

# SVETLANA KHARLAMOVA, Ph.D.

(847) 461-8735 | katais777@gmail.com | [www.linkedin.com/in/svetlanakharlamova/](http://www.linkedin.com/in/svetlanakharlamova/)

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## HIGHLIGHTS

A PhD quant, Data Scientist and Freelance Translator (English-Russian-English), having 2 pending patents and 19 years of professional experience in translating texts about Material Sciences, Condensed Matter (Solid State Physics), Physics, Engineering, Technology, Mathematics, Data Science, Machine Learning, programming, and modern math, including Artificial Intelligence, Hi-Tech, etc. Extensively published technical papers in peer viewed scientific journals in both English and Russian. Extensive translations of scientific and technical articles and publications as well as novel model business texts related to marketing, Ads business, social media, industry, finance, trading activity, etc. Primary author or co-author of more than 20 scientific papers published in major peer-reviewed physics journals. Reported at major international scientific conferences.

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## AREAS OF EXPERTISE

Predictive Modeling | Machine Learning | Deep Learning | Artificial Intelligence | Quantitative Analysis | Marketing  
Financial Engineering | Risk Management | Statistics | VaR | HVaR | ES | Heavy Tails | Time Series Analysis  
Experimental Data Analysis | Condensed Matter Physics | Research | Algorithms Development | Model Validation  
Management | Collaborative Work | Team Building & Motivation | Project Leadership | Teaching & Supervision  
PYTHON | R | SPARK | SQL | Excel | VBA | C# | Cypher | Tensor Flow | Tableau

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## PROFESSIONAL EXPERIENCE

### FREELANCE TRANSLATOR (PART TIME)

2000 – present

- Translated from English to Russian and Russian to English.
- Applied language skills such as grammar, syntax, semantics, style and appropriate terminology.
- Consistently completed work by deadline.
- Translated Russian study materials and scientific papers into English and back.
- Texts have included tables, medical and business articles, and art exhibition brochures.

### PEXCHANGE, LLC

2019 – present

#### Director of Artificial Intelligence

- Directly work with key client stakeholders to define business problems and determine solution requirements.
- Using AI & advanced analytics enabling enterprises to generate business value from data.
- Developed Machine Learning semantic match using NLP.

### QUANTLOGIC, Inc., Buffalo Grove, IL

2019 – present

#### Managing Partner

- Algorithmic solutions, quantitative modeling; DS, ML, DL, AI.

### W.W. GRAINGER, Inc., Lake Forest, IL

2016 – 2019

#### Sr. Data Scientist-Lead, Marketing, eCommerce/Business Insights, Artificial Intelligence

- People and projects management; interviewing people; working with business partners and intellectual property team.
- Accomplished the Global Emerging Leader program (Harvard University, Manage Mentor Leadership Solutions).
- Drove profitable investment strategies by developing predictive model for Customer acquisition and marketing.
- Ideated and developed predictive model for Customer journey to a purchase using Markov chains, Reinforcement Learning.
- Paved the way to profitable marketing across product categories by creating product recommendation model (clickstream).
- Developed semantic match model using NLP, NN, Machine & Deep Learning, Word2/Doc2Vec, Semantic Similarities.
- Dramatically improved a product recommendation engine by developing a model for predicting risk of Revenue decline.
- Developed association rules for up- and cross-selling based on viewed and purchased products (clickstream data) that significantly improved customer experience on [www.grainger.com](http://www.grainger.com).
- Modeled negotiation outcome (Cost Support); developed algorithm for Sentiment Analysis of surveys.
- Derived a new method based on SVD for working with sparse matrices; developed Web scraping code.
- Programming/code mgt.: Python/SPARK, R, Excel VBA, Git/BitBucket, Shiny/Theano/Keras/TensorFlow, Tableau.
- Dev. env.: Windows/Mac/Unix, GPU, PyCharm, PyTorch, H2O, VSC, R Server; Data: Teradata, SQL, Hadoop.

