Sergei Katkov

Bolzano, Italy

EDUCATION

Ph.D. in Computer Science 2022 - 2025

Free University of Bozen-Bolzano - unibz | Bolzano, Italy

Research in Audio Processing and Speech Recognition.

M.Sc. in Digital Signal & Image Processing 2018 - 2020

National Research University of Electronic Technology - MIET | Moscow, Russia

Thesis: Classification of laparoscopic cholecystectomy stages using CNNs.

B.Sc. in Applied Math 2014 - 2018

National Research University of Electronic Technology - MIET | Moscow, Russia

Thesis: Fractal compression of grayscale images.

WORK EXPERIENCE

Machine Learning Engineer / Researcher May 2020 - Nov 2022

DSSL | Remote

- Developed inter-camera tracking system for up to 10,000 cameras in real-time environments.
- Improved face recognition accuracy to 98%, working on detection, re-identification, tracking, and attribute classification.
- Automated detector performance measurements, achieving 95-100% automation with alerting only on hardware incidents.
- Enhanced license plate recognition system to 96-97% accuracy across 30+ countries, maintaining real-time processing speeds.
- Created camera image quality indicator for consistent camera performance across various conditions.

Software Engineer Oct 2019 - May 2020

DSSL | Moscow, Russia

- Integrated IP device families from multiple vendors, expanding platform versatility with HTTPS, SDKs, and specific protocols.
- Enhanced CCTV platform by integrating new camera families and an access control system at an airport with over 3M annual passengers.
- Ensured reliable system performance with robust testing and troubleshooting, improving system uptime and reliability.

Software / Computer Vision Engineer Mar 2017 - Oct 2019

Elvees, Computer Vision Lab | Moscow, Russia

- Optimized image processing algorithms on DSPs, achieving 40% faster processing vs. CPU and improved resource efficiency.
- Designed a benchmarking platform capturing runtime metrics (e.g., speed, memory) and integrated it into CI/CD, automating performance testing and freeing 15-20% developer time.
- Prepared demos on edge devices, achieving real-time classification and detection at 5 FPS, showcasing library effectiveness on constrained hardware.

QUALIFICATIONS

Programming Languages: Python, C++, MATLAB

ML Stack: PyTorch, NumPy, SciPy, OpenCV, pandas, scikit-learn, PyTorch Lightning, Nvidia NeMo, huggingface, albumentations

Development Stack: Python, C++20, boost, pytest, OpenCV, gtest

Tools and Technologies: Linux, git, bash, LaTeX, DVC, TensorRT, onnxruntime, Docker, SQL, W&B, slurm, mercurial, CMake, conan

Teaching/Mentoring: Developing and conducting labs for bachelor's and master's students, preparing and grading exams, supervising students with their theses, and mentoring colleagues.

Languages: Russian (native), English (C1), Italian (B2), German (A2)