

Armen Nunuparov

PhD, AI TechLead, Architect

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Summary

- I build and scale systems that sit at the intersection of performance-critical infrastructure and AI from cloud video analytics processing 20M+ camera streams, to autonomous driving stacks for 100+ vehicles, to LLM-powered products serving real users. My earlier background is in robotics research — drones, wall-climbing robots, capsule robots — with a PhD in Physics & Math from MIPT and 10+ publications in WoS/Scopus.
 - End-to-end system design - from data pipelines and ML inference to cloud infrastructure and cost optimization
 - Growing and mentoring engineering teams (3→10→15 engineers)
 - Measurable impact: 20× performance gains, 50%+ cost reductions, 99.5% RPS reductions
 - Deep hands-on expertise across C++, Python, Go, cloud (AWS/GCP/Azure), and ML/AI stacks
 - Translating ambiguous problems into shipped products
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Top Skills

Skills

Research Supervision · MATLAB · Terraform

Certifications

Certifications

Introduction to Cloud Computing

Experience

Network Optix

Senior C++ Developer / Tech Lead

July 2023 - Present

Driving architecture across real-time cloud video analytics (20M+ streams), AI inference, vector search, agentic LLM tooling, and cloud storage on AWS/GCP.

- Optimized the Object Detection video pipeline with CUDA/TensorRT tuning → 5× FPS
- Built a ClickHouse-backed vector database for text search over video tracks; migrated CLIP → SigLIP2 and optimized the TensorRT pipeline (80% throughput gain)
- Built a proprietary Claude Code dev harness (plugins, prompt evals, QA agents)
- Redesigned cloud storage pipelines (ClickHouse mutations, S3 lifecycle rules, batching) → more than 50% RPS reduction overall
- Integrated ByteTrack with an end-to-end evaluation pipeline → ~20% accuracy improvement with no latency regression
- Led cross-team coordination with SRE and Cloud Infrastructure, and ran early customer-feedback cycles with customer CTOs

Sber Automotive Technologies

Tech Lead

May 2021 - June 2023

Supervised prediction (10 engineers) and perception (5 engineers) teams supporting 100+ self-driving cars and trucks.

- Designed and developed the core trajectory prediction pipeline — dual-track approach: fast heuristic for immediate value + parallel ML solution that surpassed it once data matured
- Extended object detection range from 50m to 200m for highway autonomy; optimized 3D tracking from 100ms to 5ms
- Spearheaded autonomous truck project: redesigned sensing architecture from short-range LiDAR-first to long-range radar+camera-first (100-300m)
- Architected metrics-driven development and data pipeline using Spark for dataset mining and edge-case extraction
- Led cross-functional alignment with Perception, HD Map and Planning teams on feature prioritization and technical dependencies
- Key outcome: significantly improved prediction and tracking accuracy, stability, and performance — enabling autonomous driving across multiple Moscow districts and on highways

Ishlinsky Institute for Problems in Mechanics of the Russian Academy of Sciences (IPMech RAS)

Scientific Researcher

September 2014 - April 2023

Published 10+ research papers on dynamics and control of mechanical systems (WoS/Scopus). Built experimental prototypes: capsule robots, wall-climbing robots, thermomechanical actuators for space applications.

Moscow Institute of Physics and Technology (State University) · MIPT, Phystech

Teacher of analytical mechanics

September 2019 - August 2020

Moscow Institute of Physics and Technology (State University) - MIPT, Phystech

Research And Development Engineer

March 2013 - February 2018 · Moscow, Russian Federation

Early member of a drone research lab (grew from 3 to 15 people). Developed full simulation environment (Gazebo/ROS), implemented autonomous navigation with constrained sensors, built formation flight control for 18-drone swarms, and integrated diverse sensor suites into Pixhawk firmware.

- Autonomous swarm and formation flights of multicopters
- Scientific analysis of modern algorithms and sensor selection
- Implementation of control algorithms, drivers and other software
- Development of efficient tests in simulation environment which substantially decreased the number of accidents during flight tests
- Design and integration of required control laws into PX4 firmware
- Flight tests and log analysis to improve the performance of the system
- Competition for the UAV indoor flight algorithms with lidar and stereo vision systems
- Implementation of collision avoidance system based on front lidar
- Implementation of localization system based on downward stereocameras
- Successful implementation of control algorithms to reach the goal of -- leave the room via open window

Schlumberger

Sourcing student-intern

September 2013 - October 2013

Unium

Teacher of Mathematics

September 2011 - February 2012

Rice University

student assistant at the lab of prof. Yakobson

July 2010 - September 2010

Design multilayers carbon structures with molecular dynamic software LAMMPS

QModule

trainee

October 2007 - February 2008

Developing business model for QModule devices

Education

2015 - 2019

Moscow Institute of Physics and Technology (State University) (MIPT)

Doctor of Philosophy (Ph.D.), Mathematics and Mechanics

2008 - 2015

Moscow Institute of Physics and Technology (State University) (MIPT)

Master's degree, Physics