Bauyrzhan Zhakanov

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About Me

As a roboticist, I've always been motivated by innovative and creative projects with teamwork with 4+ years of work experience. Skilled in software development, machine learning, and control systems. Strong analytical and problem-solving skills with a passion for developing innovative solutions to complex challenges.

Education

- **Master's Degree in Robotics Engineering**: *Expected:* Oct. 2023
  University of Genoa, Italy
- **Bachelor of Science in Robotics and Mechatronics**: *Graduated:* Jun. 2021
  Nazarbayev University, Kazakhstan
  Thesis: Videolecture systhesis using AI Assistance. *Link: https://youtu.be/BiaoiLo31XU*

Skills

Programming skills: Python, C, C++, C#
Libraries: PyTorch, Tensorflow, OpenCV, numpy, pandas, scikit-learn, Flask, FastAPI
Tools: ROS and ROS 2, Gazebo/RVIZ, moveit, ROSPlan, PDDL/PDDL+, Unity, Unreal Engine, Codesys, IEC 61499, Google Cloud, Microsoft Azure, Ubuntu / Linux, git, bash, VM, docker

Work Experience

- **CYENS** Nicosia, Cyprus
  Computer Vision Intern *Sep 2022 - Dec 2022*
  - **Computer Vision**: Developed computer vision solutions including image classification, object detection, and segmentation. Integrated ML applications into gstreamer pipelines using embedded systems
  - **Teamwork**: Collaborated with cross-functional teams to deliver tasks on times. Conducted regular code reviews with project members
- **Aalto University** Espoo, Finland
  Graduate Research Assistant *June 2022 - Sep 2022*
  - **Development**: Designed and built cloud infrastructure for a variety of applications using Microsoft Azure. Improved infrastructure efficiency by connecting the system with cloud services for implementing cost-saving measures using IEC 61499.
- **TengriLab** Astana, Kazakhstan
  Junior Computer Vision Engineer *Jan 2021 - May 2021*
  - **Computer Vision**: Assisted in the development and implementation of computer vision solutions for a variety of applications. Worked on image classification and object detection projects using deep learning techniques.
  - **Cloud and Web services**: Coded an API to integrate the model with webservices. Conducted the project with front end developers for deployment.
  - **Hardware**: Collaborated with team of hardware engineers to build and test the system.
  - **Project Management**: Controlled the flow of equipment and the working process.
- **Nazarbayev University** Astana, Kazakhstan
  Undergraduate Research Assistant *May 2019 - Sep 2021*
  - **Publication**: Published an article to IEEE ICIT 2021 conference conducted in Valencia, Spain.
  - **Deep Learning**: Tested various state-of-the-art papers about visual odometry for machine vision system. Trained and worked on deep learning projects using Pytorch and OpenCV. Had an experience with **OpenPose** and **BCI**
  - **Teamwork**: Collaborated with students and professor to deliver tasks on time and within provided budget.

Projects

- **Robot Patrol using ROS Smach and Ontology**: An Ontology based project using Protege platform for making a robot planner around the map using ROS, smach, moveit, OpenCV. Link to project
- **Multi-Floor navigation using ROS 2**: A navigation based project using ROS 2, Nav2 and Gazebo.
- **Mobile Robot Simulation**: A python code using Moveit framework to manage the process in motion planning. Link to project
- **Drone Field Simulation**: A project to simulate the variety of drone movement using Socket in C language. Link to project
- **Driver Distraction and Drowsiness Detection**: A CNN model for image classification on a dataset of 20,000 images and OpenCV face image analysis. Link to project
- **Emotion Recognition**: A CNN model for emotion classification of web images using OpenCV and PyTorch. Link to project
- **Face Mask Detection**: A CNN model for face mask classification using OpenCV and Tensorflow. Link to project
- **Training 5 DOF planar robot**: A planar robot using ROS Gazebo and Reinforcement Learning. Link to project

Publications

- **Zhakanov, B.**: Abilkassov, S., Kairgaliyev, B., Abibullaev, B. (2021, March). A System For Drivers' Cognitive Load Estimation Based On Deep Convolutional Neural Networks and Facial Feature Analysis. In 2021 22nd IEEE International Conference on Industrial Technology (ICIT) (Vol. 1, pp. 994-1000). IEEE.

Volunteering

- **Kazakh Khan Academy**: Translated and dubbed a math tutorials for children from English to Kazakh.
- **Microsoft Digigirlz 2019**: Organized an event for young girls to make Robot's Hand
- **Work and Travel USA 2018**: Participated in the program for cultural experience and exchange in New York, USA
- **EXPO 2017 Astana, Kazakhstan**: Worked as a staff exhibitor to represent green technologies

Certificates

- **Aalto Work Certificate 2022**:
  Helsinki, Finland
- **IEEE ICIT 2021**:
  Valencia, Spain
- **Machine Learning School 2020**:
  Innopolis, Russia

References

- **Reference 1**: Dr. Carmine Recchiuto
  Contacts: carmine.recchiuto@dibris.unige.it
- **Reference 2**: Dr. Almas Shintemirov
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- **Reference 3**: Dr. Berdakh Abibullaev
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