# Sergii Kavun

Full Professor, Ph.D., Habilitation Degree (Dr. Sc.)

## Contact


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**Academic CV:** link

**Git repo:** link


## Tech skills

- Python: Numpy, PyTorch, Pandas, Polars, Scipy, Scikit-Learn, Mlxtend, PyCaret, TPOT, Imblearn, TF, TF Lite, Numpy, Sktime, SystemML, PySpark, Keras, Matplotlib, Plotly, Prophet, Seaborn, spaCy, NLTK, Transformers, Diffusers & more
- R: ggplot2, dplyr, tidyverse, fuzzyR, neuralnet, etc.
- Supervised and Unsupervised ML & DL algorithms, (XG, Cat)Boost, NLP, CV, LLMs, zero(few)-shot, SD, LightGBM, Agentic AI
- ETL, ELT, MD, EDA, PE+FE
- Assembler, Basic, Pascal, Delphi, PL/1, SQL, HTML
- Hardware full stack architecture
- Optimization/parallelization: Dask, Optuna, Joblib, Ray, FastAPI, Apache Spark, Lang(Chain, Graph)
- Deploy: Heroku, Streamlit, GCP, FastAPI, TF Serving, Docker

## Experience

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|---|---|---|---|
| **Programming**: | 25+ | **DS, IT**: | 25+ |
| **Security**: | 20+ | **Python:** | 7+ |
| **Management**: | 12+ | **ML/DL:** | 20+ |

## Career summary

DS/ML/DL/Research & Mng & Dev:

Lead, Head, Architect, Chief, VP.

## Professional Experience (product)

**Luxena Ltd.** (Apr 2023 – Oct 2025, Lead of DS Team, AI Solution Architect, Banking, Fin(Tech+Markets), Ukraine), code review & refactoring; team: hiring, scaling, performance management - HSPM: **project 1: Time Series forecast** (big data analysis, cleaning & modifications; TS prediction for customers; Top-of-Wallet); ML- (all classical) & modern models (TimesFM, Lag-Llama, TiDE, NhiTS, N-BEATS, TimeGPT, TFT, etc.) implementation; models show positive results for 4-8 weeks prediction, MAPE<10%; cleaning, pre-processing, feature engineering (FE). **projects 2-3: NLP** (RAG; text-to-SQL); models (diff embeddings models + ChatGPT, Lama's, Gemimi's, CodeLama) implementation; architecture development; general pipeline building; prompt engineering (PE), cleaning, pre-processing, and PE+FE. **project 4: Pattern Recognition:** customer data (big): analysis, cleaning & transformations; zero-shot classification; pattern math description & detection & recognition; FE. **project 5: regression, clustering, classification:** customer data (big): analysis, cleaning & transformations; zero-(few)shot classification; pattern math description & detection & recognition; PE+FE; Python (TF). **project 6: RecSys**; stack of technologies & models (Polars, TensorFlow, RecBole (GRU4Rec), implicit, LightFM, SVD/ALS, joblib, LSTM w/Attention, Transformer w/Attention) and methodologies (Ensemble, Attention, cold start processing, chunking + batching, multiCPU stacking, collaborative filtering, matrix factorization, similarity-based, feature engineering, TOP_K), custom metrics set (NDCG@K + Recall@K + MRR + Precision@K).

**Accendum LLC, NeuroLines** (Jan 2024 – Mar 2025, AI Solution Architect, Sc. Research, USA): **projects 1-2: NLP** (text-to-speech (TTS) & back (STT), emotion detection & recognition); models (Whisper, wav2vec2, VitsModel, T5's, Tacotron, WaveGAN, Bark's, Zephyr, GPT's, Bart, Dolphin, etc.) implementation; architecture development; general pipeline building; data cleaning, pre-processing, PE, comaprative analysis, zero-shot classification, and FE. **project 3: NLP** (text-to-image (TTI), upscaling), SD's models (1.5, w/ CLIPS, SDXL, 2.1, LLaVa), architecture & general pipeline modifications, PE+FE. **project 4: NLP** (RAG; text-to-SQL); models (diff embeddings models (BERT, Gemma) + ChatGPT's, Lama's, Mistral, CodeLama, Llama-3 70B, Mixtral 8x7B, Claude-3) implementation; architecture development; pipeline building; vector DB's (ChromaDB, FAISS), PE, cleaning, pre- post-processing, and FE. **project 5: CV** (multi slice upscaling); architecture development; general pipeline building; math description, models (SDXL, Mixtral-8x7b, Esrgan). **project 6: AI + NN** (new general DNN architecture from scratch); Python (Numpy).

**Kasko2go AG** (Mar 2022 – Nov 2022, Senior ML/DS, Insurance, Swiss-Israel): realized data wrangling, cleaning, imputing, ETL, EDA, etc.; decision making; DS/ML/DL pipelines; executed model's research (build; train-test; hp/optimization: Grid, Random, Neptune, Optuna); estimation; code review/refactoring/opt; developed new ML/DL solutions; hypothesis testing.

