Curriculum Vitae

Nikolay Dema

ndema2301@gmail.com
goo.gl/j6Ac4W
@nicko_dema
@nicko_dema
+79816810652

Education

2013 – 2017 **Bachelor's Degree** in Mechatronics and Robotics, ITMO University, Department of Control Systems and Informatics, St. Petersburg, Russia

Work Experience

2021 may – now **JSC NIIAS, System Architect**
Software architecture improvements and low-level protocols development for on-board control and computing systems of autonomous shunting locomotives.

2020 sep. – now **ScPA StarLine, Tech Lead**
Management of a small R&D group of 6 employees of OSCAR project.

Alpha drive-by-ware kit Launch.

Organization of joint events and educational programs with local universities.

2019 aug. – 2020 aug. **ScPA StarLine, Robotics Research Engineer**
API design and low-level driver development for brand-new drive-by-wire system for autonomous vehicles. Architecture improvements of self-driving software stack.

2018 aug. – 2019 jul. **goTRG, Robotics Software Engineer**
Development of navigation software from low level hardware drivers and sensor fusion to motion planing and localization for a differential drive AGV.

Participation in the development of an orchestration level software to control heterogeneous fleet of robots in a logistics warehouses and distribution centers.

2017 sep. – 2018 dec. **ITMO University, Research Engineer**
Research conduction on motion planning and control for kinematically redundant manipulators (supported by RSF, project No. 17-79-20341).

Development of data encryption protocol for cyber-physical systems based on SCW quantum key distribution (supported by the Government of the Russian Federation, Grant 08-08)

2016 sep. – 2017 aug. **ITMO University, Laboratory Assistant**
Development of shared control system for a motorized wheelchair to prevent collisions with obstacles during movement in a complex dynamic environment.

Participation in the development of the telepresence robot with AR interface, designed a navigation system for remotely operated and autonomous modes.

Technical Skills

Languages	C++, Python, Matlab, Bash, Latex
Tools	Linux, ROS, ROS2, OpenCV, Apollo(CyberRT), Docker, ØMQ, Git, CAN, CANOpen, Serial, Atlassian Stack, Gazebo, V-rep, Stage, SolidWorks, Blender, UE4.
Practical experience	Kuka YouBot, UR, Festo Robotino, Nanotec, Roboteq, Velodyne, Ouster, Hokuyo, Dynamixel, RealSense, Kobuki, Orbbec.
Research Interests	Cognitive neuro-robotics, human-robot interaction, edge computing, computer graphics.

Publications

- N. U. Dema and S. A. Kolyubin, *An algorithm of shared control of intellectual wheelchair movement.* Journal of Instrument Engineering, Vol. 61, no. 2, 2018
- Oleg I. Borisov, Vladislav S. Gromov, Sergey A. Kolyubin, Anton A. Pyrkin, Nikolay Y. Dema, Vladimir I. Salikhov, Igor V. Petranevsky, Alexey O. Klyunin, Alexey A. Bobtsov, *Case study on human-free water heaters production for industry 4.0*, IEEE Industrial Cyber-Physical Systems (ICPS), 2018, pp. 369-374.
- A. I. Shchekoldin, A. D. Shevyakov, N. U. Dema and S. A. Kolyubin. *Adaptive head movements tracking algorithms for AR interface controlled telepresence robot.* IEEE 22nd International Conference on Methods and Models in Automation and Robotics, Miedzyzdroje, 2017, pp. 728-733.

Communication and Leadership

2021, 2022 **Technical Committee member of the "Ya - Professional"**
Technical preparations of tasks for the Ya - Professional competitors in the robotics subgroup.

2020 **Self-Driving StarLine Competition organization**
Technical and organizational preparation of one of the largest student competitions in the field of autonomous transport in Russia.

2017, 2018 **RoboCup@Work Captain of the RED Team**
Teamwork organization. Development of an orchestration level software and navigation subsystem for an omnidirectional mobile robot.

2016 sep. – 2018 dec. **Student robotics laboratory supervisor**
Led many student projects in such topics as mobile robot motion planning and control, computer vision and manipulation.

Courses and Qualifications

2019 aug.	20th Max Planck Advanced Course on the Foundations of Computer Science (ADFOCS-2019), Saarbrcken, Germany.
2019 jun.	Summer School on Nonlinear and Adaptive Control (SNAC-2019), Saint Petersburg, Russia.
2018 apr.	The European Embedded Control Institute, International Graduate School on Control (EECI-IGSC-2018-M19), Saint Petersburg, Russia.

Honors and Awards

2018	Russian Federation Government Fellowship
2018	Captain of the team that won *second place in "Techno Challenge Smart Welding"*. Developed the concept of a positioning and accuracy control system for locomotive welded parts
2017, 2018	Winner of the Saint Petersburg Government grant competition for young researchers.

Languages

Russian - native
English - advanced