

# Arseniy Shchepetnov

## Data Science, Machine Learning Engineer, Data Engineer

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My skill set covers full-cycle research and development of AI products. I am experienced in creating different parts of the AI production path: data infrastructure, training and deployment of machine learning models, model-serving (MLOps), research and analytics. My experience in management and development makes it productive for me to communicate with different business departments which is a crucial component for stable production.

## Relevant skills

Technical stack (Including, But Not Limited To):

- **ML:** LLM, RAG, Transformers, CNN, Tree Ensemble Algorithms, Bayesian Networks, Statistics, Reinforcement Learning, Quantization
- **Programming Languages:** Python, C/C++, JavaScript, R, SQL
- **Python:**
  - **ML:** transformers, sentence-transformers, PyTorch, PyTorch-Lightning, TensorFlow, label-studio, pgmpy, langchain
  - **NLP:** scrapy, nltk
  - **Infrastructure:** poetry, ruff, mypy, pyenv, pytest
  - **Visualization:** dash, plotly, bokeh, matplotlib
  - **Data:** pandas, pandera, SQLAlchemy, Apache Spark
  - **Web:** FastAPI, uvicorn, gunicorn, pydantic
- **Cloud:** AWS, GCP
- **Containerization:** Docker
- **Databases:** PostgreSQL, Redshift, MongoDB, Redis
- **Miscellaneous:** CI/CD, ELT/ETL, OOP

## Employment history

September  
2023 —  
Now

### Senior Data Engineer

«[Socap.ai](#)» (ex «Intently»), Tbilisi, Georgia

- I developed and maintained data infrastructure on AWS
- I created FastAPI services to connect data and product layers
- I created web scraping facilities
- I coded Chrome extension on JS for data gathering
- I developed code for data ingestion from multiple open data sources, ETL/ELT pipelines, RAG, LLMs
- In the second week in the company, I optimized the legacy vector generation pipeline performance from several days up to 3 hours

February  
2023 —  
September  
2023

### Machine Learning Engineer

«[InovIntell](#)», Tbilisi, Georgia

Data Science in application to pharmacy.

- I produced NLP models for the analysis of PDF documents
- I developed a full pipeline with generative models for synthetic medical data generation

November  
2022 —  
January 2023

### Data Scientist

«[3Commas](#)», Tbilisi, Georgia

Developed solutions for ML cryptocurrency trading and inner projects.

- I developed a message classification model for customer support data analysis.
- I developed and deployed several model backtesting components including dashboards with Metabase and API to AWS S3.

May 2021 —  
October 2022

**Lead Data Scientist/Team Lead/Senior Consultant -> Manager**  
«PWC» (Technology, Artificial Intelligence), Saint-Petersburg

I led and developed multiple Data Science projects related to Bayesian Networks, Deep Learning and Machine Learning. Data Science format includes both algorithmic and software development.

- Developed MLOps architecture and code for Deep Learning models for well logs data analysis.
- Designed and developed software for Bayesian Networks using FastAPI plus serious optimizations of Python library for Bayesian Networks.
- Well Logs retrieval research with Deep Learning models was done under my direction, the client was satisfied and the results were used in geology.
- I hired 2 junior and 1 intern Data Scientists and in less than a year got 2 junior and 1 middle.
- Due to good performance, I was promoted to the Manager Grade.
- I held a speech on careers days at two universities.

After rebranding in July the unit is called «Digital Formula of Trust».

May 2018 —  
May 2021

**Data Scientist/Lead Data Scientist/Team Lead**  
«IBM STC» (GBS, “Cognitive Practice Team”), Saint-Petersburg, Moscow

Consulting services in the area of Data Science and AI. Research and development of Data Science and AI solutions for clients.

- Developed models for searching oil intervals with Deep Learning and Machine Learning models. Real oil was extracted in locations that models predicted.
- I carried out research on the correlation of wells for spatial analysis and designed several models. Predictions were used by the client.
- Using the bokeh package I have developed interactive dashboards for geological data, including GIS signals and layers visualizations and maps.
- I developed model-serving solutions for research optimization.
- I grew from middle to senior Data Scientist and started leading a team.

