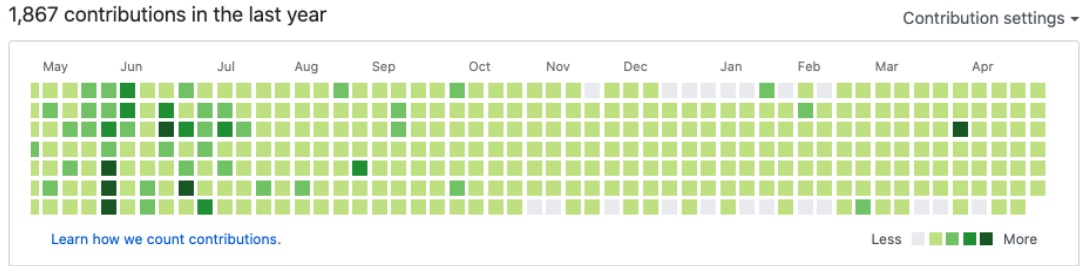


# ALEXANDER MYLTSEV

email: [alex@myltsev.com](mailto:alex@myltsev.com) | skype: alexander.myltsev | github: [alexander-myltsev](https://github.com/alexander-myltsev)

CV update: April, 2020 | <https://myltsev.com/cv>



## Laboratory of Methods of Big Data Analysis, Higher School of Economics *Machine Learning Engineer (Remote Contractor)*

August 2019 – present

<https://cs.hse.ru/lambda>

- developing state of the art model to predict time series
- responsible to deliver the results to the end user
- the project is supported by [Yandex](#) grant

## Cifrum – Assets Portfolio Analysis Toolkit

June 2018 – August 2019

### *Full-stack Core Developer (Remote Contractor)*

<https://github.com/cifrum-io/cifrum>

- taught myself personal finance based on **modern portfolio theory**
- wrote software **from scratch in team** of 2 professional financial consultants to automate portfolio analysis that **helps hundreds of investors**
- developed **crawler** that fetches financial information (stocks, ETFs, currencies, etc.) in **Python3**
- shipped standalone **open-sourced library** named *yapo* (**tox/poetry/pytest/Python3**) adopted for **iPython**
- developed the API: **GraphQL/REST API** in **Flask/Python3** and **PlayFramework/Scala**
- developed the frontend in **Angular7/Typescript**

## Global Names Architecture (<http://globalnames.org>)

June 2015 – June 2018

### *Full-stack Search Engine Developer (Remote)*

*Natural History Survey, University of Illinois, USA*

- taught myself basics of biodiversity classification to help **thousands of researchers throughout the World** to register, find, index, check and organize biological scientific names
- in team with the biodiversity scientist rewrote **PEG Parser** in **Scala/parboiled2** for scientific names that works **100+** times faster than previous version, plus added more parsing features that none did before
- assembled **GraphQL API** in **Scala/Finagle/Sangria/PostgreSQL** that parses and finds sophisticated information for **1,000 names within 1 second** that is **50x** faster than previous version
- adopted **Levenshtein automaton** to fuzzy search through scientific names in Latin. It handles the query with 2 mistakes through **7+ millions names within 0.5 second**
- in team with the lab administrator helped to deploy the **Docker-ized App** in **Kubernetes** that improved regular Biodiversity Heritage Library indexing **from 40 days to 12 hours**
- co-authored the paper: “gnparser – a powerful parser for scientific names based on parsing expression grammars”
- wrote the frontend in **Angular/TypeScript**
- helped to complete successfully the **National Science Foundation grant** (NSF DBI-1356347)

## EDUCATION

### **Moscow Institute of Physics and Technology (MIPT), Moscow, Russia, 2008–2010**

*Department of Control and Applied Mathematics, subdepartment of Informatics (CIS)*

