

Roman Beltiukov

NETWORKING RESEARCHER

Santa Barbara, CA, USA

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Skills

Machine Learning	Reinforcement Learning, Classic ML, Deep Learning, Computer Vision (+ OpenCV), TensorFlow, PyTorch
Programming	Python, C#, Rust, SQL, LaTeX
Languages	English, Russian
Other	Git, Docker, Bash, Powershell, Databases, Hadoop, Hive, PySpark, Linux (Debian-based) systems, Networking, Data Storage systems, Virtualization (Hyper-V, SCVMM, Xen)

Experience

Networking Research Assistant

Santa Barbara, CA, USA

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Jan. 2021 - now

- Working under supervision of Prof. Arpit Gupta
- Researching applied Machine Learning in Networking, including XAI, reproducibility, and network data representation.
- Working on pipeline-based solution for networking active measurement experiments.

On-Device Machine Learning Researcher

St. Petersburg, Russia

HUAWEI

Mar. 2020 - Sep. 2021

- Researching onboard Machine Learning techniques, network distillation, pruning, mobile device inference.
- Designing ML-based system for Android devices.
- Designed and implemented a custom Forward Error Correction algorithm for Huawei mobile devices.
- Designed and prototyped a system for user network performance using both on-device and operator information.

Research intern

St. Petersburg, Russia

JETBRAINS RESEARCH

Oct. 2019 - Jun. 2020

- Reproduced several articles in order to confirm achieved results.
- Implemented a novel World Models-based approach for Prioritized Experience Replay
- Prepared and held several talks about current progress in Reinforcement Learning field

Python tutor

St. Petersburg, Russia

HIGHER SCHOOL OF ENGINEERING

Sep. 2018 - Oct. 2020

- Designed several Python courses for different kinds of listeners.
- Semi-automated home task checking with unit tests and GitHub.
- Wrote a task book for Python learners with tasks ordered by complexity.
- Recorded video lectures and prepared courses for online education.

System administrator

St. Petersburg, Russia

HIGHER SCHOOL OF ENGINEERING

Jul. 2015 - Jun. 2019

- Implemented failover solution for the data storage network.
- Expanded and augment existing virtual machines infrastructure.
- Deployed advanced network and infrastructure monitoring services (like IDS, IPAM, centralized logging, etc.).
- Expanded domain and infrastructure to several branch offices.
- Created solution for HTML5-based access to virtual machines on Hyper-V/SCVMM hosts.

Education

University of California, Santa Barbara

Santa Barbara, USA

PH.D. IN COMPUTER SCIENCE

Sep. 2021 - now

- Working under supervision of Prof. Arpit Gupta
- Work on explainable AI and Reinforcement Learning in Networking

SPbPU (Peter the Great Saint-Petersburg Polytechnical University)

St. Petersburg, Russia

M.S. IN COMPUTER SCIENCE

Sep. 2017 - Aug. 2019

- Thesis: Optimizing Q-learning with K-FAC algorithm

SPbPU (Peter the Great Saint-Petersburg Polytechnical University)

St. Petersburg, Russia

B.S. IN COMPUTER SCIENCE

Sep. 2013 - Aug. 2017

- Thrice student of the year
- Thesis: application of generative adversarial networks to music generation

Additional education & Courses

- **Machine learning** Coursera (by Andrew Ng), score: 97.3%
- **Probability theory** Stepik (by Computer Science Center)
- **Statistics** Stepik (by Computer Science Center)
- **Astrophysics** Coursera (by SPbPU), score: 88.9%
- **Practical_DL** Yandex
- **Practical_RL** Yandex
- **mlcourse.ai** OpenDataScience
- **dlcourse.ai** OpenDataScience

Honors & Awards

INTERNATIONAL

- 2018 **Winner (individual)**, Student's competition "World-IT-Planet", Cloud Computing track by Huawei *Tyumen, Russia*
- 2018 **Runner-up (2nd place) of the challenge (in-team)**, HackJunction, "Mobility" by QOCO *Helsinki, Finland*
- 2017 **Winner (individual)**, Student's competition "World-IT-Planet", Cloud Computing track by Huawei *Sochi, Russia*
- 2017 **Challenge winner (in-team)**, HackJunction, "Robots, learning machines" by Eficode and Bitville *Helsinki, Finland*

DOMESTIC

- 2018 **Special award (in-team) by Institute of Bioinformatics**, BioHack 2018 by EPAM Systems *SPb, Russia*
- 2017 **Winner (in-team)**, Hackathon "Make your university 20.35" *SPb, Russia*

Certifications

OPENEDG

- 2019 **Certified Associate in Python Programming**, Verification Code: 6iTz.Eo4D.sR6J

MICROSOFT

- 2020 **Microsoft Certified: Azure AI Engineer Associate**, Certification number: H455-0627
- 2018 **Microsoft Certified Solutions Expert: Cloud Platform and Infrastructure**, Certification number: G878-5366
- 2018 **Microsoft Certified Solutions Associate: Windows Server 2016**, Certification number: G878-5139
- 2017 **Microsoft Certified Professional**, Certification number: G511-2245

CISCO

- 2018 **Cisco CCNA Instructor**, Network Academy Instructor
- 2017 **Cisco Certified Network Associate Routing and Switching**, Certificate verification number: 432903347147JRBH

HUAWEI

- 2017 **Huawei Certified Network Associate Storage**, Certificate number: 010100901680806862091409

Publications

AI/ML and Network Security: The Emperor has no Clothes

A. S. Jacobs, R. Beltiukov, W. Willinger, R. A. Ferreira, A. Gupta, L. Z. Granville
Proceedings of the 2022 ACM SIGSAC Conference on Computer and Communications Security, 2022, Los Angeles, CA, USA

Optimizing Q-Learning with K-FAC Algorithm

Roman Beltiukov
Analysis of Images, Social Networks and Texts, 2020, Cham

Open-source contributions

digestbot @ ODS.AI

- Project: slack bot for finding hot topics and important messages.
- Primary maintainer and architect of the project.
- Contribution: architecture, crawler code, UI code, internal logic, deploy, and support.

Tortilla @ maybe-hello-world | Project: HTML5 web interface for Hyper-V virtual machines with role-based access (currently successfully in production for 4 years).

PowerShell @ Microsoft | Proposed and added additional arguments to commands for working with PFX certificates.

Posh-ACME @ rmbolger | Fixed incorrect error ignoring, which prevented automation of several tasks.