Denis Grachev, M.Sc. (TUM)

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Robot-learning engineer, **5 years of applied ML**, **M.Sc. Mathematics in Data Science** (TUM). Builds **Vision-Language-Action** systems end to end: robot setup, data infrastructure, VLA pretraining, real-robot RL, inference.

Experience

- **Sereact**, Stuttgart, Germany
  Computer Vision / Perception Engineer Sep 2025 – Present
  - Led the **Trossen team** (stationary and mobile manipulation) for six months, taking a robot-learning stack from zero to real-robot results: robot setup and teleoperation, data collection, **VLA training and evaluation**, inference optimization, **RL on real robots**.
  - Moved to **VLA pretraining** and its infrastructure on **Universal Robots** arms: led the migration of robot data to **Rerun Hub** and built a robot database so data is collected continuously and streams automatically into training pipelines.
  - Set up and maintain research infrastructure; run scientific experiments on VLAs; contributed to the **LeRobot Trossen plugin**.
  Keywords: LeRobot, VLA/VLM, imitation learning, RL, RECAP, Universal Robots, Rerun, MLflow
- **Munich RE**, Munich, Germany
  AI Consultant Intern, during M.Sc. Nov 2024 – Aug 2025
  - Built an agentic RAG system with internet access for portfolio-risk analysis across heterogeneous sources.
  - Researched AI-safety methods for aligning LLM agents in decentralized-finance settings.
  Keywords: openai-python, FastAPI, vLLM, Streamlit, LangGraph, RAG, LLM agents
- **Atoss**, Munich, Germany
  Deep Learning Intern, during M.Sc. Apr 2024 – Aug 2024
  - Applied reinforcement learning and graph neural networks to workforce-scheduling problems.
  Keywords: PyTorch Geometric, OpenAI Gym, Stable Baselines3, GNNs
- **Ksitest**, Moscow, Russia
  Machine Learning Engineer Jul 2021 – Apr 2024
  - Built Bayesian ML pipelines for genotype-based disease-risk prediction and pedigree-aware deduplication of large animal databases.
  - Built MIP models for breeding-pair optimization under farmer-defined objectives.
  Keywords: scikit-learn, pandas, CatBoost, PostgreSQL, PuLP, Bayesian modeling
- **Tinkoff Bank**, Moscow, Russia
  Deep Learning Intern Jul 2019 – Sep 2019
  - Built models for fraud-call classification and passport-number extraction.
  Keywords: FastText, PyTorch, RNNs, text classification

Education

- **Technical University of Munich**, Germany
  M.Sc. Mathematics in Data Science 2023 – 2025
- **AI Masters, MSU Institute of AI**
  Evening educational program in Data Science / Machine Learning 2022 – 2024
- **National Research University HSE**, Russia
  B.Sc. Mathematics, Minor in Bioinformatics 2018 – 2022

Projects / Research

- **Language-Conditioned Pick-and-Place in Cluttered Scenes** — Master's thesis on language-conditioned grasping in MuJoCo with a Universal Robot; setup reused for VLA data collection and comparison against fine-tuned **PI0.5**.
  Keywords: language-conditioned grasping, MuJoCo, Universal Robots, Action Prior Alignment, VLA data
- **JEPA Grasping** — self-supervised 3D object embeddings for downstream robot grasping; poster with 150+ reactions, reshared by Yann LeCun.
  Keywords: JEPA, self-supervised learning, 3D embeddings, robot grasping
- **Multimodal Deep Learning for Single Cell Analysis** — benchmarked multimodal VAE models for single-cell data integration.
  Keywords: multimodal learning, VAE, single-cell data, representation learning
- **Clustering Multidimensional Random Variables for HMM Sequence Alignment** — Bachelor's thesis.
  Keywords: clustering, HMMs, sequence alignment, probability

Skills

- **Programming**: Python, SQL, C++, Rust, Bash
- **ML / Robotics**: PyTorch, LeRobot, PI0.5, VLA/VLMs, imitation learning, reinforcement learning, computer vision, NLP
- **Infra / Tools**: MLflow, Rerun, MuJoCo, FastAPI, vLLM, LangGraph, PostgreSQL, PyTorch Geometric, Stable Baselines3
- **Domains**: Robotics, deep learning, statistics, optimization
- **Languages**: English (C1), German (A2), Russian (native)

Engagement & Achievements

- **Hugging Face LeRobot Hackathon, Munich**. Project: MCP server for LeRobot. Jun 2025
- **Member**, RoboTUM Robotics Club Apr 2025 – Sep 2025
- **2nd Place, TUM Makeathon**. Multi-agent Salesforce × Mercedes chatbot. Mar 2024
- **Student Representative**, Data Science TUM Nov 2023 – Sep 2025
- **Tutor**, Goto Camp Jul 2020 – Sep 2022