

Grzegorz Bartyzel

APPLIED SCIENTIST · MACHINE LEARNING & ROBOTICS

Kraków, Poland

gbartyzel@hotmail.com | github.com/gbartyzel | linkedin.com/in/gbartyzel

Summary

Applied Scientist specialized in Machine Learning & Robotics with 9+ years of experience building and deploying learning-based systems for real-world robotics and autonomous applications. PhD in AI and robotics, specializing in reinforcement learning, multimodal representation learning, and robot control.

Experienced in applied research and engineering, with strong end-to-end ownership spanning problem formulation, model development, system integration, and deployment under real-world and real-time constraints. Proven track record of delivering production-ready prototypes, contributing to patent applications and peer-reviewed publications, and collaborating closely with cross-functional engineering teams across automotive and industrial domains.

Skills

Machine Learning	Deep RL, Imitation learning, Deep learning, Multimodal (VLA, VLM) Self-supervised learning, Transformers
Robotics & Control:	ROS 2, Perception, Control, Force control, Motion planning, Real-time control
ML Engineering	Python, C++, Docker, CI/CD, MLflow, W&B, Ray/RLlib, Triton
Simulation & Tools	CoppeliaSim, Gazebo, BehaviorTree.CPP
Languages	Polish, English

Work Experience

Stealth Startup

FOUNDING RESEARCH ENGINEER - CONTACT-RICH MANIPULATION

Remote

Jun. 2026 - Present

- Member of early technical team.

Grid Dynamics

STAFF DATA SCIENTIST - PHYSICAL AI

Kraków, Poland - Hybrid

Sep. 2025 - May 2026

- Led the integration of multimodal foundation models (e.g., π_0) to enable real-time, closed-loop control of industrial robotic arms.
- Designed comprehensive teleoperation protocols for capturing high-fidelity expert demonstrations.
- Engineered high-throughput inference pipelines utilizing NVIDIA Triton, TensorRT, and ONNX to guarantee strict operational latency constraints.
- Mentored engineering staff in transitioning modern foundation models from research to applied robotics.

Stellantis

AI STAFF ENGINEER - AI PLANNING

Gliwice, Poland - Remote

Oct. 2022 - Sep. 2025

- Spearheaded a trajectory-planning system for L2+ off-road autonomy, advancing the project from concept to a successful live demonstration and securing one patent application.
- Prototyped an AI-driven trajectory-generation system, resulting in a peer-reviewed publication (IEEE IV 2024) and two distinct patent applications.
- Architected a synthetic benchmarking environment incorporating novel metrics to systematically isolate autonomy stack bottlenecks and evaluate Imitation Learning models in edge-case scenarios.
- Conducted independent research on Reinforcement Learning methodologies for trajectory planning, focusing on policy adaptation to unseen environments.
- Authored core C++ production components for autonomous parking and post-perception data processing, while guiding junior engineers on clean architecture.

InMotion Labs

ROBOTICS SOFTWARE ENGINEER (PART-TIME)

Kraków, Poland - Hybrid

Jul. 2021 - Jul. 2022

- Engineered LiDAR-based detection and path-planning algorithms, successfully enabling autonomous navigation entirely independent of physical track infrastructure.
- Developed ROS 2 control software for mobile fleets and contributed an open-source driver for industrial camera integration.

Fitech

Kraków, Poland - On-site

AI SPECIALIST

Feb. 2017 - Sep. 2022

- Designed and deployed a deep reinforcement learning framework for robotic insertion tasks, consistently achieving success rates exceeding 95%.
- Investigated deep RL generalization challenges, building robust deployment pipelines that enabled real-time inference and closed-loop control.
- Developed a hardware-agnostic ROS 2 control layer, standardizing and streamlining the integration of multi-vendor industrial robots.

Delphi

Kraków, Poland - On-site

JUNIOR ELECTRONICS ENGINEER (INTERNSHIP)

Oct. 2015 - Jan. 2017

- Engineered PCBs and analog low-pass filters for mild-hybrid ECUs, ensuring immediate electric arc detection and precise high-voltage current sensing.
- Executed comprehensive hardware testing, validating the proof-of-concept for a novel mild-hybrid architecture.

Education

AGH University of Science and Technology

Kraków, Poland

PH.D. IN AI AND ROBOTICS

2025

- **Thesis:** *Deep Reinforcement Learning for Robotic Industrial Assembly*
- Engineered a full-stack reinforcement learning framework integrating ROS 2 and RLib, establishing a scalable infrastructure for advanced manipulation research.
- Formulated a novel methodology combining multimodal Variational Autoencoders (VAEs) with deep RL to resolve generalization bottlenecks in contact-rich tasks.
- Investigated self-supervised and representation-learning techniques to ensure policy robustness across diverse and unstructured manipulation scenarios.

AGH University of Science and Technology

Kraków, Poland

M.SC. IN AUTOMATIC CONTROL AND ROBOTICS

2017

AGH University of Science and Technology

Kraków, Poland

B.ENG. IN AUTOMATIC CONTROL AND ROBOTICS

2016

Scientific Publications

Grzegorz Bartyzel: “Multimodal Variational DeepMDP: An Efficient Approach for Industrial Assembly in High-mix, Low-volume Production”. *IEEE Robotics and Automation Letters*.

Grzegorz Bartyzel, Wojciech Pótchtëpek i Dominik Rzepka: “Reinforcement learning with stereo-view observation for robust electronic component robotic insertion”. *Journal of Intelligent & Robotic Systems*.

Co-authored: “MIMP: Modular and Interpretable Motion Planning Framework for Safe Autonomous Driving in Complex Real-world Scenarios”. In: *Proceedings of 2024 IEEE Intelligent Vehicles Symposium*.

Co-authored: “Improving Consistency in Vehicle Trajectory Prediction Through Preference Optimization”. In: *Proceedings of 2025 IEEE 28th International Conference on Intelligent Transportation Systems*.

Patents & Patent Applications

EP4338895 - European Patent Application: A method of inserting an electronic component in through-hole technology, THT, into a printed circuit board, PCB, by an industrial robot. Fitech, 2022.

IT202300023856 - Italian Patent Application: Convoy system for off-road autonomous driving scenarios. Stellantis, 2023.

IT202300022497 - Italian Patent Application: Training method for a trajectory planner. Stellantis, 2023.

IT202300022488 - Italian Patent Application: AI-based trajectory generation and scoring for motion planning in autonomous vehicles. Stellantis, 2023.

Selected Projects

NucAI

2023-2024

Collaborated with a research team from the Institute of Bioorganic Chemistry PAS to develop a deep neural network for classifying cell nuclei obtained from imaging flow cytometry. Integrated explainability methods (e.g. Grad-CAM) to support biological interpretation. Work presented via two poster sessions at ICAR 2024.

Community Involvement

Cracow Robotics & AI Club

ORGANIZER & CO-FOUNDER

- Organize regular meetups on robotics, AI, and new technologies
- Built a local community of 500+ engineers, researchers, and enthusiasts. [Meetup link]

Kraków, Poland

11.2022 - Present