Andrey Akinshin

Engineer

andrey.akinshin@gmail.com
akinshin.dev
github.com/AndreyAkinshin
scholar.google.com/citations?user=rYVl83IAAAAJ
linkedin.com/in/AndreyAkinshin
x.com/andrey_akinshin
aakinshin.net

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Highlights

Staff Engineer in Development Productivity at JetBrains	since 2015
Author of Pragmastat: Pragmatic Statistical Toolkit	since 2025
Maintainer of BenchmarkDotNet	since 2013
PhD in Mathematics and Computer Science	since 2013
Author of Pro .NET Benchmarking	2019
Former Microsoft MVP	2015–2019
Former Postdoc at Weizmann Institute of Science	2014–2016
Silver Medalist in ACM ICPC	2009

Development

JetBrains

Staff Engineer — Development Productivity · 12/2024–Present
Performance Methodologist — .NET Department · 05/2024–11/2024
Senior Performance Engineer — .NET Department · 11/2022–04/2024
Performance Lead — Rider · 01/2021–03/2022
Software Developer — Rider · 10/2015–12/2020

Huawei Research

Expert — 07/2022–09/2022

Perpetuum Software LLC · Enterra · Adaptive Technologies

Lead Software Developer — 02/2013–09/2016
Software Developer — 09/2011–01/2013
Junior Software Developer — 09/2010–08/2011

Competitive Programming

University programming team — ACM · 2006–2009
School programming team — ACM · 2002–2006

Academia

Degree: PhD in Mathematics and Computer Science
Research Profiles: Google Scholar · arXiv · ResearchGate · ORCID · WoS · Scopus
Erdős number of 4: A. Akinshin → Y. Yomdin → M. Rubin → R. Bonnet → P. Erdős
Favorite Fields: Statistics · Mathematical Modeling

Weizmann Institute of Science · Faculty of Mathematics and Computer Science

Postdoctoral Research Fellow — Digital signal processing — 10/2014–09/2016

Sobolev Institute of Mathematics SB RAS · Lab for Inverse Problems in Mathematical Physics

Engineer — 08/2012–06/2014
Research Scientist — Mathematical biology and dynamical systems — 07/2014–12/2016

Altai Economics and Law Institute · Computer science and mathematics

Senior Lecturer — 09/2009–09/2014

I.I. Polzunov Altai State Technical University · Faculty of Information Technologies

Student — Software for Computers and Automated System — 09/2006–06/2011
PhD Student — Math modeling, numeric methods, and software systems — 08/2011–12/2013

Open Source

Favorite

dotnet/BenchmarkDotNet
27K dependent repos · 56M downloads · Powerful .NET library for benchmarking

AndreyAkinshin/pragmastat — Pragmatic Statistical Toolkit

AndreyAkinshin/perfolizer — 53M downloads · Performance analysis toolkit

AndreyAkinshin/Russian-Phd-LaTeX-Dissertation-Template — LaTeX-template for Russian PhD thesis

Recent AI-generated

AndreyAkinshin/BibSharp — BibTeX processing for .NET

AndreyAkinshin/KdlSharp — KDL processing for .NET

AndreyAkinshin/avatarka — Avatar generation for TypeScript

Research Papers

AndreyAkinshin/paper-qrdehd
Quantile-respectful density estimation based on the Harrell-Davis quantile estimator

AndreyAkinshin/paper-wqe — Weighted quantile estimators

AndreyAkinshin/paper-frc — Finite-sample Rousseeuw-Croux scale estimators

AndreyAkinshin/paper-qad — Quantile absolute deviation

AndreyAkinshin/paper-mad-factors
Finite-sample bias-correction factors for the median absolute deviation

AndreyAkinshin/paper-thdqe
Trimmed Harrell-Davis quantile estimator based on the highest density interval

Archive

AndreyAkinshin/ggwaterfall — R package for drawing density and frequency trail waterfall plots

