

Contact

a.petiushko@gmail.com

www.linkedin.com/in/petyushko
(LinkedIn)
scholar.google.com/citations
(Portfolio)
petiushko.info (Personal)

Top Skills

Algorithms
C
Matlab

Languages

English (Professional Working)
Russian (Native or Bilingual)

Certifications

Probabilistic Graphical Models
Digital Signal Processing
Machine Learning
Goal Setting: Objectives and Key Results (OKRs)

Publications

Real-world adversarial attack on MTCNN face detection system
AdvHat: Real-world adversarial attack on ArcFace Face ID system
Quadric hypersurface intersection for manifold learning in feature space
On Cardinality of Bigram Languages (In Russian)
MDMMT: Multidomain Multimodal Transformer for Video Retrieval

Patents

Motion Estimation for a Video Transcoder
Soft attenuation of high-power signals
Three-Dimensional Region of Interest Tracking Based on Key Frame Matching

Aleksandr Petiushko

Sr Staff Tech Lead Manager / ML Research at Nuro; Ph.D. / Lecturer at Lomonosov MSU
Mountain View, California, United States

Summary

Senior R&D Researcher (15+ years of experience), R&D Technical Leader (10+ years of experience) and R&D Team Leader and Manager (5+ years of experience). Running and managing industrial research and academic collaboration. Inspired by theoretical computer science and how it changes the world.

Experience

Nuro

1 year 6 months

Sr Staff Tech Lead Manager

June 2023 - Present (2 months)

San Francisco Bay Area

Machine Learning Research, Engineering Manager.
Head of Applied Research.

Staff Tech Lead Manager

February 2022 - May 2023 (1 year 4 months)

San Francisco Bay Area

Machine Learning Research, Engineering Manager.
Head of Autonomy Interaction Research team.

Nuro is a leading autonomous vehicle company. Our mission is to better everyday life through robotics and strengthen local communities with our electric, zero-occupant autonomous delivery vehicles.

Sofia University

Adjunct Faculty

July 2023 - Present (1 month)

Palo Alto, California, United States

Preparing and teaching "Machine learning" course.

Lomonosov Moscow State University (MSU)

Time-domain acoustic echo control
Incremental preamble detection

Lecturer

February 2019 - Present (4 years 6 months)

Moscow, Russia

Main coordinator of School of Huawei Advanced Research Education (SHARE) at MSU program.

Faculties: Mechanics and Mathematics, Computational Mathematics and Cybernetics, Physics, Space Research.

Computer Vision, Machine Learning and Python courses for Lomonosov Moscow State University (MSU) students.

Artificial Intelligence Research Institute

6 months

Leading Scientific Researcher

January 2022 - February 2022 (2 months)

Moscow, Russia

Leading the research of the team for the directions: Multi-modality, Multi-tasking, Retrieval-based systems.

Director of Key Research Programs

September 2021 - December 2021 (4 months)

Moscow, Russia

Research task formulation.

Research team hiring.

Huawei Technologies

7 years 1 month

Scientific Expert, Team Leader

April 2019 - September 2021 (2 years 6 months)

Moscow, Russian Federation

R&D project in Artificial Intelligence (AI).

Video Intelligence TeamLead (~15 people).

Fundamental Research TeamLead (~25 experts from different groups).

Remote work coordination.

School of Huawei Advanced Research Education (SHARE) at MSU program owner.

Video Recognition: Action Detection, Spatial Temporal Recognition, Video Retrieval using text queries.

Motion Forecasting: Trajectory Prediction.

Robustness in DL: Adversarial Attacks, Universal Perturbations, Differential Privacy, Certified Robustness.

Geometrical DL: Out-of-distribution and Metric learning on Manifolds.

FaceID: Identification, Verification, Quality Assessment, Facial Landmarks.
Statements of Works preparations for independent / joint / collaboration projects (including tasks for Fundamental Research in AI).
Interviewing young talents.
Mentoring newcomers.

