

# MIKOŁAJ JASTRZEBSKI

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## Experience

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### Junior Machine Learning Engineer

Jun 2025 – Present

*Grid Dynamics — R&D, Enterprise-scale Generative AI B2B platforms*

- Designed and implemented a hierarchical multi-agent system using Google ADK to automate B2B sales research.
- Engineered a production-grade Langfuse observability suite for the Multi-Agent System, implementing full-lifecycle tracing, prompt versioning, and a dual-evaluator framework (online/offline) to guarantee model reliability.
- Optimized system performance, achieving a 30% cost reduction via prompt caching and instance selection and a 15% latency reduction via asynchronous agent execution.
- Architected and released a config-driven agent starter-kit (Google ADK) adopted as the internal standard. Reduced new agent time-to-prod from days to hours by abstracting GCP CI/CD pipelines, Langfuse integration, Pydantic validation, and complex-platform boilerplate.

### Software Engineer Intern

Jul 2024 – Mar 2025

*Capgemini — Global IT services and consulting*

- Developed scalable RESTful services for a high-throughput government system using Spring Boot and PostgreSQL.
- Improved system stability by implementing automated integration tests and optimizing PostgreSQL queries to handle peak-load concurrency.

### Software Engineer Intern

Jan 2024 – Jun 2024

*Poland's National Development Fund (PFR)*

- Engineered the CI/CD pipeline for an AI-integrated civic platform, reducing deployment time to minutes.
- Architected a cloud-native microservices system (Docker, Nginx, Redis) on Azure, designing the backend integration for real-time NLP sentiment analysis and content moderation.
- Developed scalable REST APIs to handle geospatial data and 3D visualization modules for the city platform.

## Research & Projects

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### Deep Video Restoration | *PyTorch, GANs, Optical Flow, Transformer*

Research

- Developing a State-of-the-Art model for restoring archival footage, combining GANs with Transformer-based architecture and Optical Flow for temporal consistency.
- Leveraged distributed multi-node GPU training on HPC clusters.
- Outperformed MambaOFR SOTA in video restoration (PSNR, SSIM, LPIPS) on degraded REDS dataset.

### Generative Image Inpainting with SSL | *VQ-VAE, Attention-VAE, PyTorch, SSL*

Conference

- Benchmarked probabilistic architectures (VAE, VQ-VAE, Tree-Vi priors) for masked image reconstruction.
- Engineered a custom training loop leveraging SSL (BYOL, SimCLR, Barlow Twins) for encoder pre-training, improving latent space disentanglement.
- Presented findings on VAE architectures at the ML in PL conference student workshop.

## Hackathons

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### 1st Place @ Hack The Climate (PFR & NordicEdge, €10 000)

- Developed an AI-powered city-platform to enhance real-time communication between authorities and residents.
- Architected the MVP backend and integrated Azure AI services for citizen data analysis and cloud deployment.

## Education

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### Wrocław University of Science and Technology

Mar 2025 – Present

*M.Sc. in Artificial Intelligence*

- **Ranked 1st** in admission process.

### Wrocław University of Science and Technology

Sep 2021 – Feb 2025

*B.Eng. in Applied Computer Science*

- GPA: 5.5/5.5 (Highest Distinction) | 6× Rector's Scholarship for Academic Excellence.

## Skills

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**Machine Learning:** Python, PyTorch, OpenCV, NumPy, Pandas, SQL, Google ADK

**MLOps:** GCP, Azure, Docker, Linux, Kubernetes, CI/CD, Vertex AI, W&B, Langfuse

**Certifications:** Google ACE, English C1 IELTS