a turn-based strategy game with interactive canvas rendering.

Skills: TypeScript OOP, game logic, UI rendering.

AirGuardian - Python, JavaScript, Canvas

Processed drone data and displayed zone violations visually.

Skills: data parsing, geospatial logic, canvas visualization.

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

LANGUAGES

English - Fluent | Ukrainian - Native | Russian -Fluent | Finnish - B1