*M.Sc. in **Mathematics and Computer Science, GPA: 5.0/5.0***

*Thesis: Embedding Domain Specific Language in F# for Hybrid System Control*

*Advisor: [Andrey Ustyuzhanin](#), Ph.D. in CS, Associate Professor at MIPT, Head of joint CERN-Yandex Research & Education programs*

## EXPERIENCE

### parboiled2

May 2013 – Apr 2017

<http://parboiled2.org>

#### Architect & Scala Developer

- successfully **completed Google Summer of Code 2013** internship program
- contributed in a globally distributed team to a real-world, long-term project: “parboiled2 – Macro-Based PEG Parser Generator for **Scala**”
- co-designed **the overall architecture**. Implemented most of the functionality till the present moment
- wrote the paper “parboiled2: macro-based parsing expression grammar generator for Scala programming language” ([arxiv.org/abs/1907.03436](http://arxiv.org/abs/1907.03436))
- **600+** stars at github. The project is **in core** of [Lightbend Akka-HTTP](#)

### Digital October, New Professions Lab (<https://newprolab.com/en/bigdata>)

Mar – Sept 2015

#### BigData Course Tutor

Moscow, Russia

- Tutored 60+ students in Apache Spark, Python, HBase, Data Mining, Machine Learning
- Improved course materials

### Collective Media (<https://vistohub.com>)

Nov 2013 – May 2015

#### External Scala Development Consultant

New York, USA / Moscow, Russia

- Helped to build high-loaded backend for ad-tagging server that serves 100K+ requests per second
- Introduced JMH benchmarking to the project. Optimized bunch of performance critical parts of code
- Advocated and contributed to open-sourced projects: [kamon](#), [sbt-aspectj](#), [monitor](#), [scala-mustache](#), [scredis](#), [redisala](#), [riemann](#)
- Developed projects particularly for company needs: [RSlick](#) and [sbt-uglify](#)
- System performance analysis based on Hadoop logging processing
- Contributed significantly to build system automation (SBT)
- Distributed team work

### NVIDIA

Dec 2010 – May 2012

#### Contractor at CUDA Certification and Tech Marketing Department

Moscow, Russia

- The evangelist of CUDA technologies: certification program support, CUDA experts community development, creating CUDA learning courses, tutorials, public talks
- Invited speaker at Summer 2011, Winter 2011 and Spring 2012 Schools in GPU Computing and CUDA at Moscow State University
- Co-author of the book “Parallel computing on GPU Architecture and CUDA programming model” and the corresponding online course for [hpc-education.ru](http://hpc-education.ru)
- Developed the cross-platform learning shell

### Self Education, Coursera

- [Yandex School of Data Analysis](#) (completed 2 of 4 semesters)
- “[Machine Learning Data Analysis](#)” specialization by [MIPT and Yandex](#), Coursera (completed 5 of 6 courses, 100% grade, currently working on the final project)
- “Competitive Data Science” by [AppliedDataScience](#). Lecturers and tutors from Higher School of Economics, Moscow Institute of Physics and Technology, Yandex. Certified, [rating: 7th out of 116 students](#)
- “Algorithms: Design and Analysis” by Tim Roughgarden, Stanford University. 70% grade
- “Machine Learning” by Andrew Ng, Stanford University. 100% grade
- “Principles of Reactive Programming in Scala” by Martin Odersky et al., EPFL. 98.2% grade
- “Functional Programming Principles in Scala” by Martin Odersky et al., EPFL. 100% grade
- “Structure and Interpretation of Computer Programs” by H. Abelson and G. J. Sussman. Solely solved all exercises of the book
- “Personal Assets Allocation Management” specialization by [Finarium.pro](#). 90% grade

### Academic Contributions

- Paper “parboiled2: macro-based parsing expression grammar generator for Scala programming language”. ([arxiv.org/abs/1907.03436](http://arxiv.org/abs/1907.03436))
- Paper “[gnparser](#)”: a powerful parser for scientific names based on [Parsing Expression Grammar](#)”. BioMed Central (Software) journal (DOI: 10.1186/s12859-017-1663-3)

