Ilya Prokin

+33 6 69 56 61 88 isprokin@gmail.com https://iprokin.github.io https://github.com/iprokin
Russian national with French visa and right to work in France

CORE PROFICIENCIES Computational Neuroscience.
COMPLEMENTARY EXPERTISE Physics, Computer Science, Probability Theory, Statistics, and Machine Learning.

EDUCATION

Ph.D. Computational Neuroscience 2013 Oct.-2016 Dec.
INRIA Rhône-Alpes Villeurbanne, France

M.Sc. Physics (GPA: 4.63/5) 2011-2013
Lobachevsky State University of Nizhny Novgorod (UNN) Nizhny Novgorod, Russian Federation

B.Sc. Physics (GPA: 4.1/5) 2007-2011
Lobachevsky State University of Nizhny Novgorod (UNN) Nizhny Novgorod, Russian Federation
Courses included: Computational Methods, Dynamical Systems, Probability Theory, Calculus, and Linear Algebra.

RESEARCH EXPERIENCE

Ph.D. Research 2013 Oct.-2016 Dec.
INRIA Rhône-Alpes 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).
- 1 scientific publication (*eLife*, top 10% journal in biology/neuroscience), 2 submitted, 1 in preparation.

Research Internship 2013 July-Aug.
RIKEN Brain Science Institute Saitama, Japan

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

Graduate Research 2011-2013
Institute of Applied Physics Nizhny Novgorod, Russian Federation

- Processing 64-dimensional time-series data recorded from neuronal cultures grown on multi-electrode arrays.
- Architected 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 2009-2013
Lobachevsky State University of Nizhny Novgorod Nizhny Novgorod, Russian Federation

- 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

- Halite II AI Programming Challenge (ongoing, currently top 4%). https://halite.io/user/?user_id=2559.
- Bitcoin price predition & betting bot for btc-e.com (Python/sklearn/selenium).
- Participated in Two Sigma Financial Modeling Challenge on https://www.kaggle.com.
- Machine Learning powered RSS reader, built with Python and Naive Bayes approach with web-UI (CSS/HTML/JavaScript/Python). https://github.com/MLdog/nayesdog.
- Prediction of San Francisco crimes using Deep Learning on GPU with Keras Python module.
- Py_XPPCALL: Python interface to XPPAUT. https://github.com/iprokin/Py_XPPCALL.
- PokerC, Poker Odds Calculator (Haskell). https://github.com/iprokin/pokerc.
- Haskell parser of Kospi market data from UDP packets in pcap file. https://github.com/iprokin/pcapKospi200.
- Built a server on Raspberry Pi with Dynamic DNS, SSH, git, OpenVPN, TaskWarrior, and Syncthing.

SKILLS

- OS: GNU/Linux and OS X (4 years), FreeBSD (3 months), and Windows (14 years).
- Technologies: Python 2.7/3 (including SciPy, NumPy, PANDAS, and sklearn) (>25000 SLOC[1]), Fortran 90/95 (>3000 SLOC), bash/zsh (>2500 SLOC), C/C++ (>15000 SLOC), MATLAB/Octave (>25000 SLOC), Haskell (>5000 SLOC), HTML, CSS, LaTeX, SQL; familiar with InfluxQL, XPPAUT, NEURON, NEST, and LabView.
- Languages: Russian (native), English (fluent), French (limited working proficiency).

AWARDS

- INRIA PhD Fellowship, INRIA, Oct. 2013 - Dec. 2016.
- Best Graduate Research, UNN, Apr. 2013.
- The Dynasty Foundation scholarship, Jan.-June 2013. One of 40 winners out of 149 applicants.
- Research Achievements scholarship, UNN, Jan.-Dec. 2012. Given to 12 out of about 250 students.
- Best Talk award, 16th Scientific Conference on Radiophysics, UNN, 15 May 2012. One winner of 14 presenters.

---

1. SLOC: Source Lines Of Code↩