Rassul Zeinulla

Automation and Robotics Engineer

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Skills and Interests

Programming Languages: C++, Python, MATLAB, IEC 61131-3

Robotics: ROS1 Noetic, ROS2 Humble, Rvis2, MoveIt2, Computer Vision, Machine Learning, Isaac Sim

Automation & Control: Siemens TIA Portal, Schneider Control Expert, Autodesk Fusion 360, Unisim

Electronics and Hardware Skills: Raspberry Pi 4/5, ESP32, Nvidia Jetson, Intel RealSense D435i, Modicon M340/M241 PLCs, Simatic S7-1200/S7-300 PLCs, KUKA KRC4 compact, Kawasaki Astorino

Software & Tools: Git, GitHub, Linux

Experience

Robotics Laboratory Assistant, Kazakh-British Technical University Jan 2025 – Jan 2026

- Co-author of the laboratory practice manual for NVIDIA Isaac Sim
- Designed and implemented a PID-based self-balancing control system for a BLDC motor
- Find-tuning Computer Vision model to 96% for Laboratory Projects

Automation and Robotics Engineer Intern, Hyundai Trans Kazakhstan June 2025 – Aug 2025

- Programmed PLC logic (Siemens S7-300,TIA Portal) for conveyor automation (training stand)
- Developed HMI interfaces (XP Builder) and integrated industrial sensors
- Worked with AGV intralogistics and PLC communication systems

Projects

Development of multirobot painting control system with realtime monitoring

- Accepted for The 20th IEEE International Conference on Control Automation (IEEE ICCA 2026)
- Automated painting process: PLC low-level commands and MATLAB for high-level coordination for manipulators path planning, and OPC UA connection. Integration of reinforcement learning for accuracy of path planning.
- Tools Used: KUKA KR10 R1100-2, RoArm M2s, BLDC motor, MATLAB, Siemens SIMATIC S7-1500, WINCC (HMI), reinforcement learning

Machine Learning and MATLAB in Industry

- Predict product quality in an industrial mining process with ML and connect to PLC by OPC UA communication, for HMI visualization
- Tools Used: MATLAB, Python, Machine Learning, Siemens SIMATIC S7-1200, HMI

Industrial Safety in Isaac Sim

- Isaac Sim simulation of safety process, integration movement of kawasaki manipulator and YOLOv26 for human detection via ROS2
- Tools Used: Isaac Sim, Python, Computer Vision, ROS2 humble

Industrial Automation Internship Project at Hyundai Trans Kazakhstan

- PLC-based conveyor control, HMI development, and practical implementation of electrical and automation systems
- Tools Used: Siemens SIMATIC S7-300, Conveyor belt, LS Electric HMI, Proximity Sensors

Intelligent Human-Zone Tracking using Computer Vision

- A real-time safety monitoring system for hazardous industrial zones that detects people, verifies safety-vest compliance, and tracks dwell-time in danger areas

- Tools Used: Python, Computer Vision, YOLOv8

PID-Based Self-Balancing Control of a BLDC Motor

- A control project focused on implementing a PID controller for a self-balancing BLDC motor system, demonstrating feedback control, stability analysis, and real-time motor regulation.
- Tools Used: C++, Simulink, BLDC motors, microcontroller

Education

Kazakh-British Technical University, BS in Automation and Control Sept 2022 – May 2026

- **American accreditation ABET**
- **Coursework:** Foundations of Electrical Engineering, Theory of Linear and Non-linear Control Systems, Autonomous Mobile Robots, Industrial Robot Operations, Introduction to Machine Learning, Robotics: Estimation and Learning, Introduction to Computer Vision, Automation Components and Devices

Activities and Achievements

ASTP discipline: Won 2nd place for the best course project among 40+ teams from the entire 4th-year Automation and Control cohort at university

Mentor in Robo-Football Hackathon: Mentor for students and served as a judge in the Robo-Football Hackathon during ITFEST 2024 and ITFEST 2025

Open Day Robotics KBTU: Guided and advised prospective students on the Robotics and Automation program

EDUFEST KBTU: Presented KBTU student robotics projects and hands-on demonstrations

Portfolio

Feel free to check my specific Portfolio entry for more details!
Portfolio: https://rassulz.github.io