Shyngyskhan Abilkassov
kurshakuz.github.io — github.com/kurshakuz
Email : s.abilkassov@gmail.com
Mobile : +7-747-317-4601

Education

- **Nazarbayev University** — Astana, Kazakhstan
  BSc in Robotics and Mechatronics; GPA: 3.79, Top 5% — *August 2017 - May 2021*

Publications

- Abilkassov, S., Nurlybayev, A., ... & Shintemirov, A. (2020). **Facilitating Autonomous Vehicle Research and Development Using Robot Simulators on the Example of a KAMAZ NEO Truck**, The 23rd IEEE International Conference on Intelligent Transportation Systems, (ITSC), September 20-23, 2020.

Experience

- **ALARIS Laboratory** — Astana, Kazakhstan
  Research Assistant — *December 2018 - Present*
  - Led the integration and testing team of **autonomous truck model** in Webots simulator using ROS middleware.
  - Created simulation environment and truck model in Webots and integrated messaging for *LiDAR, Camera, IMU, GPS* sensors for remote data acquisition and control of simulation truck model
  - Implemented topic data subscription and publishment for non-ROS environment through sockets and Flask REST service for data exchange with web interfaces
  - Implemented data communication using WebSockets for **remote goal dispatch, state** and **path monitoring** on dashboard
- **Google Summer of Code, JdeRobot** — Remote
  Open Source developer — *May 2019 - August 2019*
  - Developed **indoors localization, goal navigation, item pick-and-place logic,** and **resting behaviour** for full scale autonomous task completion for warehouse robot in Gazebo
  - Improved local navigation task performance for robot in complex interior environment. Robot reaches desired destination **2 times faster** than previous implementation
  - Integrated proper transformations for sensor frames, introduced proper ROS topics messaging and naming, and integrated *SLAM, AMCL, Navigation stack* ROS packages into the Gazebo simulation
- **Zerde National Infocommunication Holding** — Astana, Kazakhstan
  Full Stack Developer - Intern — *April 2018 - July 2018*
  - Developed user-interface for search and export of documents using Elastic Search in MongoDB database.
  - Implemented user activity monitoring web service in internal portal, and designed and created both **REST service and admin interface** using *AngularJS and Java Spring.*

Projects

- **Driver Drowsiness Estimation** Open-source implementations of multiple papers on driver drowsiness estimation based on eye **region extraction, segmentation, and morphological analysis** for estimation of driver drowsiness
- **Distracted Driver Posture Classification** A multi-modal m-CNN for distracted driver posture classification based on two **ResNet50** models trained on self-gathered dataset using transfer learning with a classification accuracy 90%
- **IMU Head Tracker interface** Fused data from accelerometer and magnetometer sensors on STM32F3 Discovery module through I2C communication and calibrated it for application control using head position.

Programming Skills

- **Languages**: Python, C, C++, Java, MATLAB, Javascript, NoSQL, HTML, CSS/SASS
- **Technologies and Frameworks**: ROS, Gazebo, OMPL, PyTorch, scikit-learn, OpenCV, Git

Accomplishments

- **1st place** - HackNU International Hackathon, 2018 and 2019.
- **2nd place** - Astana Innovations Challenge, Smart Services, 2018.
- **Fellow recipient** - Bertelsmann Data Science Scholarship.

DINMUKHAMMED MUKASHEV

Kabanbay Batyr avenue 53/10, Astana, Kazakhstan 900110
+7707 333 05 04 ⋄ dinmukhammed.mukashev@nu.edu.kz

EDUCATION

Nazarbayev University, Astana Expected Grad:*May 2021*
B.S. Robotics and Mechatronics, 3rd year

EXPERIENCE

Advanced Robotics and Mechatronics Systems Labratory, Tactile Lab September 2019 - Present
Research Assistant

- Worked in Unity 3D and VR (Oculus Rift).
- Scripted in C#.
- Worked with Teensy 3.2 board and DAC (Digital to Analog Converter)
- Created haptic vibrations using *Haptuator Mark II* motor.
- Integrated Hardware with Software (Unity 3D).