AndreyAkinshin/ProblemBook.NET — Free book with .NET/C# problems

AndreyAkinshin/CultureInfoExplorer — Explorer of CultureInfo instances in .NET

AndreyAkinshin/InteropDotNet — Cross-platform AnyCPU P/Invoke for .NET

AndreyAkinshin/knockout-mvc — Knockout.js wrapper for ASP.NET

AndreyAkinshin/CourseraDspWorkbook — Workbook for Coursera DSP course

AndreyAkinshin/BlittableStructs — Blittable .NET structs

AndreyAkinshin/pwLLL — Shiny app that builds 3D phase portraits of a piecewise linear LLL-system

AndreyAkinshin/clock-bmal1 — Shiny app for CLOCK:BMAL1 Circadian Oscillator Model

Memorable contributions

dotnet/runtime — .NET is a cross-platform runtime for cloud, mobile, desktop, and IoT apps

JetBrains/intellij-community — IntelliJ IDEA Community Edition

mono/mono — Mono open source ECMA CLI, C# and .NET implementation

NuGet/NuGet.Client — Core client libraries for NuGet Services

nodatime/nodatime — A better date and time API for .NET

charlesw/tesseract — A .NET wrapper for tesseract-ocr

Code52/pretzel — A site generation tool (and then some) for .NET platforms

Random contributions

tmyroadctfig/twaindotnet	.NET API for TWAIN
jjrdk/ArchiMetrics	Various code analysis tools for C#
finagle/finch	Scala combinator library for building Finagle HTTP services
GitbookIO/gitbook	Modern documentation format and toolchain using Git and Markdown
overthecs/overthecs.github.io	Source code of OverAPI
yihui/knitr-examples	A collection of knitr examples
ravendb/ravendb	An ACID NoSQL Document Database
mfilippov/vimeo-dot-net	A .NET wrapper for Vimeo API v3.0
dotnet/docs	This repository contains .NET Documentation
dotnet/linker	Mono linker
JetBrains/ideolog	Interactive viewer for '.log' files
JetBrains/resharper-unity	Unity support for both ReSharper and Rider
JetBrains/pty4j	Pty for Java
nwillc/ksvg	A Multiplatform Kotlin SVG image DSL
KonH/LivelibExport	Script that converts LiveLib reading list to csv
facebook/react-native	A framework for building native apps with React
obsidian-tasks-group/obsidian-tasks	Task management for the Obsidian knowledge base
Lakens/statistical_inferences	'Improving Your Statistical Inferences
Nukesor/pueue	Manage your shell commands
scipy/scipy	SciPy library main repository
papis/papis	document and bibliography manager
JetBrains/rd	Reactive Distributed communication framework
JetBrains/azure-tools-for-intellij	Azure Toolkit for JetBrains Rider
adamsitnik/awesome-dot-net-performance	A curated list of awesome .NET Performance-related stuff
dotnet/wpf	.NET Core UI framework for building Windows desktop applications
JetBrains/clrstack	Tool for capture stack traces for .NET application
octokit/octokit.net	A GitHub API client library for .NET
gui-cs/Terminal.Gui	Cross Platform Terminal UI toolkit for .NET

Publications

Quantile-respectful density estimation based on the Harrell-Davis quantile estimator	2024 PDF DOI arXiv GitHub
Weighted quantile estimators	2023 PDF DOI arXiv GitHub
Stratifications and foliations in phase portraits of gene network models	2023 Link
Mathematical and numerical modelling of the circadian oscillator	2022 DOI
On a Numerical Model of a Circadian Oscillator	2022 PDF DOI
Finite-sample Rousseeuw-Croux scale estimators	2022 PDF DOI arXiv GitHub
Finite-sample bias-correction factors for the median absolute deviation based on the Harrell-Davis quantile estimator and its trimmed modification	2022 PDF arXiv GitHub
Quantile absolute deviation	2022 PDF arXiv GitHub
Trimmed Harrell-Davis quantile estimator based on the highest density interval of the given width	2022 PDF DOI arXiv GitHub
Geometry of error amplification in solving the Prony system with near-colliding nodes	2021 PDF DOI arXiv