- Manning Press books reviewer. Books include: “Type-Driven Development with Idris” by Edwin Brady, “Practical Recommender Systems” by Kim Falk, “Machine Learning with TensorFlow” by Nishant Shukla, “Deep Learning with Python” by Francois Chollet, “The Tao of Microservices” by Richard Rodger, “Kubernetes in Action” by Marko Luka, “Grokking Deep Learning” by Andrew W. Trask
- Co-author of the book “Parallel computing on GPU Architecture and CUDA programming model”
- Article for Mozilla Labs blog: “[Elevating JavaScript Performance Through GPU Power](#)”

### Summer/Winter Schools

- July '15, participant of “[Deephack.Game](http://game.deephack.me)” (<http://game.deephack.me>) – deep neural networks week conference and hackathon at [Moscow Institute of Physics and Technology](#)
- Aug '14, 8th Russian Summer School in Information Retrieval (RuSSIR)
- July '11, Summer School in Software Engineering and Verification. Best project award for “Formally Proving Facts in the Refinement Algebra” Mentor: Sir Tony Hoare, Microsoft Research
- June '10, All-Russian summer school in “High Performance Computing”
- Aug '09, Microsoft Research HPC Summer School at MSU
- June '09, NVIDIA and Intel Summer School at [Moscow Institute of Physics and Technology](#)

### HONORS & AWARDS

- Oct 2015, Machine Learning Hackathon (Microsoft) winner (MicroYandex team)
- Sept 2013, R&D Grant for [job]snipper, U.M.N.I.K.-MIPT (\$13000 USD)
- Jun 2010, CUDA certified professional
- Imagine Cup 2011 team, Russian finalists of Embedded Development
- Best Report at VII All-Russian Conference “Microsoft Technologies in Theory and Practice of Programming” in 2010
- Imagine Cup 2010 team, 2nd place in a regional stage of Software Design Competition in Moscow & 4th place in Russian final of Embedded Development
- Mozilla Labs Jetpack Contest 2009 winner: Mozilla Firefox Jetpack and NVIDIA CUDA integration for data processing

### TECHNICAL SKILLS

|                           |   |
|---------------------------|---|
| <i>Computer Languages</i> | Scala, Java, Python, Scheme, Ruby, TypeScript, C#, Haskell, F#, C/C++, CUDA C/C++ |
| <i>Dev Stack</i>          | SBT, Macros, Shapeless, Akka, spray.io, Play Framework, Anorm, Slick, Angular2    |
| <i>Data tools</i>         | MySQL, PostgreSQL, Hadoop, Hive, Spark, Aerospike, Redis                          |
| <i>Development tools</i>  | Microsoft Azure, Heroku, Docker, Ubuntu, bash, Nginx, Git, $\LaTeX$               |

### Tech/Invited Talks

- Biodiversity Information Standards Conference (TDWG) '17 in Canada. Talk: “A path to continuous reindexing of scientific names appearing in Biodiversity Heritage Library data”
- Biodiversity Information Standards Conference (TDWG) '16 in Costa Rica. Talk: “New Scientific names finding, parsing and resolution tools from Global Names.”
- [ScalaDays.org 2014 conference](#) in Berlin, Germany. Talk: “Meet parboiled2 – a macro-based PEG parser generator for Scala”
- Speaker at Summer '11, Winter '11 and Spring '12 Schools in GPU Computing and CUDA at Moscow State University

### ADDITIONAL INFORMATION

|             |  |
|-------------|--|
| Languages   | Russian (mother tongue), English (fluently reading technical documentation, verbal proficiency adequate to pass a technical interview) |
| Personality | hard-working, responsible, research-driven, energetic, innovative, experienced to work in globally distributed teams                   |
| Hobbies     | Ashtanga Yoga, Total immersion swimming  |