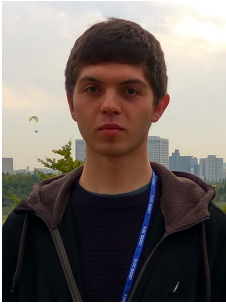


Curriculum Vitae



Nikolay Dema

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Education

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

Work

2018 aug. – 2019 jul. **goTRG, Robotics Software Engineer**
Developed navigation software from high level hardware drivers and sensor fusion to localization and motion planning and control as well as human-following functional and a network API for a differential drive AGV.

2017 sep. – 2018 dec. **ITMO University, Research Engineer**
Conducting research on motion planning and control for kinematically redundant manipulators (supported by RSF, project No. 17-79-20341).
Developed data encryption protocol for cyber-physical systems based on SCW quantum key distribution system (supported by the Government of the Russian Federation, Grant 08-08)

2016 sep. – 2017 aug. **ITMO University, Laboratory Assistant**
Developed shared control system for a motorized wheelchair to prevent collisions with obstacles during movement in a complex dynamic environment.
Participated in the development of the telepresence robot with AR interface, designed a navigation system for remotely operated and autonomous modes.

Technical Skills

Languages	Python, C++, Matlab, Latex
Tools	Linux, ROS, Docker, Git, Atlassian Stack, Gazebo, V-rep, Stage, Solid-Works, Blender.
Practical experience	Kuka YouBot, UR10, Festo Robotino, Nanotec, Roboteq, Velodyne, Hokuyo, Dynamixel, RealSense, Nvidia Jetson, RPLidar, Sharp.
Research topics	Motion planning and control, computer vision, navigation, sensing, artificial intelligence, human-robot interaction, bio-inspired robotics, neuroscience, 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. Petranovsky, 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

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|-----------------------|--|
| 2017, 2018 | RoboCup team captain
Captain of the "RED" team in RoboCup@Work league. Developed a tactic level software (control of the whole robot to execute a complex operation) as well as a navigation system for omni-directional mobile robot. |
| 2016 sep. – 2018 dec. | Student robotics laboratory supervisor
Led many student projects in such topics as mobile robot navigation, computer vision and manipulation. |

Courses and Qualifications

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|-----------|---|
| 2019 aug. | 20th Max Planck Advanced Course on the Foundations of Computer Science (ADFOCS-2019), Saarbrücken, 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

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|------------|---|
| 2018 | Russian Federation Government Fellowship |
| 2018 | Captain of the team that won <i>second place in "Techno Challenge Smart Welding"</i> . 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