A Model of one central regulatory circuit	2020 DOI
Mathematical and Numerical Models of the Central Regulatory Circuit of the Morphogenesis System of Drosophila	2020 DOI
Pro .NET Benchmarking	2019 DOI
The hard world of microbenchmarking	2017 PDF Link
Accuracy of reconstruction of spike-trains with two near-colliding nodes	2017 PDF DOI arXiv
On discrete structures in phase portraits of some non-linear dynamical systems	2016 DOI
Getting Started with Knockout.js for .NET Developers	2015 Link
State transition diagrams in hypothetical models of cyclic gene networks functioning	2015 Link
Accuracy of spike-train Fourier reconstruction for colliding nodes	2015 PDF DOI arXiv
Symmetry in gene network models	2014 Link
A model of one biological 2-cells complex	2014
An Extended Model of D. Melanogaster Machrochaete Morphogenesis Gene Network	2014 Link
Modeling of Two-Cells Complex in Morphogenesis of D. Melanogaster Mechanoreceptors	2014
Mathematical modeling of interaction of two cells in proneural cluster of D.mealnogaster	2014 Link
Mathematical and computational models of gene networks functioning	2013 Link
Numerical analysis of gene networks models	2013 DOI
Analysis of phase portraits in some gene networks models	2013
On some multidimensional models of gene network functioning	2013 DOI
Oscillating trajectories in some nonlinear dynamical systems	2013
Andronov-Hopf bifurcation for some nonlinear delay equations	2013 Link
Research of discrete structures in some cyclic dynamical systems (In Russian)	2012 Link
Non-uniqueness of cycles in gene networks models	2012 Link
Unstable cycles in gene networks models	2012 Link
Geometric characteristics of cycles in some symmetric dynamical systems (In Russian)	2012 Link
Computer analysis of phase portraits in gene networks models	2012
On Nonuniqueness of Cycles in Dissipative Dynamical Systems of Chemical Kinetics	2012 Link
Mathematical and numerical modeling of gene network functioning	2011 Link

Download all as .bib · Google Scholar profile · arXiv profile

Talks

BenchmarkDotNet State of the Art	Techorama 2023 Belgium	May 2023
Descriptive Statistics of Performance Distributions	Heisenbug 2022 Autumn	November 2022
Let's Talk about Descriptive Statistics of Performance Distributions	DotNext 2022 Autumn	November 2022
Panel discussion: Fear and Loathing in Open Source	DotNext 2022 Spring	June 2022
Seriously about Performance	TechTrain 2020	October 2020
Let's Talk about Performance Analysis	DotNext 2020 Piter	June 2020
Analyze Performance for the Benefit of Ourselves and Others	Heisenbug 2020 Piter	June 2020
Performance Testing	Dotnetos	October 2019
Performance Testing in Rider	JetBrains Open Day 2019	June 2019
Idiomatic Kotlin	Kotlin meetup in Tel Aviv	May 2019
Cross-Platform .NET Development in Rider	JetBrains Night Tel Aviv 2019	May 2019
Idiomatic Kotlin	JetBrains Event Haifa	May 2019

