

Ilya Prokin

Russian national with French work permit.

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EXPERTISE

Machine Learning, Statistics, Computer Science, Probability Theory, Computational Neuroscience

EDUCATION

Ph.D. Computational Neuroscience, INRIA Rhône-Alpes

2013 Oct.-2016 Dec., Villeurbanne, France

M.Sc. Physics, University of Nizhny Novgorod

2011-2013, Nizhny Novgorod, Russia

B.Sc. Physics, University of Nizhny Novgorod

2007-2011, Nizhny Novgorod, Russia

- Courses included: Computational Methods, Dynamical Systems, Probability Theory, Calculus, and Linear Algebra.

EXPERIENCE

CTO and co-founder, Sysmo

2019 Apr.-present, Puteaux, France

- Sysmo leverages Machine Learning to predict stock-market volatility
- By converting multiple types of Data (such as Internet Chatter, Technical Data, Contextual Data) into intensity indicators of the upcoming reaction of the market, we can anticipate price volatility on specific stocks and produce trading signals that can generate significant Alpha.
- Awards: 1st prize Generation Machine Learning 2018 (HSBC, Société Générale, Sia Partners)
- Acceleration: Le Swave
- Funding: Looking for seed investment

Senior Data Scientist, Dataswati

2018 Jan.-2019 May, Massy, France

- Predictive models for unevenly sampled time-series with uncertainty quantification (Python).
- Built an automated data pipeline: from raw data to automated cross-validation based feature selection to predictions.
- Applied several Deep Learning approaches: CNN, LSTM, auto-encoders, transfer learning (keras, pytorch).
- Set up collaborations with academic researchers at INRIA.

Independent Researcher, Self-Employed

2017 Jan.-2017 Dec., Paris, France

- Researched synaptic plasticity exposed to randomized input patterns using Monte-Carlo numerical simulations. Collaboration with researchers at Collège de France and INRIA.

Ph.D. Research, INRIA Rhône-Alpes

2013 Oct.-2016 Dec., Villeurbanne, France

- Developed a Data-Driven Mathematical Model which explained the dependence of synaptic learning on the activity of neurons and experimental conditions. See <https://github.com/iprokin/Cx-Str-STDP>.
- Worked with various experimental and synthetic datasets: Data Cleaning, Parsing, Transformation and Modeling.
- Numerical Stochastic Simulations of Differential Equations, Parameter Optimization, Sensitivity Analysis.
- Python for Data Analysis (NumPy, SciPy, PANDAS, sklearn, and matplotlib) and Numerical Optimization (PyGMO); Numerical Integration in FORTRAN95 interfaced with Python using f2py (x100 faster than Python+SciPy+NumPy).
- 2 scientific publications (one in *eLife*, top 10% journal in biology/neuroscience), 2 submitted.

Research Internship, RIKEN Brain Science Institute

2013 July-Aug., Saitama, Japan

- 3-D reconstruction of neuronal spines from a stack of two-photon microscopy images in MATLAB.

Graduate Research, Institute of Applied Physics

2011-2013, Nizhny Novgorod, Russia

- Processing 64-dimensional time-series data recorded from neuronal cultures grown on multi-electrode arrays.
- Developed a method for graph reconstruction from the time-series data generated by graph's nodes.
- Time-series correlation and its statistical significance in C++; data manipulation/visualization in MATLAB.

Undergraduate Research, University of Nizhny Novgorod

2009-2013, Nizhny Novgorod, Russia

- Solved numerically Differential Equations based model of a Neural Network with a customized Runge-Kutta in C++.
- 2 international scientific publications describing the model of interacting neurons and an adaptive synapse.

INDEPENDENT PROJECTS (see github)

- Halite II AI Programming Challenge (top 3%).
- Machine Learning powered RSS reader, using Naive Bayes, Python, web-UI.
- Bitcoin price prediction & betting bot; including uncertainty quantification (Python/sklearn/scipy/selenium).
- Py_XPPCALL: Python interface to XPPAUT.
- PokerC, Poker Odds Calculator, Haskell.
- Haskell parser of Kospi market data from UDP packets in pcap file.

SKILLS

- OS: GNU/Linux and OS X (4 years), FreeBSD (3 months), and Windows (14 years).
- Technologies: Python (including SciPy, NumPy, PANDAS, and sklearn) (>40000 SLOC¹), Fortran 90/95 (>3000 SLOC), bash (>2500 SLOC), C/C++ (>15000 SLOC), MATLAB/Octave (>25000 SLOC), Haskell (>5000 SLOC), HTML, CSS, \LaTeX , SQL; familiar with InfluxQL.
- Languages: Russian (native), English (fluent), French (working proficiency).