

Nikita Smirnov

Software Engineer

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Summary

A highly motivated software engineer with 7 years' experience in embedded, robotics and communication systems, graduated with MSc in Engineering School of Information Technologies, Telecommunications and Control Systems (major in Design and Technology of Electronic Appliances) by Ural Federal University, Russia. Developed 20+ systems, managed 2 startups, brought an innovative product to the industrial series.

Skills

- Leading expertise: lead software and hardware teams: Agile, Scrum, time management, planning, SMART, Kanban.
- Research expertise: literature and technology review, grant application, supervision of students (6 BSc students 2021, Ural Federal University)
- Hardware expertise: circuit and PCB design, wireless and wires communications, sensors, and motor drivers.
- Programming expertise:
 - Clean code: Design Patterns, Code And Refactoring, SOLID, DRY, TDD, OOP
 - CI/CD: unit and integrational tests, Docker
 - Version control: Github, Gitlab, Bitbucket
 - Programming languages: Python, Matlab, C/C++, Js
 - DBMS: SQLite, PostgreSQL
 - Work experience with ROS, Flask, Django, React, Node, Android, .NET etc. technologies

Education

Ural Federal University, Russia

09.2016 - 06.2018

MSc. Educational program: Design and Technology of Electronic Appliances.

First class with Honours

Ural Federal University, Russia

09.2012 – 06.2016

BSc. Educational program: Design and Technology of Electronic Appliances.

First class with Honours

Professional training

- Commercialization of innovative products 09.2015
- Advanced Python 09.2019
- Javascript for WEB 01.2020
- Relational data bases 05.2021

Achievements

- Winner of "The Russian President scholarship for studying abroad" 2019
- Winner of "The Ural Federal University Startup accelerator" 2016

Work Experience

PRE-DOC

10.2019 – today

Johannes Kepler University Intelligent Transport Systems BMK Endowed Professorship and Chair for Sustainable Transport Logistics 4.0

During my work as a pre-doc, I have managed to deliver 4 papers, one of these was published in Sensor journal. I also successful joined a grant application with the Professor In addition, I designed low level control system for a last mile delivery robot, which includes hardware (electronic, mechanical) as well as software parts for the controlling motors, providing sensors data, handling the emergency cases etc. This role involved:

- Literature and Technologies survey (CiteSpace)
- Publishing articles and conference papers as well as grant proposals (LaTeX, Overleaf)
- Managing the timelines
- Data mining, signal processing, data visualization (Matlab, Python)
- Designing code for simulations, field experiments and Robots (Python, C#, ROS, Unity)
- Solving software architecture tasks
- Designing electronic boards, constructions for 3d printing (Autocad, Inventor, Altium Designer)

CTO

09.2020 – 08.2021

LLS Nandi

A private company which develops a web application for agronomic companies that automates time planning and growing control of agricultural products.

As a CTO, I have defined a technology stack of the app, found and sign agreement with the outsource software team. I have also clarified the business logic of the app and MVP version of the product, created well written project documentation. This role involved:

- Technologies and literature survey (CiteSpace)
- Defining new features and maintain backlog list of tasks
- Managing an outsourcing team of software developers and designers (SCRUM)
- Managing a team timelines and budget

Lead Software engineer / Co-founder / CTO

08.2017 – 08.2019

LLS Labyrinth

A private R&D company which designed full stack of technologies (from hardware till web applications) of vehicle-to-vehicle communications for anti-theft tracking systems.

As a CTO and Lead software engineer, I have designed stack of protocols for v2v communications based on LoRa modulation to work under an active noise generator “jammer”. Embedded software was developed by me for GPS tracker device and for a cell phone extension board. I have also implemented Agile best practices (SCRUM, Kanban, burn down charts etc.) for managing hardware and software teams. This role involved:

- Embedded software programming (C/C++, Matlab, STM32)
- Technologies and literature survey (CiteSpace)
- Solving software architecture tasks
- Field testing
- Leading of the engineering team, managing a timelines and budget

Lead software engineer

02.2017 – 08.2017

LSS SmartJack

Private company with wide range electrical and software projects.

As a Lead Software engineer, I have designed a monitoring system for providing information about frequencies characteristics of transmission power lines. This role involved:

- Participation in technical meetings with the clients
- Designing embedded software (C/C++)
- Designing electrical circuits and PCB (Altium designer)
- Field testing

Software engineer

08.2016 – 02.2017

LSS Karat

R&D company with wide range electrical and software projects in housing and communal services area.

During my time in this company, I designed low energy communication devices, which connects with water and electricity data loggers and provides data to the company servers. This role involved:

- Participation in technical meetings
- Designing embedded software (C/C++)
- Designing electrical circuits and PCB (Altium designer)
- Field testing

Software engineer

02.2014 – 08.2016

Ural Federal University Engineering School of Information Technologies, Telecommunications and Control System.

As a Software engineer, I oversaw two major projects: "Detector of critical mechanics damage" for the Sverdlovsk works of current transformers and "weather balloon direction finding system" for JSC "Vector".

This role involved:

- Designing embedded software (C/C++)
- Participation in technical meetings
- Field testing

Publications

1. Smirnov, N.; Liu, Y.; Validi, A.; Morales-Alvarez, W.; Olaverri-Monreal, C. A Game Theory-Based Approach for Modeling Autonomous Vehicle Behavior in Congested, Urban Lane-Changing Scenarios. *Sensors* **2021**, 21, 1523. <https://doi.org/10.3390/s21041523>
2. Y. Liu, G. Novotny, N. Smirnov, W. Morales-Alvarez and C. Olaverri-Monreal, "Mobile Delivery Robots: Mixed Reality-Based Simulation Relying on ROS and Unity 3D," 2020 IEEE Intelligent Vehicles Symposium (IV), **2020**, pp. 15-20, doi: 10.1109/IV47402.2020.9304701.
3. W. Morales-Alvarez, N. Smirnov, E. Matthes and C. Olaverri-Monreal, "Vehicle Automation Field Test: Impact on Driver Behavior and Trust," 2020 IEEE 23rd International Conference on Intelligent Transportation Systems (ITSC), **2020**, pp. 1-6, doi: 10.1109/ITSC45102.2020.9294751.
4. W. M. Alvarez, F. M. Moreno, O. Sipele, N. Smirnov and C. Olaverri-Monreal, "Autonomous Driving: Framework for Pedestrian Intention Estimation in a Real World Scenario," 2020 IEEE Intelligent Vehicles Symposium (IV), **2020**, pp. 39-44, doi: 10.1109/IV47402.2020.9304624.
5. V. I. Ievlev and N. V. Smirnov, "Mathematical modeling of the parameters of accuracy multilayer printed wiring boards," **2016** International Conference on Actual Problems of Electron Devices Engineering (APEDE), 2016, pp. 1-5, doi: 10.1109/APEDE.2016.7878999.