Zittau/Gorlitz University of Applied Sciences, Germany June-August 2019
Unity Developer

- Developed a simulation of the Thermal Power Plant in Unity 3D.
- Optimized the application for VR (HTC Vive Pro).
- Particles System implementation.
- Scripted in C#.

ABC FABLAB December 2018
Head Engineer Assistant

- Part time worker in FABLAB, Nazarbayev University Techno park. Conducting safety trainings on various machines. Working on 3D printers, plotters, laser engraver, milling machine etc.

NU Robotics Club October 2017 - May 2018
Member

- Organising university wide event, masterclasses and guest lectures.
- Run robo-summo and line-following local competitions using Lego NXT and EV3 sets.
- Member of Abu Robocon team that used VEX and arduino, to make soft-ball throwing robot.

TECHNICAL STRENGTHS

Modeling and Analysis	Fusion 360, Solidworks, Unity 3D, MATLAB, Blender, Altium Designer, AutoCad, ROS
Computer Languages	JAVA, C#, C, C++, Python
Microcontrollers	Beaglebone Black, Teensy, STM, Arduino, FPGA

Madi Nurmanov

Third-year student at Nazarbayev University

Bachelor of science in Robotics and Mechatronics

me.nurmanov@gmail.com
+7-707-048-10-50
Kabanbay batyr, 53, Astana, Kazakhstan
linkedin.com/in/madi-nurmanov

EDUCATION

Nazarbayev University
BSc in Robotics and Mechatronics
08/2017 – Present *Astana, Kazakhstan*

PERSONAL PROJECTS

Eye controlled interface
- MATLAB based implementation of Viola-Jones algorithm with further color image processing segmentation of eyeball

Optical Character Recognition
- Single input digits recognition based on blob analysis and convexity

Jaguar 4x4 Rover based SLAM algorithm
- Simultaneous Localization and Mapping for self-driving using LIDAR - assembly part

FESTO Industrial Automation set-up configuration with Siemens Human Machine Interface visualization
- Course project: discrete and continuous line automatization methods with simultaneous representation of the process on the Siemens HMI display

Beagle Bone Black embedded system
- Internal measurement unit + temperature representation in Graphical User Interface on the server

IoT: Smart House model using Arduino IDE
- Course project: automatization of home facilities using smart integrated system

STM32F3 Discovery based Headtracker
- Microelectromechanical system based implementation of IMU/Position detection from fused quaternions

555 Timer Integrated Circuit based pocket piano
- Soldering, design of the circuit and the case for the piano

WORK EXPERIENCE

Research Assistant
Nazarbayev Univtersity
03/2020 – Present *Astana, Kazakhstan*
Nazarbayev University aims to develop into a research university of international renown combining education, research and innovation.

Area of research:
- PID controlled electromechanical system implementation as robotic head prototpye

Automato
Intern
Digitalization solution developers

Achievements/Tasks
- Energy management software for interrelated devices

SKILLS

Communication | Problem solving | Creative thinking | Data driven decision making | Leadership | Teamwork | C/C++ | Java | Python | Matlab | HTML5 | Linux: Robotics Operated Systems | PLC languages | IoT | Solidworks/AutoCAD | Autodesk Eagle | Signal Processing | Image processing

CERTIFICATES AND ACHIEVEMENTS

MARS Kazakhstan organized case competition
Top 10 teams of Nazarbayev University

Certificate of successful completion of Nazarbayev University Centre for Preparatory Studies
This certificate is given for student who are unconditionally admitted for undergraduate studies after the foundation year program

ADVANCED COURSEWORK

Electrical and Electronic circuits II

Mechanical Design

Signals and Sensing

System Dynamics and Modeling

Linear Control Theory

Electromechanical systems

Robotics I: Kinematics and Dynamics

Image Processing

Embedded Systems & Microcontrollers

Industrial Automation

ORGANIZATIONS

Youth Parliament - Astana (03/2018 – 03/2020)
Vice President of non-governmental, non-profit organization that specializes in humanitarian and social development of Kazakhstani youth.

IEEE Robotics student chapter at Nazarbayev University
Event manager

INTERESTS

Football | Swimming | Hiking | Filmmaking | Hardware engineering | Robotics | Gaming | Artificial Intelligence & Neural Interfaces