Oleg Shpynov

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Summary

I am a bioinformatics group leader at JetBrains Research. I graduated from Saint-Petersburg State University in 2008 and received Master degree with honors in Computer Science. I'm working on computational algorithms and methods for epigenetic data analysis in the field of human aging with a specific focus on ChIP-seq and ATAC-seq methods. At the moment I am a PhD candidate under supervision of Maxim Artyomov.

Research Experience

2017 – today

Visiting Research Scientist
Department of Pathology and Immunology, Washington University School of Medicine, St. Louis, MO, USA

Working on applied machine learning approaches and methods for epigenetic data analysis together with Maxim Artyomov Lab.

- Developed scalable, reproducible computational pipelines for ChIP-seq processing
- Created pipelines for single cell ATAC-seq analysis

2013 – today

Group leader
JetBrains Research, Saint-Petersburg, Russia

The goals of JetBrains Biolabs group are to uncover the mechanisms underlying epigenetic regulation in humans and other animals and to identify the role of these mechanisms in cell differentiation and aging.

- Created novel peak calling solution for ChIP-seq and ATAC-seq data analysis - semi-supervised peak caller SPAN and JBR Genome Browser
- Developed Pubtrends - exploratory tool for scientific publications providing faster trends analysis and breakthrough papers discovery
- Managed group activities and took part in other various group projects

Teaching Experience

2014 – today
Scientific adviser
Bioinformatics Institute, Saint-Petersburg, Russia
Computer Science Center, Saint-Petersburg, Russia
Higher School of Economics, Saint-Petersburg, Russia

- Supervisor of two successful Masters dissertations
- Mentorship of various students projects

2019 - 2020
Lecturer
University ITMO, Saint-Petersburg, Russia

- Classes on computational epigenetics

2019
Lecturer
Bioinformatics Institute, Saint-Petersburg, Russia

- Seminar - advanced topics in computational epigenetics

2019
Lecturer
Systems Biology Workshop, Saint-Petersburg, Russia

- Full day workshop on epigenetics - from transcription regulation to data analysis and systems integration

2018 - 2020
Invited speaker
Bioinformatics Institute Summer School, Russia

Professional Experience

2006 – 2013
Senior software developer
JetBrains, Saint-Petersburg, Russia

Main focus was on the analysis of source code in programming languages, starting from lexical analysis to advanced type system development and source code semantic verifications.

- Developed JetBrains products: flagship tool IntellIJ IDEA, PyCharm
- Maintained and developed IdeaVIM plugin (vim emulation plugin, 7+mln downloads)
- Created RubyMine Integrated Development Environment for Ruby programming language

Education

2019	Deep learning nanodegree at Udacity, certificate number: 9GSNRHUA Machine learning, deep learning, models deployment
2016	Systems Biology Workshop by Bioinformatics Institute, University ITMO and Artyomov Lab of Washington University in St.Louis, Saint-Petersburg, Russia System level data ranging from gene expression, RNA-, ChIP-, and exome-sequencing up to high-throughput metabolomics and network-based data integration.
2011 – 2012	Saint-Petersburg Academic University — Nanotechnology Research and Education Centre of the Russian Academy of Sciences, Russia Classes of bioinformatics, molecular biology, statistics.
2008 – 2010	Post graduate student (PhD) in Computer Science, Faculty of Mathematics and Mechanics, Saint-Petersburg State University, Russia
2003 – 2008	Masters in Computer Science, score 4.8 of 5. Saint-Petersburg State University, Russia Faculty of Mathematics and Mechanics, Chair of System Programming

Publications

2020	I. Shchukina, J. Bagaitkar, O. Shpynov et al. ”Epigenetic changes in aging human monocytes”, Nature Aging, *in review*, preprint https://www.biorxiv.org/content/10.1101/2020.05.10.087023v1, website https://artyomovlab.wustl.edu/aging/
2020	D. Mogilenko et al. ”Comprehensive profiling of aging immune system reveals clonal GZMK+ CD8 T cells as conserved hallmark of inflammaging”, Immunity, *in review*, website https://artyomovlab.wustl.edu/immune-aging/
2019	O. Shpynov, A. Dievskii, P. Tsurinov, et al. ”Bioinformatics Institute 2018/19 project abstracts”, Saint-Petersburg, Russia
2018	Jeremy P., et al. ”Bhlhe40 is an essential repressor of IL-10 during Mycobacterium tuberculosis infection”, Journal of Experimental Medicine
2015	S. Lebedev, R. Chernyatchik, O. Shpynov ”CMeth: a Bayesian semiparametric model for differential methylation analysis”, preprint https://research.jetbrains.org/files/material/5eb189e5911b1.pdf

Languages

Russian	Native
English	Fluent

Honors and Awards

Graduated Saint-Petersburg State University cum laude
Participated in ACM regional contests on programming as university team
Winner of Saint-Petersburg state school contests on math, physics, programming

Interests

Bioinformatics, machine learning, software development.
Traveling, hiking, snowboarding, diving, cycling, photography.