Awards:

2021 - Knowledge Management Team Incentive Award
2020 - Best Mentor Award
2020 - Fundamental Research Incentive Award
2020 - Future Star
2020 - Team Golden Medal (as a part of the team)
2019 - Outstanding Individual Award
2019 - Team Golden Medal (as a part of the team)
2019 - Future Star

Principal Engineer, GroupLead

September 2017 - April 2019 (1 year 8 months)

Moscow, Russian Federation

R&D project in Artificial Intelligence (AI).

Video Intelligence group.

Head of Neural Net-based face recognition (identification / verification).

Multi-task end2end solutions (keypoints / detection / segmentation).

Awards:

2018 - Technology Innovation and Breakthrough Award
2018 - Quality Star

Scientific Consultant

September 2014 - September 2017 (3 years 1 month)

Moscow, Russian Federation

R&D project in new storage media.

Cold data storage systems.

Erasure coding techniques.

Object placement & scheduling algorithms.

File type recognition.

Neural Net compression.

Neural Net - based techniques for Image Super Resolution.

Neural Net - based techniques for Image DeBlur.

Awards:

2017 - Outstanding Contractor Award

LSI Corporation

Software Engineer

November 2008 - May 2014 (5 years 7 months)

Moscow, Russian Federation

Algorithms development and implementation in:

- H.264 Video Trans-Sizer (Regexps Perl coding),
- Media GateWay DSP Solutions (Voice Quality Enhancement modules: Echo Cancellor, Automatic Level Control, High Level Compensation – C programming for DSP),
- BaseBand Project (WCDMA Layer 1 protocol implementation: PRACH preamble detection – C programming for vector processors),
- ReadChannel Project (Trapping Set analysis, Error Floor Estimation for LDPC codes - mainly MatLab+MEX programming),
- GR Project (hand/finger Gesture Recognition, Head Pose estimation using 3D cameras, 3D Face Recognition using low-resolution noisy 3D camera, Super Resolution of Depth images - MatLab/C/C++ programming);,
- FlashChannel Project (Flash Translation Layer, especially Wear Leveler module - C++ programming);

A number of USA patents (some of them as a lead inventor) were filed.

RIRC of Bryansk region

Programmer

February 2007 - November 2008 (1 year 10 months)

Брянск, Россия

Creating and supporting of a large DB (~1-10M records) on Oracle, implementing its functionality using PL/SQL; a number of client interfaces (Perl – CGI\Tk, AJAX (prototype, jQuery), Delphi) for interconnection with DB; Windows SVN server administration.

Computer Technologies

Programmer

September 2006 - April 2007 (8 months)

Bryansk Region, Russian Federation

Creating and supporting of bundled software to automate Internet provider tasks (accounting systems, billings, client and server-side for payment systems CyberPlat and OSMP using MySQL, PostgreSQL and Perl); implementing

different web-interfaces and admin scripts (Perl, bash + sed, grep, awk) on demands for the administration department.

Auriga

Integration & testing department specialist

February 2006 - June 2006 (5 months)

Moscow, Russian Federation

RTOS lynxOS testing in different environments, different scripts for testing (Perl, bash + sed, grep, awk); participating in porting utilities, OS code bug fixing (C); using CVS, RCS.

Neurocom

Software Engineer

December 2003 - June 2006 (2 years 7 months)

Москва, Россия

Speech experiments, algorithms development (Matlab, C) and speech recognition in noisy conditions.

Optical and Electronic technologies

Software Engineer

July 2005 - April 2006 (10 months)

Moscow, Russian Federation

Statistical experiments, algorithms development using Matlab for observation and tracing problem (video data from infrared imager).

Education

Lomonosov Moscow State University (MSU)

Doctor of Philosophy (Ph.D.), Mathematics, Mathematics · (2009 - 2012)

Lomonosov Moscow State University (MSU)

Master's Degree, Mathematics, Mathematics · (2000 - 2006)

Bryansk Pushkin's Lyceum 1

High School · (1997 - 2000)