Powerful Benchmarking in .NET	Dotnetos	November 2018
Rider Superpowers for Unity Developers	Israeli Unity Developers June 2018 Meetup	June 2018
Using ASP.NET Core in Rider	ILDevCon 2018	June 2018
How We Improve Performance in Rider	Open Day JetBrains Moscow 2018	April 2018
Let's Talk about Memory	CSC Nsk 2018 Open Days	March 2018
Microbenchmarking Difficulties	Lecture in Computer Science Center	January 2018
Panel Discussion: Profiling and Optimization	DotNext 2017 Moscow	November 2017
Let's Talk about Performance Testing	DotNext 2017 Moscow	November 2017
Performance Testing Problems	Highload++	November 2017
Microbenchmarking Difficulties	DevFest Siberia 2017	September 2017
Theory and Practice of .NET Benchmarking	Lecture in Computer Science Center	September 2017
Let's Talk about Memory	DotNext 2017 Piter	May 2017
Xplat .NET and How it's Going with Mono and CoreCLR	Dump	April 2017
Theory and Practice of .NET Benchmarking	Msk .NET Community Meetup #6	January 2017
Let's Continue to Talk about Arithmetics	DotNext 2016 Moscow	December 2016
Let's Talk about Microbenchmarking	DotNext 2017 Helsinki	December 2016
Rider: Talks about Internals and cross-platform	SPb .NET Community Meetup #15	November 2016
Theory and Practice of .NET Benchmarking	Yekaterinburg .NET community meetup	November 2016
Let's Continue to Talk about Arithmetics	Barnaul .NET user group meetup	October 2016
Let's Talk about Arithmetics	DotNext 2016 Piter	June 2016
CPU Level Optimizations	BackendConf	May 2016
Open Source Benchmarks	DevCon 2016	May 2016
Performance Testing Complexity	Barnaul .NET user group meetup	May 2016
Hardware Timers	CLRium #3 (Novosibirsk)	May 2016
Hardware Timers	CLRium #3 (Moscow)	April 2016
Hardware Timers	CLRium #3 (St. Petersburg)	April 2016
CLR and JVM in Project Rider	CodeFest 2016	March 2016
Project Rider	CEE Community Open Days 2016	March 2016
.NET 2015: The Future is Nearby	Barnaul .NET user group meetup	December 2015
Let's Continue to Talk about micro-optimizations in .NET Applications	Barnaul .NET user group meetup	December 2015
Forthcoming C#7	Community Dev Camp	December 2015
.NET 2015: The Future is Nearby	DotNext 2015 Moscow	December 2015
Let's Continue to Talk about micro-optimizations in .NET Applications	DotNext 2015 Moscow	December 2015
Common Mistakes in .NET Benchmarks	SPb .NET Community Meetup	November 2015
.NET 2015 and Performance	IT NONSTOP 2015 Spb	October 2015
How to Measure Time Right Way	Dev labs 2015 .NET	October 2015
Talk at 'Systems Biology and Bioinformatics'	Systems Biology and Bioinformatics	June 2015
Let's Talk about micro-optimizations in .NET Applications	Barnaul .NET user group meetup	June 2015
The Future of the .NET Development	SPb .NET Community Meetup #1	June 2015
Panel discussion: .NET Performance	DotNext 2015 Piter	June 2015
Panel discussion: .NET cross-platform Developments	DotNext 2015 Piter	June 2015
Let's Talk about micro-optimizations in .NET Applications	DotNext 2015 Piter	June 2015
CoreCLR, RyuJIT, DNX	CLRium #2 (St. Petersburg)	May 2015
Practical .NET Applications Optimization Approaches	.dotnetconf 10	April 2015

CoreCLR, RyuJIT, DNX — CLRium #2 (Moscow) — April 2015

Grapholite Diagrams and Flow Chart — European AppCup 2015 — March 2015

Let's Talk about Different .NET Versions — Barnaul .NET user group meetup — December 2014

Let's Talk about Different .NET Versions — DotNext 2014 Moscow — December 2014

Talk at 'Geometry Days in Novosibirsk 2014' — Geometry Days in Novosibirsk 2014 — September 2014

Low-Level Optimizations of .NET Applications — Barnaul .NET user group meetup — August 2014

Modern Trends in Numerical Experiments

Seminar in Laboratory of Inverse Problems of Mathematical Physics (Sobolev Institute of Mathematics SB RAS) — August 2014

Talk at 'ATR 2014' — ATR 2014 — August 2014

Talk at 'Mathematical Modeling and High Performance Computing in Bioinformatics, Biomedicine and Biotechnology (MM-HPC-BBB-2014)'

Mathematical Modeling and High Performance Computing in Bioinformatics, Biomedicine and Biotechnology (MM-HPC-BBB-2014) — June 2014

Talk at 'The 9th International Conference on Bioinformatics of Genome Regulation and Structure Systems Biology (BGRS SBB'2014)'

The 9th International Conference on Bioinformatics of Genome Regulation and Structure Systems Biology (BGRS SBB'2014) — June 2014

