

Vladislav POLIANSKII

PERSONAL DATA

DATE OF BIRTH: 13 March 1994
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EDUCATION

- 2018-PRESENT KTH Royal Institute of Technology
Robotics, Perception and Learning lab
Doctoral student in Machine Learning
Research focus: "Application of Topological and Geometric Methods in Machine Learning"
Supervisor: Florian T. Pokorny
- 2016-2018 KTH Royal Institute of Technology
School of Electrical Engineering and Computer Science
Master's programme in Machine Learning
Master's thesis title: "An Investigation of Neural Network Structure with Topological Data Analysis"
- 2012-2016 Saint Petersburg State University
Mathematics and Mechanics Faculty
Analytical Information Systems Department
Bachelor's thesis title: "Usage of video-sequences for convolutional neural network pre-training"
Diploma with distinction.
- 2013-2015 Computer Science Center by Russian Academy of Science
Data Mining and Software Engineering tracks
400+ hours of finished courses within the topics of Machine Learning, Computer Vision, etc.
- 2008-2012 Presidential Physics and Mathematics Lyceum 239, St. Petersburg
During school years - twice a medalist of the All-Russian Programming Olympiad; also, a prize-winner of several regional Olympiads in Mathematics and in Programming.
The lyceum has been officially named the best school in Russia in 2015, 2016 and 2017.

PUBLICATIONS

- KDD 2020 "Voronoi Graph Traversal in High Dimensions with Applications to Topological Data Analysis and Piecewise Linear Interpolation."
Vladislav Polianskii and Florian T. Pokorny
An introduction and implementation of an algorithm which allows traversal in an explicitly represented graph of Voronoi diagram which is used to reconstruct/extract needed information about the diagram's dual.
- ICML 2019 "Voronoi Boundary Classification: A High-Dimensional Geometric Approach via Weighted Monte Carlo Integration."
Vladislav Polianskii and Florian T. Pokorny
Geometrically inspired novel classification algorithm, competitive with the best classical approaches to the task such as Random Forests and SVMs.

ACADEMIC EXPERIENCE

- Talks
 - March 2020, "Voronoi Boundary Classification"
Skolkovo Institute of Science and Technology, Moscow, Russia
An introductory talk for the "Geometrical Methods of Machine Learning" course
 - March 2020, "Topological Methods in Robotics: Problems and Algorithms"
Higher School of Economics, Moscow, Russia
Presentation of KTH lab's work at a topology seminar
- Master thesis supervision
 - Simon Schönenberger "*Control Latent Space Representations in (Variational) Autoencoders Using Methods from Topological Data Analysis*" 2020 [co-supervision]
 - Aniss Medbouhi "*Improving the performances of autoencoders using Topological Data Analysis and a Riemannian metric on the latent space*" 2020 [co-supervision]
- Teaching Assistant for Database Technology and Artificial Intelligence courses at KTH
 - Conducting tutorial sessions
 - Taking examinations of lab assignments and finals
 - Performing and supervising new assignment development
- Article reviewing for conferences in Machine Learning, Robotics and Applied Topology
 - [ICRA] International Conference on Robotics and Automation
 - [SoCG] Symposium on Computational Geometry
 - [AURO] Autonomous Robots (Topological Methods in Robotics, special issue)

APPLIED WORKING EXPERIENCE

- SUMMER 2020 **Applied Scientist Intern in Machine Learning, Amazon**
Global fraud representation and prevention by transfer learning
Virtual internship in the Buyer Fraud Fixed team, Seattle, WA
Ended with a return offer
- NOV 2014-SEP 2015 **Content Engineer at CODEFIGHTS INC**
Remote participation in the project CodeFights - a gamified platform for trainings in code bug searching.
Main duties: filling the database of algorithmic problems of various complexities; coming up with new interesting problems every day for a "challenge of the day"
- OCT 2014-MAY 2015 **Research project in Saint Petersburg State University under the supervision of Yandex**
Defining the behavior of a vehicle according to data obtained from a mobile phone
Goal of the project: obtain and use the information about maneuvers of a vehicle (like a turn, a U-turn or a line change) not from a video recorder, but from all available sensors on a modern phone, such as an accelerometer, a gyroscope and a GPS.
- SUMMER 2014 **Internship in JetBrains**
Development of Haskell debugger for IntelliJ IDEA
The debugger was completely finished with all corresponding default methods; an auxiliary console debugger was also implemented on Haskell using GHC API as an alternative to existing GHCi.
Technology stack: Kotlin (Java), IDEA API, Haskell, GHC API, Git.

CURRENT TECHNOLOGY STACK

LANGUAGES: C++, Python, Java, OpenCL
ML: tensorflow, pytorch, opencv
TDA: cgal, phat, gudhi, ripser

SPOKEN LANGUAGES

RUSSIAN: Mothertongue
ENGLISH: Advanced
SWEDISH: Basic