**iSAP Solutions Ltd** (Sep 2021 – Dec 2021, CDO, AI Solution Architect, Banking, FinTech, Germany-UAE, Startup): built the data & management processes; created new department; formed few project architectures from scratch (new 3 cases); managed (lead) team; made code review/refactoring; implemented different DS/ML/DL solutions (tech roadmap); design PoC; improved the existed architectures; developed & designed new security & private policies; created dataflow specific definitions; developed new algorithms (Python, TensorFlow); created technical vision and technology roadmap; established and implemented project documentation; distributed team: 10-14 (HSPM); Python (TF).

## Soft skills

Strategic leader with excellent decision-making capabilities; adept at project and architecture management with a structured approach to problem-solving; possesses strong analytical thinking and attention to detail; confidently tackles new challenges while maintaining business acumen; skilled in team leadership, mentoring, and cross-functional collaboration in agile environments; effective communicator able to convey complex technical concepts to diverse audiences; experienced in stakeholder management and strategic planning; demonstrates self-motivation, adaptability, and commitment to continuous learning; proficient in presentation and pre-sale activities.

## Areas of Expertise

Machine & Deep Learning, Neural Networks, NLP (General, RAG, Sentiment, TtS, StT, TtSQL), LLM, Architecture Design (PoC & MVP), Computer Vision (Pose Estimation, Object + Face Detection + Recognition, Image Segmentation/ Classification), SDLC, Team Management, MLOps, Technical Support, Zero(Few)-shot.

## Languages

Ukrainian – Native
Russian – Native
English – B2
German – A1

## DS/ML/DL workflows

- CRoss-Industry Standard Process for … (CRISP-[DM+ML(Q)]).
- Obtain, Scrub, Explore, Model, and iNterpret (OSEMN).
- Custom Data Science Life Cycle (c[DS/MLD]LC).
- Team Data Science Process (TDSP).

## Statistics & Analysis

- Data analysis & interpretation, XAI.
- Classification, Regression, Clustering.
- KNN, K-near, Hypothesis testing
- Neural Networks (ANN, LSTM, RNN, CNN, KAN, new own).
- Opt Methods & Multivariable Calculus.
- Time series analysis (predict): LSTM, (S)ARIMA, RNN, TiDE, NhiTS, LLMs, NeuralProphet, Sktime, TimesFM, Lag-Llama, N-BEATS, TimeGPT, TFT, etc.

**Integrated Tech Lab LLC** (Jul 2020 – Jun 2024, IBM Instructor, Senior DS/ML Research Engineer, Team Lead, AI Solution Architect, USA), code review & refactoring; team: 3-5 (HSPM): **project 1: Computer Vision** (Human Pose Estimation, Object Detection, design PoC & MVP); (hyper)parameter's searching & optimization (Grid & Random & Manual); supported DNN learning (CNN); formed the big set's (train, validation, test); executed ETL; implemented preprocessing stages (improved image quality, cropping); realized model structure modifications (built TF Lite model); completed interim results analysis & model interpretations; decision making. **project 2: NLP** (tasks: NER, text classification, sentiment analysis, tokenization, lemmatization, zero-shot classification); model (transformers, LLMs) implementation; spaCy, NLTK; cleaning, pre-processing, and FE; improved a steady code coverage of above 70% across the Python (TF). **project 3: Time Series forecast** (tasks: data analysis, cleaning & modifications; TS prediction for cryptocurrency market; trading; antifraud); model (NN based on biLSTM & Dense layers; new own hourglass architecture; regularization & Dropout techniques) implementation; model shows positive results for the strategy during long time (3-6 months); cleaning, pre-processing (Normalization & Standartization techiques), FE. **project 4: Pattern Recognition:** financial & stock & blockchain market data: analysis, cleaning & transformations; zero-shot classification; pattern math description & detection & recognition; FE; TS forecasting; Python (TF).

## Professional Experience (academic)

**IT Step University** (Feb 2018 – Dec 2020, Rector, Ukraine): created the new university from scratch, developed the educational plans for 2 opened specialties, decision making initiator, developed PKI assessment system, solved appeared hardest problems, supported all communications with Ministries, prepared university presentation, developed student's & employee motivation system; team: 15-25.

**University of Banking, National Bank of Ukraine** (Aug 2013 – Jan 2018, Head of Department, Ukraine): **13 R&D projects** in general (Banking, FinTech, Statistics); Project/Product Manager in 4 of them; invention of new math methods & approaches, connected different scientific areas, created new models, simulation, applied new methods; graph theory algorithms in FinTech (ETL, EDA); identification and estimation of the connectivity level; improved the process of risk management "money laundering" based on determining the connectivity level of financial institutions (ETL, EDA); multivariate TS forecasting (ETL, EDA, Prophet, LSTM (Keras, DL), Scikit-Learn (ML), Fuzzy Logic, Expert Systems, Visualization, Linear + Regularization (L1, L2, Elastic) models, ARIMA, SARIMAX + auto triplet params detection, hp/optimization: Grid, Random, Neptune; developed new methods of data imputing; creating from scratch; team: 13-15 (HSPM).