Aug 2016 —  
May 2018

**Research and Development**  
«Healbe corp.», Saint-Petersburg

Research and Development of algorithms for wearable device sensors.

- I developed algorithms for custom piezoelectric and optical devices which were successfully deployed.
- I developed several utilities for data transfer from wearable devices and applied algorithms on the local machine which were used also in parallel projects.

Nov 2013 —  
Feb 2016

**Software Developer**

Radiobuilding Institute, Saint-Petersburg

- I developed a PostgreSQL database and UI on C++/Qt4, successfully deployed for business on Linux.

Jan 2015 —  
Dec 2015

**Researcher**

«[Saint-Petersburg State University](#)», Saint-Petersburg

Research in the field of atomic physics,  $g$  factor theory, and nuclear recoil effect.

Jan 2014 —  
Dec 2016

**Researcher**

«[Institute for Theoretical and Experimental Physics](#)», Moscow

Research in the field of atomic physics supported by “Helmholtz-Rosatom” grant. Theme: “Zeeman splitting in highly-charged ions: a novel approach to the non-linear effects”.

Using DKB-splines, Runge–Kutta and other numerical methods mainly in Fortran.

Sep 2011 —  
Jan 2012

**Teacher (Physics)**

«[Laboratory for Continuous Mathematical Education](#)», Saint-Petersburg

Teaching physics at 8 and 9-year classes. Special seminars on thermodynamics.

## Education

Sep 2013 —  
Jul 2016

**Postgraduate student** (Theoretical Physics)

[Saint-Petersburg State University](#)

Department of Physics, Division of Quantum Mechanics

Sep 2011 —  
Jul 2013

**Master's degree** (Quantum Mechanics of Atoms, Molecules and Solids)

[Saint-Petersburg State University](#)

Department of Physics, Division of Quantum Mechanics

Sep 2007 —  
Jul 2011

**Bachelor's degree** (Quantum Mechanics of Atoms, Molecules and Solids)

[Saint-Petersburg State University](#)

Department of Physics, Division of Quantum Mechanics

# Certificates

## Coursera Certificates List

- Introduction to Designing Data Lakes on AWS
- Data Engineering and Machine Learning using Spark
- Production Machine Learning Systems (Google Cloud)
- Reinforcement Learning Specialization (University of Alberta)
- Natural Language Processing Specialization (DeepLearning.AI)
- Combinatorics and Probability

# Publications

- A. A. Shchepetnov, D. A. Glazov, A. V. Volotka, V. M. Shabaev, I. I. Tupitsyn, G. Plunien “Nuclear recoil correction to the  $g$  factor of boron-like argon”. Journal of Physics: Conference Series, 2015. — Vol. 583, — P. 012001
- I. A. Aleksandrov, A. A. Shchepetnov, D. A. Glazov, V. M. Shabaev “Finite nuclear size corrections to the recoil effect in hydrogenlike ions”. Journal of Physics B: Atomic, Molecular and Optical Physics, 2015. — Vol. 48, — No. 14. — P. 144004
- D. A. Glazov, A. V. Volotka, A. A. Schepetnov, M. M. Sokolov, V. M. Shabaev, I. I. Tupitsyn, G. Plunien “ $g$  factor of boron-like ions: ground and excited states”. Physica Scripta, 2013. — Vol. T156, — P. 014014

# International conferences

- Seminar on Astrophysics, Clocks and Fundamental Constants, Bad Honnef, Germany (Poster), 2015
- Topical Workshop of the SPARC Collaboration, Worms, Germany (Poster), 2014
- [International Conference on Science and Technology for FAIR](#), Worms, Germany (Poster), 2014
- [International Conference on the Physics of Highly Charged Ions](#), San Carlos de Bariloche, Argentina (**Oral presentation**), 2014
- [Fin Q workshop](#): International conference «Quantum Informatics and Applications», St. Petersburg, Russia (No report), 2013
- [The Workshop on Precision Physics and Fundamental Physical Constants](#), Pulkovo, St. Petersburg, Russia (Poster), 2013
- [XX Conference on Fundamental Atomic Spectroscopy](#), Voronezh, Russia (**Oral presentation**), 2013