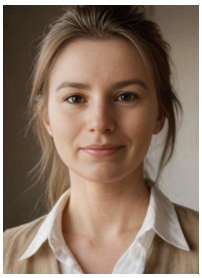

Mariia Eremina

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Professional Experience

Senior Software Engineer Sep 2024 – Jan 2025 (Expected)
MIT — Massachusetts Institute of Technology Remote

- Developing a Unified Platform for Medical AI: Create a user-centric web app centralizing Harvard Medical School's AI projects, providing streamlined access to cutting-edge computer vision methods for healthcare professionals and researchers

Co-Founder & Lead Software and Computer Vision Engineer May 2024 – Jan 2025 (Expected)
CarGo Relay — Sustainable AI-based Last-Mile Delivery EPFL-based Startup Lausanne, Switzerland

- Organizing cross-functional team work with Jira as the management tool and developing a cross-platform mobile application for iOS and Android using React Native, MongoDB, and Firebase

Computer Vision Research Engineer — Deep Learning Mar 2024 – Sep 2024
MIT — Massachusetts Institute of Technology Boston, USA

- Increased the co-registration speed of video frames by 40x through the development of a new spline-based algorithm and utilizing flow matching for high-precision cardiovascular surgery hardware, using Python, Tkinter, PyTorch and OpenCV
- Engineered a robust cross-platform application for precise video co-registration, efficiently managing diverse displacements in medical imaging and reducing manual work per patient from 3 hours to just 5 seconds
- Optimized video quality using models such as Stable Diffusion Inpainting, Segment Anything Model (SAM), and CLIPSeg
- Adapted applications for a cross-platform compatibility (macOS, Windows, Linux) to integrate with any medical hardware

Software & Machine Learning Engineer Jun 2023 – Mar 2024
Maxon Group — Swiss manufacturer and supplier of high-precision motor systems Lucerne, Switzerland

- Implemented custom anomaly detection algorithms, combining different machine learning techniques like Autoencoder and Siamese network for motor quality detection, using Python, OpenCV, and PyTorch
- Led a cross-functional team of 2 software engineers, 1 machine learning engineer, and 2 external AI experts from CSEM to design, develop, and deploy a motor quality detection system, fostering a well-organized and positive team environment
- Created a customer-focused website for motor quality detection using FastAPI, JavaScript, PostgreSQL and Docker
- Wrote pytest unit tests to achieve over 90% code coverage, ensuring the reliability and robustness of the system

Machine Learning Engineer Feb 2023 – May 2023
CHUV — Lausanne University Hospital Lausanne, Switzerland

- Developed a deep learning framework with YOLOv5 and DeepSORT to detect and track cancer organoid stages, reducing manual work time by 50%, and supporting research at AGORA Cancer Research Center
- Collaborated closely with interdisciplinary teams to gather and process large-scale imaging data (∼150 TB), leveraging this information to enhance the accuracy and precision of the cancer detection

Education

Master of Computer Science & Life Science 2021 – 2024
EPFL — Swiss Federal Institute of Technology Lausanne, Switzerland

- Relevant coursework: AI Product Management, Machine Learning, Applied Data Analysis, Computer Vision, Computational Photography, Mathematics of Data, Deep Learning for Autonomous Vehicles, Image Processing for Earth Observation
- Commended for outstanding performance during my master's thesis at a joint lab between MIT and Harvard
- Organised hackathons and acquired sponsors such as Amazon, Logitech, SBB, Swisscom, Swissquote, and Huawei

Bachelor of Biotechnology 2017 – 2021
MSU — Lomonosov Moscow State University Moscow, Russia

Projects

- Application for Co-registering Image Sequences for Medical Devices — Software, Computer vision
- Vision-Based Vehicle Speed Estimation — Computer vision
- Feature Visualization for Robustly-Trained Neural Networks — Machine Learning, Deep Learning
- FloodNet: Image Segmentation during Flooding Events — Deep Learning, Image Processing

Skills

Programming Languages: Python, JavaScript, FastAPI, SQL, MATLAB, R
Software & Frameworks: PyTorch, TensorFlow, React Native, Keras, Flask, Optuna, Wandb, Fiji, (La)TeX
Libraries: pandas, NumPy, OpenCV, scikit-learn, scikit-image, SciPy, NLTK, Diffusers
Tools: Git, AWS, Google Cloud, MongoDB, Firebase, Postman, Linux, Docker, Azure, Visual Studio Code