# Evgeny Tsykunov

## AI Research Engineer/Scientist

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## Summary

Innovative research engineer with 7 years of experience specializing in Deep Learning, Computer Vision, NLP, and Robotics. Developed advanced deep learning model analysis and compression algorithms, enhancing Intel OpenVINO workflows for accelerated AI applications while minimizing performance degradation down to 1%. Co-founded a startup focused on digitizing warehouse operations, achieving a turnover of over $200K in 2019 with zero external investments. Holding a PhD in robotics from a prestigious institution, with a notable track record of publications and academic awards.

## Work Experience

**AI Research Engineer/Scientist**, ***Intel***, Munich, Germany June 2022 – Present

OpenVINO Training Extensions (OTX) team, training backend of Intel Geti.

- Developed novel and efficient white/black-box eXplainable AI (XAI) algorithms using scientific approach, achieving up to an order of magnitude faster XAI results for OTX and Geti users. Patent (first author).
- Designing and developing of a new OpenVINO-XAI library, incorporating cutting-edge research findings to enable direct analysis of OpenVINO Intermediate Representation (IR) models by users.
- Led the 'XAI' squad, fostering cross-functional collaboration between UI, validation, and architecture teams.

**Keywords:** Deep Learning, Experimental Design, Model Analysis, PyTorch, Debugging, Python.

**AI Research Engineer/Scientist**, ***Intel***, Moscow, Russia Jan 2021 – June 2022

Neural Network Compression Framework team. Quantization and compression of DNNs.

- Revealed relationship between data properties (size, balance, labels), and compression algorithms under limited data constraints, facilitating integration of NNCF into the Intel Geti, ensuring accuracy drop <1%.
- Achieved 30% reduction in average post-quantization training time by implementing and unifying diverse statistic collectors for quantizer range initialization. A pivotal feature for post-training quantization (PTQ).
- Promoted product exposure through model enablement (YOLO, BERT, etc.) and demo notebooks.

**Keywords:** Artificial Intelligence (AI), Optimization, Computer Vision, NLP, TensorFlow.

**Technical Founder**, ***IV***, Moscow, Russia 2017 – Jan 2021

Founder and Technical Lead of inventory-viewer.com, a startup specializing in digitalizing warehouse goods, achieving a turnover of over $200K in 2019 without external investments. Client list includes FM Logistic, a French logistics operator presented in 14 countries, and X5 Retail Group, Russia's largest food retailer.

- Selected and integrated industrial-grade camera suites, advanced lighting system, and edge computing.
- Architected and developed the core perception system, overseeing the entire process from image acquisition and processing to localization and precise mapping of target objects such as pallets and barcodes.
- Directed a multidisciplinary team encompassing mechanical engineering, front-end development, and field testing. Delivered the first prototype within 2 months and launching market-ready product in 15 months.

**Keywords:** Technical Requirements and Design, Data Collection, Computer vision, Python, C++.

## Education

**PhD in Engineering Systems + MSc in CS, *Skolkovo Institute of Science and Technology (Skoltech)*** 2015 – 2020

Skoltech climbed to No. 65 in the TOP 100 Nature Index 2021 Young University ranking.

- Pioneered aerial robotics (established field of study) in the Intelligent Space Robotics Laboratory. Top 1 among notable graduates from the laboratory. PhD thesis is related to robotics and human-robot interaction. PhD Defense Jury Board includes MIT (USA) and DLR (Germany) professors.
- **Publications**: 2 journals Q1 ranking with IF>3.1 (IEEE Robotics and Automation Letters (RAL), etc.), 8 conference proceedings with H-index(SJR)>10 (IROS, SIGGRAPH Asia, etc.). Google Scholar: H-index 9; citations 213. Scopus: H-index 7, papers 12, citations 154. **Academic awards**: SIGGRAPH ASIA 2019 Emerging Technologies Award Winner; Featured in IEEE Spectrum 2018 special edition (video).

**Visiting student, *Massachusetts Institute of Technology***, Cambridge, USA 2015

One semester visiting student during MSc program (MIT-Skoltech initiative). Completed courses in robotics.

**Master of Science, *Bauman Moscow State Technical University***, Moscow, Russia 2007-2013

Program: Process Engineering. With Honors, GPA: 4.9/5.0