LINQ Features — Barnaul .NET user group meetup — June 2014

Symmetry in Gene Network Models

The Bioinformatics Research and Education Workshop (BREW 2014) — May 2014

Mathematical and Numerical Modelling of a Molecular auto-repressilator

Biology — the Science of the XXI Century — April 2014

Future of the .NET Platform — Barnaul .NET user group meetup — April 2014

Git Basics — Barnaul .NET user group meetup — March 2014

Garbage Collection in .NET — Barnaul .NET user group meetup — March 2014

Value Types in .NET — Barnaul .NET user group meetup — February 2014

Talk at 'Theory and Computational Methods for Inverse and Ill-posed Problems'

Theory and Computational Methods for Inverse and Ill-posed Problems — October 2013

Talk at 'Analysis, Geometry and topology' — Analysis, geometry and topology — October 2013

Oscillating Trajectories in Some Nonlinear Dynamical Systems

Differential Equations. Function Spaces. Approximation Theory — August 2013

Numerical Analysis of Gene Networks Models

Federation of European Biochemical Societies CONGRESS Mechanisms in Biology (FEBS 2013) — June 2013

Talk at 'Analysis of Complex Biological Systems: Models and Experiment'

Analysis of Complex Biological Systems: Models and Experiment — January 2013

Talk at 'Conservation Laws and invariants' — Conservation laws and invariants — January 2013

Talk at 'Lomonosov's Reading in Altai' — Lomonosov's reading in Altai — November 2013

Talk at 'Systems Biology and Bioinformatics (SBB-2013)'

Systems Biology and Bioinformatics (SBB-2013) — June 2013

Mathematical and Computational Models of Gene Networks Functioning

The Bioinformatics Research and Education Workshop (BREW 2013) — May 2013

Talk at 'Workshop in Medical Informatics Department of Universität Bielefeld'

Workshop in Medical Informatics Department of Universität Bielefeld — April 2013

Talk at 'Science and Youth' — Science and Youth — April 2013

Talk at 'Lomonosov' — Lomonosov — April 2013

Talk at 'Mathematics. Computing. Education' — Mathematics. Computing. Education — January 2013

Talk at 'Selected Questions of Mathematical analysis'
Selected questions of mathematical analysis January 2013

Talk at 'Workshop in Altai State University' Workshop in Altai State University April 2013

Talk at 'Workshop in Institute of Computational Mathematics and Mathematical Geophysics SB RAS'
Workshop in Institute of Computational Mathematics and Mathematical Geophysics SB RAS January 2013

Talk at 'Workshop in Peter the Great St.Petersburg Polytechnic University'
Workshop in Peter the Great St.Petersburg Polytechnic University January 2013

Talk at 'Workshop in Polzunov Altai State Technical University'
Workshop in Polzunov Altai State Technical University January 2013

Talk at 'Workshop in Sobolev Institute of Mathematics SB RAS'
Workshop in Sobolev Institute of Mathematics SB RAS January 2013

Talk at 'Lomonosov's Reading in Altai' Lomonosov's reading in Altai November 2012

Talk at 'Academic Mobility of Students and Young researchers'
Academic mobility of students and young researchers October 2012

Talk at 'Systems Biology and Bioinformatics (SBB-2012)'
Systems Biology and Bioinformatics (SBB-2012) June 2012

Talk at 'The Eighth International Conference on Bioinformatics of Genome Regulation and Structure Systems Biology (BGRS 2012)'
The eighth international conference on bioinformatics of genome regulation and structure systems biology (BGRS 2012) June 2012

Talk at 'VI-th International Conference Solitons, Collapses and Turbulence: Achievements, Developments and Perspectives'
VI-th international conference Solitons, Collapses and Turbulence: Achievements, Developments and Perspectives June 2012

Talk at 'Science and Youth' Science and Youth April 2012

Talk at 'Student + Scientific and Technical progress'
Student + scientific and technical progress April 2012

Talk at 'Modern Technique and Technologies (MTT'2012)'
Modern Technique and Technologies (MTT'2012) April 2012

Talk at 'Geometry Days in Novosibirsk' Geometry Days in Novosibirsk September 2011