## Personal projects (pet- & scientific)

DS∞ DScience_tools
ABV AdaptiveBayes
CC⌗ CCProfiler
S³/S⁴ S3/S4 ActFun
KZ↻ KZImputer
MDSᵠ MDSE Theory

## Summary

Experienced DS/ML/DL professional with full lifecycle expertise: from architecture design and dataset formation to neural network training, optimization, and MVP deployment. Successfully managed cross-functional teams and delivered SOTA-level solutions for complex problems. Strong analytical and problem-solving capabilities combined with excellent communication skills and passion for cutting-edge technology. Proven track record of using data-driven insights to deliver innovative business solutions in fast-paced environments.

## Services & Tools

- Tableau, VMWare, Microsoft Office, OS
- Git, Redmine, YouTrack, Databrics
- Jupyter + Lab, IBM Watson, Pro, AWS & GCP, Colab, Azure, Vertex AI, AutoML, VScode, Databricks

## Conf key speaker

- HackIT (2015-2017), 30+ scientific conferences.

## Memberships

- WorkGroup 11.1, Information Security Management, International Federation for Information Processing, IFIP, 03.2019-
- Association for Computing Machinery, ACM, 03.2019-
- World Academy of Science, Engineering and Technology, Mathematical and Computational Sciences, WASET, 2015-
- American Association for Science and Technology, AASCIT, 03.2014-

## Education

- Master of Science in CS, Diploma Magna Cum Laude.
- Master of Science in Financial and Economic Security Management, Diploma Summa Cum Laude.
- Ph.D. Degree in CS and Engineering (Math+Optimization).
- Habilitation Degree (Dr. Sc.) in Economics (CS+Math+Security).

## Publications & other

- 400+ (5 patents; 25+ textbooks; 40+ monographs; 125+ manuscripts; 100+ conf. pubs).
- 30+ prepared courses (full stack): OS, Networks, Cybersecurity, Math, Big Data, NN, etc.
- Visiting professorship: 9 foreign Universities with full lessons set
- 2019, best scientist of Ukraine (TOP-150), of Kharkiv-city (TOP-100), 2008-2013 (Best PhD in my university).

## Certifications (70+)

- **Advanced Data Science with IBM** (IBM), full specialization (FS): Fundamentals of Scalable DS; Advanced ML and Signal Processing; Applied AI with DL; Advanced DS Capstone Project.
- **TensorFlow: Data and Deployment** (DL.ai), FS: Browser-based Models with TensorFlow (TF).js; Device-based Models with TF Lite; Data Pipelines with TF Data Services; Advanced Deployment Scenarios with TF.
- **Deep Learning** (deeplearning.ai, DL.ai), FS: NN and DL; Structuring ML Projects; Improving Deep NN: Hyperparameter tuning, Regularization and Optimization; CNN; Sequence Models.
- **Deep Learning Professional Certificate** (EdX), FS: DL Fundamentals with Keras; DL with TF; DL with Python and PyTorch; PyTorch Basics for ML; Using GPUs to Scale and Speed-up DL; Applied DL CP.
- **Data Science: Foundations using R** (Johns Hopkins University), FS: The Data Scientist's Toolbox; R Programming; Getting and Cleaning Data; Exploratory Data Analysis (EDA); Reproducible Research.
- **DeepLearning.AI TensorFlow Developer** (DL.ai), FS: Introduction to TF for Artificial Intelligence, ML & DL; CNN in TF; NLP in TF; Sequences, TS & Prediction.
- **IBM Machine Learning Professional Certificate** (IBM), FS: EDA for ML; Unsupervised ML; Supervised ML: Regression, Classification; DL and RL; Specialized Models: Time Series and Survival Analysis.
- **Machine Learning Engineer (GC):** Big Data (BD) and ML Fundamentals, How Google Does ML, GC BD and ML Fundamentals, TF on GC, Feature Engineering, ML in the Enterprise, Production ML Systems, CV Fundamentals with GC, NLP on GC, Recommendation Systems on GC, Perform Foundational Data, ML, and AI Tasks in GC, Detect Manufacturing Defects using Visual Inspection AI, Create ML Models with BigQuery ML, Predict Soccer Match Outcomes with BigQuery ML, Ensure Access & Identity in GC, Build and Deploy ML Solutions on Vertex AI, Set Up and Configure a Cloud Environment in GC, Automate Interactions with Contact Center AI, Integrate with ML APIs, MLOps (Machine Learning Operations) Fundamentals, Engineer Data in GC, Migrate MySQL data to Cloud SQL using Database Migration Service, ML Pipelines on GC, Insights from Data with BigQuery.
- **Other separated courses**: NN and CV; Data Visualization and Communication with Tableau (Duke U); Supervised Learning in R: Classification & Regression (DC); Unsupervised Learning in R (DataCamp, DC); Management of Information Security ISO 17799:2005 (ISO 27002); ML in the Tidyverse (DC); Management of Enterprise Activity (British Council); Machine learning in Python with scikit-learn.
- **Public performance, meetings** (more than 20 in English, since 2012, chair conference): security, big & scientific data, statistical analysis, modelling, AI, ICT, DS/ML/DL.