**CENTRO, Inc., Chicago, IL****2014 – 2016****Predictive Analytics Data Scientist**

- Established the scope of predictive analytics development for Data Science (DS) team. Have been extensively and actively involved into hiring process: profile selection, evaluation of the pre-interview case study tasks, interviews, decision making. Have grown DS group from 2 to 5 people; hired three Ph.D. Data Scientists.
- Leveraging data science to maximize financial performance & boost ROI for social advertising campaigns at Centro and Facebook portfolios. Periodical reports and discussion of results and prioritizations with business leadership.
- Developed advertiser-publisher scoring system and automotive recommendation system for a programmable media platform by applying CF, SVD, iSVD, LFM, and Markov chains that boosted recommendation quality.
- Developed Ads Optimization, click prediction, and audience models for online advertising using Centro's and external data, optimization, clustering and classification algorithms.
- Performed Quantitative Research, Predictive Statistical Modeling, Model Validation, including Linear Mixed-Effects, Uni-/multivariate and Factor Analyses, Logistic Regression, Random Forest, Collaborative Filtering, Neural Networks, Real Time Analytics, Web Analytics.
- Analysis of user cookie-level data and Real-time bidding data (multi-TB scale) using Amazon S3, Hadoop cluster with Spark, Spark MLLib, Hive and Python.
- Found new modeling approaches for Real-time bidding via programmatic instantaneous auction, similar to financial markets, to know problems and realize it as a software tool that paved the way to profitable click predictions.
- Performed time series analysis, dynamic linear modeling, content-based recommendation, value-added models, and probabilistic record linkage involving Big Data and Machine Learning, Bayesian statistics, probabilities, Markov chain Monte Carlo techniques.
- Databases/processing: SQL, Pentaho, PostgreSQL, NoSQL, Neo4j, Mongo, Hive, Cassandra, Hadoop.
- BigData processing with Hadoop, HDFS, programming using Spark, MapReduce, Pig language
- Programmed: Python, SPARK, R, C#, Excel VBA, Cypher, Matlab
- Agile development environments: Windows, UNIX, Mac,

**CME GROUP, Inc., Chicago, IL****2012 – 2014****Sr. Risk Management Analyst** (2013 – 2014)

- Performed risk measurement using techniques: Greeks, VaR, HVaR, Expected Shortfall, Tail Analysis, Scenario Analyses, Stress testing. Knowledge of stress scenarios for use in economic capital methodology and stress testing (CCAR).
- Worked with Commodities, Fixed Income, OTC, IRS, CDS, Futures/Options, Swaps, FX, Equities, Cross-Margin accounts.
- Conducted current margin rate analysis, new product margin determination, and volatility database maintenance.
- Assessed current market risks and price movements; maintained high standard of coverage while preserving capital efficiency throughout the CME complex.
- Worked closely with DevOps on the development of the application for real time trading activity analysis.
- Developed decision logic supporting risk management and business initiatives, project management.
- Performed detailed analysis on investment products, strategies and portfolios across asset classes.
- Conducted modeling and statistical analysis for decision making support.
- Used SPAN, Margin Analysis, Volatility DB, Calypso, and other software applications.
- Participated in the development cycle of the Real Time Market Risk dashboard.
- Conducted UAT testing, programmed in Excel VBA, MatLab, C#, R, and SQL.

**Quantitative Risk Research Consultant** (2012 – 2013)

- Developed a prototype of margin model using market risk methodologies: SPAN, VaR, Historical VaR, Expected Shortfall (CVaR) and tail risk.
- Developed approach for modeling the Energy Risk, Liquidity risk of Commodities derivatives; GARCH, EWMA, ARMA models.
- Performed time series analysis, statistical analysis and seasonality analysis of historical and current market data.
- Worked with Options/Futures, Energy, Equity, FX, Metals, Agriculture commodities and their derivatives.
- Worked with IT group to improve data quality for regulatory and modeling purposes; Prototyping.
- Conducted analytical research for the purpose of modeling and forecasting financial data.
- Extensive programming in Matlab, Excel VBA, R, C#, and SQL.

