Sergei VOLODIN

sergei.volodin@epfl.ch +41 78 732 01 34
Route de la Chocolatière 29 A / 009, Échandens, Switzerland
Birth date: 3rd October 1994 (24 years), Russian

EDUCATION

Swiss Federal Institute of Technology in Lausanne (EPFL)
Lausanne, Switzerland Sep 2017 – June 2020

- Master's degree in Computer Science
- Minor in Computational Neurosciences
- GPA: **5.61**/6

Moscow Institute of Physics and Technology
Moscow, Russia June 2017

- Bachelor's degree im Applied Mathematics
- GPA: **4.84**/5

SKILLS

Team/Project management, research paper writing, data analysis, theory, conducting experiments, scientific presentation, software debugging, design patterns, networking, parallelism

Relevant courses: Machine Learning, Software Engineering, Unsupervised and Reinforcement Learning in Neural Networks, Biological modeling of neural networks, Random graph theory, Functional Programming, Set Theory

Relevant courses: Machine Learning (intro), Algorithms and Data Structures, Convex Optimization, Random Processes, Functional Analysis

Scientific programming: Keras, TensorFlow, Theano, scikit-learn, MATLAB, Mathematica, R

Languages: English (TOEFL iBT 112/120), French (beginner), Russian (native)

Programming: C/C++, Python, AVR C++, Scala, Java, nasm, C#

Frameworks: Qt/QML, Django, Android Studio, OpenGL/GLSL, Unity 3D

Environment: Git, LaTeX, Bash, Debian/Ubuntu Linux

RESEARCH EXPERIENCE

Swiss Federal Institute of Technology in Lausanne (EPFL), Distributed Computing Laboratory Research Assistant
Lausanne, Switzerland Sep 2018 – present

- Improved the probabilistic bound on error of a neural network in case of independent neuron failures
- Conducted experiments to test the improved theory using Keras and Tensorflow including the implementation of custom layers and regularizers

EPFL, Computer-Human Interaction in Learning and Instruction laboratory Research Assistant
Lausanne, Switzerland Sep 2017 – Aug 2018

- Created a library QML-AR for seamless augmented reality using OpenCV with competitive performance on Android and small visual negative impact
- Designed an activity for learning math using the library, tested the application in a classroom setting, analyzed the obtained data

Skolkovo Institute of Science and Technology, Center for Energy Systems Research Intern
Moscow, Russia Sep 2016 – Jul 2017

- Characterized using numerical optimization and theoretically the structure of the set of boundary non-convexities of an image of a quadratic map in case the number of non-convexities is infinite
- Designed and implemented the Convexity Analysis of Quadratic Maps library which gives approximate solutions to a number of problems involving quadratic maps

PUBLICATIONS

A. Dymarsky, E. Gryazina, **S. Volodin,** B. Polyak. Geometry of quadratic maps via convex relaxation. arXiv:1810.00896, 2018. Proofreading, rewriting, experimental section, theoretical derivations

S. Volodin, M. Popova, V. Strijov Probabilistic prediction of nuclear receptors biological activity. Proceedings of ITaS, 2016, *in Russian.* Experiments with the Probabilistic Classifier Chains algorithm using Python

A. Petrov, **S. Volodin** Janibekov's effect and the laws of mechanics. Doklady Akademii Nauk, 2013. Graphics for the article, experimental section

WORK EXPERIENCE

EscapeControl Jul 2015 – Feb 2016
Own b2b startup for escape rooms, Moscow, Russia

- Created a startup selling software and hardware for real-world escape room games which allows to speed up the construction and reduce maintenance costs
- Responsible for back-end software engineering, sales and customer support
- Managed a team of two web developers until a successful launch of the web interface
- Sold more than twenty solutions which are currently running in different countries

ITBrat Jul 2015 – Feb 2016
Algorithmic trading startup, Moscow, Russia

- Developed algorithmic trading application from initial discussion with the team to deployment and supporting
- Added low-level user-space networking to the project which allowed to decrease latency and increase profit
- Responsible for the performance of the code

PROJECTS

Quadcopter drone from scratch project 2012 – 2014

- Developed an algorithm in C++ for stabilization of a quadcopter drone from scratch using AVR microcontrollers, IMU sensors and PID regulators
- Managed the project consisting of 2-5 developers
- Conducted the analysis of launches to improve flying quality
- Results were published as a science popular article *(in Russian)*

SCHOLARSHIPS

Research Scholars, a paid Research Assistant position, Swiss Federal Institute of Technology in Lausanne (EPFL), 2017 – 2019

Abramov Fund's scholarship for excellent grades (2014)

CONFERENCES

P.A.I.S.S. (AI Summer School) (INRIA Grenoble, 2018), *participant of the practical sections given by experts like Yan Lecun, selected to receive financial help*

DeepBayes school on Bayesian methods in Deep Learning (Moscow, 2017), *participant of lectures and practical sessions on Bayesian Methods*

Information Technologies and Systems (Saint-Petersburg, Repino, 2016), *speaker, presenting the paper*

OLYMPIADS AND HACKATHONS

DeepHack.RL hackathon (Deep Reinforcement Learning for Atari games, used an evolutionary algorithm with an autoencoder to solve Atari games), MIPT, Moscow, Russia, 2017. 4th place.

RESEARCH INTERESTS

Artificial Intelligence, Machine Learning, Artificial Intelligence Safety, Mathematical Optimization, Robotics

INTERESTS

Effective Altruism, Philosophy, Running (1/2 marathon 2018), Snowboarding, Swimming

VOLUNTEERING

Anti-corruption foundation 2017
A non-profit aimed at investigating corruption, Moscow, Russia

Conveyed the results of the investigations by talking to people on the streets