

Danil Neverov

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Education

- 2008–2013 **Saint Petersburg State University,**
Faculty of Applied Mathematics and Control Processes,
Specialist degree in Applied Mathematics and Computer Science,
Department of Computer Modeling and Multiprocessor Systems.
Diploma with distinction
- 2005–2008 **Academic Gymnasium of St. Petersburg State University.**

Thesis

- Title *Stochastic optimal control approach to machine learning*
- Supervisor D.Sc., Professor S. N. Andrianov
- Description The specific algorithm of reinforcement machine learning has been developed using methods of stochastic optimal control theory and functional integrals. Algorithm has been tested on both emulated virtual dynamic system and real robotic system.

Skills

- Programming Languages and Tools Professional practice:
C++11, C#, Visual Studio, Git, basic knowlage of **G-Code** and **CAD/CAM** Soft;
Hobby and Scientific practice:
Python, R, Matlab, Mathematica, Processing (Arduino), L^AT_EX;
- OS Linux family, MS Windows
- Other Large arsenal of numerical and analytical methods of applied mathematics, experience and skills of solving complex problems. Experience in industrial programming. The ability to design and construct real compound systems.

Languages

- English Professional working proficiency.
- Russian Native.

Experience

Vocational

2013–Present **Software Developer - Mathematician,**

CIMCO Software,

Saint Petersburg, Russia / Copenhagen, Denmark.

Development of mathematical core for CAD/CAM software.

- Support and expansion of functionality of 2D CAD editor:
 - Development of geometric library for working with splines;
 - Development of geometric library for working with ellipses.

2014–Present **Software Developer - Mathematician,**

RapidCam,

Saint Petersburg, Russia / Copenhagen, Denmark.

Development of mathematical core for CAD/CAM software.

- Working on the large project of NC machine toolpath generation software. Within the framework of this project I have implemented several 3-axis milling machining strategies:
 - Parallel;
 - Contour;
 - Scallop/Constant Stepover. This strategy is the most advanced among 3-axis strategies. In the process of development of the necessary functionality numerous nontrivial algorithms and solutions were implemented and applied:
 - custom triangulator of flat polygons;
 - 3d offset manifold calculation and triangulation;
 - numerical solving of specific PDE on the given triangulation;
 - slicing the manifold by contour lines of the given field.

Academic competitions and Additional education

- A repeated winner and participant of local and state-level mathematical and physical competitions among students, competitor of the Young Physicists Tournament;
- A student of Data Mining Track education programm by Data Mining Labs. Took part in several hackathons and Kaggle competitions;
- A participant of the seminar on calculational aspects of higher nervous activity of SPBSU, A participant of the summer school "White Nights of Computational Neuroscience";
- Completed with distinction several elective courses during education period such as Neural Networks, Quantum Computations, Mathematical modeling of complex systems etc.;
- An active user of online educational resources, took several tens of courses of world top universities such as MIT, Stanford, Berkeley etc.
- A participant of the seminar on calculational and differential geometry, topology and mathematical physics of St.Petersburg Department of Steklov Institute of Mathematics, Russian Academy of Sciences;

Projects

- I am an active enthusiast of DIY (Do it yourself) culture, robotechnics, Arduino and other microprocessor platforms. I have launched several projects such as two flying robot-copters (a large tricopter and a micro quadcopter), Led cub etc.;
- Within the framework of my thesis project the special algorithm of reinforcement machine learning has been developed using very sophisticated methods of theoretical physics. Algorithm is currently being tested on the robots, mentioned above;
- An interest in quantum computers had lead to successfully realized project of mathematical synthesis of optimal control of quantum register model using complicated mathematical apparatus of control theory on Lie groups;
- In collaboration with students from department of biology I was engaged in the project of biological neural network activity modeling covering mathematical and technical aspects.

Fields of Scientific and Professional Interests

- Computational and Differential geometry; Bioinformatics; Machine Learning; Robotechnics; Artificial Intelligence; Neurosciences; Quantum Computing; Mathematical modeling of complex systems (including economic and financial systems, physical systems, human brain).