**CARNEGIE INSTITUTION FOR SCIENCE, Washington, DC****2008 – 2012****Research Data Scientist** (2011 – 2012)

- Project leadership and building a team of collaborators. Results are published in number of scientific papers.
- Managed 3 summer interns/young scientists. Leader of a few projects end-to-end; wrote and won competitive grants for scientific projects proposals at Department of Energy, American Physical Society, National Science Foundation, etc.
- Analyzed scientific data by applying theoretical models in Quantum Mechanics and Computation, Condensed Matter Physics and Geophysics (Monte-Carlo, Data Analysis, Python, regression/curve-fitting).
- Developed scheme and data-level database testing tool for communication between scientific equipment.
- Contributed ideas toward enhancement and modification of software designs to improve the process.
- Researched, created, and executed innovative ideas that delivered high process and results.

**Research Analyst Associate** (2008 – 2011)

- Project leadership and building a team of collaborators. Results are published in several scientific papers.
- Performed data mining/analysis/coding and Monte-Carlo simulations of the crystal properties.
- Developed and tested discrete event simulation models; analyzed data by theoretical models
- Wrote software for data processing and analysis, including data extraction and curve fitting (Python, MatLab).
- Prepared extensive documentation, presentations, and reports both for internal and external audience.
- Developed Python code for data analysis (also using NumPy and SciPy), regression, curve-fitting.
- Created, maintained, and implemented experiments for testing the predicted theoretical models.
- Developed scheme and data-level database testing tool for remote temperature control.
- Created control /user-interface software applications for conducting experiments.

**ARGONNE NATIONAL LABORATORY, Lemont, IL****2005 – 2008***U.S. Department of Energy's Office of Science***Post-Doctoral Researcher**

- Managing/coordinated work of 2 summer interns/young scientists. Leader of the end-to-end projects; wrote and won grants for scientific projects proposals at Department of Energy, American Physical Society, National Science Foundation, etc.
- Worked in projects involving data analysis of scientific and statistical experiments, data analysis, and curve-fitting, digital signal processing, applying regression, Monte-Carlo, etc. Results are published in several scientific papers.
- Clarified several important issues and discovered a way to extract critical information from experimental data.
- Tested theoretical predictions of contemporary models related to the properties of magnetic materials.
- Modeled and simulated complex dynamical properties (Fortran and MatLab); UNIX/LINUX.
- Created control and user-interface software application based on Python and MatLab code.

**EDUCATION****Ph.D., Physics and Mathematics**, Kirensky Institute of Physics, SB Russian Academy of Sciences.**M.S., Physics and Engineering**, Reshetnev Siberian State Aerospace University, Krasnoyarsk, Russia.**ONLINE/ONSITE COURSEWORK****W.W. Grainger, Inc.**

Global Emerging Leader program (Harvard University, Manage Mentor Leadership Solutions)  
 Deep Learning and Tensorflow (Google's Deep Learning Frameworks)  
 Deep Learning A-Z™: Hands-On Artificial Neural Networks.  
 Artificial Intelligence A-Z™: Learn How to Build An AI.  
 Reinforcement Learning (Udacity)

**Centro Media, Inc.**

Big Data TechCon, Certificate of Completion (San Francisco, 2014)  
 The Caltech-JPL Summer School on Big Data Analytics (Caltech)  
 Process Mining: Data science in Action (University of Technology)  
 Programming for Everybody (Python) (University of Michigan)  
 Mining Massive Datasets (Stanford University)  
 Machine Learning (Stanford University)  
 Statistics (Princeton University)

Web Intelligence and Big Data

**CME Group**

Introduction to Computational Finance and Financial Econometrics (University of Washington)

Mathematical Methods for Qualitative Finance course ending (University of Washington)

Financial Engineering and Risk Management (Columbia University)

Algorithms: Design and Analysis (Stanford University)

Probabilistic Graphical Models (Stanford University)

Introduction to Finance (University of Michigan)

Model Thinking (University of Michigan)

Statistics One (Princeton University)

**Carnegie Institution for Science**

The Caltech-JPL Summer School on Big Data Analytics (Caltech)

Quality Assurance (Lorton, Virginia)

Game Theory (Stanford University)

**Advanced Photon Source at Argonne National Laboratory**

Python Analytics (APS), SAP Basis (Seegna, LLC)

**More than 20 scientific publications and multiple talks lists are available upon request; US Citizen**