Talk at 'Modern Technique and Technologies (MTT'2011)'
Modern Technique and Technologies (MTT'2011) January 2011

Talk at 'Science and Youth' Science and Youth January 2011

Talk at 'Student + Scientific and Technical progress'
Student + scientific and technical progress January 2011

Media Appearances

Interview with Andrey Akinshin (DotNext 2022 Spring) Interview • DotNext • June 27, 2022

A Professional benchmark: The Art of Performance Measurements
Article • Habrahabr • February 24, 2022

Benchmarking Pitfalls in .NET: A Fragment of a Andrey Akinshin's Book
Article • Habrahabr • January 19, 2022

TwitterSpaces with Andrey Akinshin Podcast • Easyperf Twitter Spaces • December 5, 2021

Interview with Andrey Akinshin (DotNext 2021 Moscow) Interview • DotNext • October 21, 2021

RadioDotNet-026: DotNext 2021 Piter Podcast • RadioDotNet • April 8, 2021

RadioDotNet-017: DotNext 2020 Moscow Podcast • RadioDotNet • November 13, 2020

Null Hypothesis Significance Testing is a Terrible Tool — Interview • Habrahabr • July 30, 2020

If You See a Paper that States that Language X is Faster Than Language Y, You Can Close It — Interview • Habrahabr • July 28, 2020

We Are Doomed #12 / Andrey Akinshin - Benchmarks, Performance, Efficient Code — Interview • We are doomed • July 23, 2020

Bar Counter #1 / Andrey Akinshin — Interview • Bar counter • June 4, 2020

RadioDotNet-006: DotNext 2020 Piter — Podcast • RadioDotNet • March 12, 2020

«A Typical Mistake is to Mindlessly Benchmarking everything»: An Interview with Andrey Akinshin about Benchmarking — Interview • Habrahabr • February 4, 2020

RadioDotNet-003: DotNext 2019 Moscow — Podcast • RadioDotNet • October 12, 2019

RadioDotNet-000: DotNext 2019 Piter — Podcast • RadioDotNet • May 13, 2019

Episode 146 — The Challenges of Performance Testing in the Afterlife — Podcast • Razbor Poletov • December 5, 2017

Memory optimization: Difficult, but Sometimes Necessary — Interview • Habrahabr • March 30, 2017

How to Stop Attending a Conference as a Participant and Start speaking? Tips from Andrey Akinshin — Interview • Habrahabr • March 20, 2017

Review on Andrey Akinshin's Talk about Arithmetic — Article • Habrahabr • February 2, 2017

“Chaos in the .NET-world is a Reasonable Price for the Speed of Platform development”: An Interview with Andrey Akinshin (JetBrains) — Interview • Habrahabr • December 7, 2016

Episode 121 — JVM Vs CLR: Alien is Not Against Predator! — Podcast • Razbor Poletov • November 30, 2016

“We Are Trying to Ensure that the User Experience Does Not Differ in Different Operating systems” - Interview with the Rider Developers from JetBrains — Interview • Habrahabr • May 26, 2016

.NET development: Nine Questions for Adults — Interview • Habrahabr • May 13, 2016

Passport, We Know you! — Interview • National bank journal • January 13, 2015

Miscellaneous

ACM International Collegiate Programming Contest 2009 — Silver medalist · 2009

ACM International Collegiate Programming Contest 2008 — Certified participant · 2008

Russian Olympiad in Informatics 2006 — Gold medalist · 2006

Microsoft MVP — Microsoft Most Valuable Professional · 2015–2019

DotNext Program Committee Member — Program committee member of DotNext conference · 2015–2022

Coach of competitive programming and mathematics teams — Barnaul Gymnasium №42 · 09/2006–05/2012

Grant RFBR 18-01-00057 A — Ring structures in gene network models · 01/2018–12/2020

Grant RFBR 15-01-00745 A — Dynamic characteristics of gene networks models · 01/2015–12/2017

Grant RFBR 12-01-00074 — Direct and inverse problems of gene networks mathematical modeling · 01/2012–12/2014