

Stanislav Smirnov

Senior Data Scientist | Machine Learning Engineer

Contact Information

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Summary

Senior Data Scientist specialising in **Payments Optimisation, Routing & Orchestration** and **ML-driven decline reduction** in e-commerce/fintech. I combine DS/ML depth with product thinking to improve authorisation success, PSP routing performance and payment risk posture.

Key Impact: - **4× uplift** in fallback routing success and ~**3× increase** in recovered revenue by analysing PSP performance on NA traffic and redesigning a low-performing rerouting path. - **25–50% improvement** in retry success rates for in-scope transactions through the **Dynamic Retries ML framework**, taken from idea -> PoC -> production rollout. - End-to-end design of analytics and ML pipelines across **Azure & AWS** (SageMaker, MWAA, Databricks, Data Vault 2.0).

My background spans telecom network optimisation, data engineering, and ML product development, which gives me a strong mix of domain, data and systems thinking. Currently I'm focused on payments orchestration, decline analysis, PSP optimisation and tokenisation behaviour in a merchant-of-record context.

Technical Skills

- **Programming Languages:** Python, PySpark, SQL
 - **Machine Learning & AI:** Classical ML (Regression, SVM, Decision Trees, Boosting etc), Deep Learning (CNNs, LSTMs), LLMs
 - **Cloud Platforms:** AWS, Azure
 - **Data Engineering:** Data Warehouse Design (including Data Vault 2.0), ETL Development
 - **Tools & Technologies:** Airflow, Git, FastAPI, Docker
 - **Methodologies:** Agile (Scrum), Test-Driven Development
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Professional Experience

Cleverbridge AG *Cologne, Germany / Hybrid*

Senior Data Scientist *April 2024 – Present / Cologne, North Rhine-Westphalia, Germany* · *Hybrid Payments Team – Payment Routing & Orchestration*

- Improved payment re-routing success by ~4x (from 2–3% to ~11%) by analysing fallback performance on NA traffic and proposing a switch from a low-performing PSP route to a higher-performing alternative, which led to the corresponding ~3x increase in recovered revenue on that traffic slice.
- Owning the evolution of the **Dynamic Retries ML system** as part of the payments stack, extending coverage to additional decline categories and use cases.
- Performed deep-dive analysis on BIN-level and regional authorisation patterns across PSPs to identify weak routes and opportunities for optimisation.
- Currently exploring **tokenisation** and network-token performance (coverage, success rates, impact on auth) to inform future routing and retry strategies.
- Acting as a bridge between payments PM, engineering and data, bringing domain and ML context into prioritisation discussions.

Data Scientist *December 2021 – April 2024 / Cologne, North Rhine-Westphalia, Germany* · *On-site*

CleverAutomations Product (churn reduction) - Designed and implemented the ML framework behind **CleverAutomations**, a churn-reduction product that became a core part of the company's offering. - Built predictive models (**AWS SageMaker**) and automated workflows (**AWS MWAA**) that identified at-risk customers and triggered targeted campaigns.

Dynamic Retries Product (payment recovery) - Originated the idea for **Dynamic Retries** – using ML to optimise payment retry timing. - Built the initial PoC, pitched it to senior stakeholders and led the cross-functional team from prototype -> MVP -> production rollout. - Achieved **25–50% higher success rate** for in-scope retries, significantly increasing recovered purchase volume for key clients. - Implemented the solution on **AWS** for scalability and reliability (Python microservices, SageMaker, MWAA). - Dynamic Retries Blog Post

Data Engineer *September 2019 – December 2021 / Cologne Area, Germany* · *On-site*

- Led the design and implementation of a scalable **Data Warehouse** on Azure (**Data Vault 2.0**), enabling reliable reporting and self-service analytics across the company.
- Built and optimised **ETL pipelines** (**Azure Data Factory**, **Databricks**, **T-SQL**) processing millions of records per day from multiple source sys-

tems.

- Managed schema changes and migrations with **Flyway**, ensuring consistent, versioned deployments across environments.
 - Developed **Python microservices** and **Airflow** workflows for data products, containerised with **Docker** for resilient, maintainable operation.
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KOSTAL Group *Dortmund, Germany*

Machine Learning Intern *May 2017 – July 2017*

- Trained a gesture recognition NN model using **Keras** and **TensorFlow**:
 - Achieved **80%** validation accuracy on top-5 gestures using static images with **CNN**.
 - Improved model robustness through data preprocessing and augmentation.
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MegaFon *Republic of Bashkortostan, Russia*

Network Optimization Engineer *May 2012 – March 2015*

- Led the **Network Optimization Team** of three engineers:
 - Reduced CS call drop rate in 2G network by **0.2%**.
 - Increased Inter-RAT handover success rate in UMTS network by **0.8%**, improving overall network performance.
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Education

Master of Science in Electrical Systems Engineering *University of Paderborn, Germany (2015 – 2018)*

- **Specialization:** Signal Processing
 - **Thesis:** “Enhancing Object Detection in Fine Art Paintings Using Deep Learning Techniques”
 - Developed a custom **CNN** model that improved detection accuracy by **18%** over existing methods.
 - **Research Assistant Positions:**
 - Worked on statistical image processing, modeling plasmonic nanoparticles in COMSOL, and programming Lie groups in GAP.
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Publications & Certifications

- **Publications:**

- “Deep Learning for Object Detection in Fine Art Paintings”, IEEE Xplore, 2020.
 - “Nonlinear Dielectric Properties of Random Paraelectric-Dielectric Composites”, Acta Materialia, 2021.
 - **Certification:** AWS Certified Cloud Practitioner
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Languages

- **Russian:** Native | **English:** Fluent | **German:** Intermediate (B2 Level)
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Additional Information

- **Volunteer:** Active member of the Bashkortostan branch of the Russian Union of Young Scientists.
 - **Awards:** Appreciation letter from the CEO of the Republic Bashkortostan branch of PJSC “MegaFon” for outstanding performance.
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References available upon request.