

Mariia Eremina

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SUMMARY

ML & Infrastructure Engineer with 4+ years of experience designing production ML systems, observability platforms, and scalable backend infrastructure. Lead cross-functional teams, drive architecture decisions at scale, and own end-to-end delivery, from research prototypes to fully automated production deployments.

PROFESSIONAL EXPERIENCE

ML & Infrastructure Engineer

May 2025 – Present

MDPI, Open-Access Scientific Journal Publisher

Basel, Switzerland

- Spearheaded AI and data-analytics strategy across the organisation; selected technologies, defined architectural standards, and managed engineering teams spanning Switzerland and China.
- Architected and deployed a next-generation observability stack (OpenTelemetry, ClickHouse, SigNoz), replacing Grafana–Prometheus and **reducing incident response time by 30%** while lowering operational overhead.
- Led end-to-end migration of all digital products to a modern infrastructure: transitioning orchestration from Apache Airflow to a **self-hosted Prefect orchestrator**, dependency management from Poetry to UV, and logging from Loguru to a structured Loggly/React-based observability layer, while optimising ETL pipelines with Polars for **fully automated zero-downtime deployments**.
- Designed and built the entire API server layer from scratch (FastAPI, PostgreSQL, S3), providing a unified backend for all internal and external services.
- Established CI/CD best practices and infrastructure-as-code standards, accelerating release cycles and improving cross-team developer velocity.

Software Engineer

Sep 2024 – Aug 2025

MIT, Massachusetts Institute of Technology

Boston, USA (Hybrid)

- Designed and delivered a clinician-facing full-stack platform integrating Harvard Medical School's AI research into hospital workflows (Python, Flask, React), enabling real-time diagnostic support for clinicians.
- Onboarded and mentored new engineers, establishing documentation standards and accelerating ramp-up time for incoming team members.

Co-Founder & Lead Software / CV Engineer

May 2024 – Dec 2024

CarGo Relay, AI-Powered Last-Mile Delivery (EPFL Startup)

Lausanne, Switzerland

- Co-founded an EPFL-incubated startup; drove technical vision, system architecture, and product roadmap from ideation to working prototype.
- Built a cross-platform mobile application (React Native, MongoDB, Firebase) and managed the agile delivery process end-to-end with Jira.

Computer Vision Research Engineer

Mar 2024 – Sep 2024

MIT & Harvard Medical School

Boston, USA

- Invented a spline-based co-registration algorithm for cardiovascular surgery hardware, achieving a **40× speed-up** and reducing manual work per patient from **3 hours to 5 seconds** (Python, PyTorch, OpenCV).
- Integrated Stable Diffusion Inpainting, SAM, and CLIPSeg for video quality enhancement; engineered cross-platform compatibility (macOS, Windows, Linux) for seamless integration with medical hardware.

Software & ML Engineer

Jun 2023 – Mar 2024

Maxon Group, Precision Motor Systems

Lucerne, Switzerland

- Led a cross-functional team of 5 (2 SWE, 1 MLE, 2 external AI experts from CSEM) to design, develop, and deploy an industrial anomaly-detection pipeline (Autoencoder + Siamese network), achieving **90%+ test coverage** with pytest and unittest integrated into CI.
- Delivered a production-grade customer-facing web application for motor quality inspection (FastAPI, PostgreSQL, Docker), integrated into the factory production line.

Machine Learning Engineer

Dec 2022 – May 2023

AGORA Cancer Research Center

Lausanne, Switzerland

- Developed a deep-learning framework (YOLOv5, DeepSORT) to detect and track cancer organoid stages, **reducing manual annotation time by 50%** and supporting clinical research at CHUV.
- Architected and maintained a 150 TB imaging data pipeline, partnering with clinical researchers at CHUV to improve organoid detection precision.

EDUCATION

Master Thesis in Computer Science

2024

MIT, Massachusetts Institute of Technology

Boston, USA

- “Landmark-Based Co-Registration of Coronary CT and Intravascular Images”

MSc Computer Science & Life Science

2021 – 2024

EPFL, Swiss Federal Institute of Technology

Lausanne, Switzerland

- Organise annual hackathons sponsored by AWS, UBS, Logitech, SBB, Swisscom, Swissquote, and Huawei (ongoing since 2022).

BSc Biotechnology

2017 – 2021

Lomonosov Moscow State University

Moscow, Russia

TECHNICAL SKILLS

Infrastructure & DevOps	Docker, AWS (S3), GCP, Azure, Linux, CI/CD (GitHub Actions, GitLab CI), Ansible, OpenTelemetry, ClickHouse, SigNoz, Prefect, Redis, Git
ML & Data	PyTorch, TensorFlow, Keras, OpenCV, scikit-learn, Hydra, Polars, pandas, NumPy, Optuna, W&B
Languages	Python, TypeScript, JavaScript, HTML, SQL, R, MATLAB, L ^A T _E X
Web & Backend	React, React Native, Flask, FastAPI, PostgreSQL, MongoDB, Firebase

LANGUAGES

English (fluent) · Russian (native) · German (A1–A2) · Spanish (A1)