Artem Pelenitsyn

Curriculum Vitæ

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Occupation

2018–present **PhD student**, *Northeastern U.*, Boston, USA, Advisor: **Jan Vitek** (j.vitek@neu.edu)

Summer 2019 **Intern**, *Tweag I/O, France (remotely; final report)*

Fall 2017 **Researcher**, *Programming Research Lab, Czech Technical University*, Prague, Czechia

Spring 2017 **Visiting Research Assistant**, *Programming Research Lab, Northeastern U.*, Boston, USA

2010–2017 **Assistant Professor**, *Southern Federal University* , Rostov-na-Donu, Russia

2012–2013 **Software Engineer**, *Angstrem-SFEDU Labs (part-time)* , Rostov-na-Donu, Russia

Education

2003–2007 **B.Sc. in Applied Mathematics and Computer Science**, *Southern Federal University*, Rostov-na-Donu, Russia, link to the transcript
Major: Foundations and Software Engineering for Computer Science

2007–2009 **M.Sc. in Applied Mathematics and Computer Science**, *Southern Federal University*, Rostov-na-Donu, Russia, link to the transcript
Major: Foundations and Software Engineering for Computer Science

Master thesis

title *BMS-algorithm and its application to decoding*

supervisor Prof. V.M. Deundyak

Research interests

Functional Programming, Mathematics of Programming, Type Systems, Programming languages

List Of Publications

Peer-reviewed International

- Type Stability in Julia: Avoiding Performance Pathologies in JIT Compilation (with J. Belyakova, B. Chung, R. Tate, J. Vitek) // In: Proc. ACM Program. Lang., Vol. 5, Issue OOPSLA, 2021. DOI: 10.1145/3485527 [PDF]
- Julia Subtyping: a Rational Reconstruction (with F. Zappa Nardelli, J. Belyakova, B. Chung, J. Bezanson, J. Vitek) // In: Proc. ACM Program. Lang., Vol. 2, Issue OOPSLA, 2018. DOI: 10.1145/3276483 [PDF]
- Functional Parser of Markdown Language Based on Monad Combining and Monoidal Source Stream Representation (with G.Lukyanov) // In: Itsykson V., Scedrov A., Zakharov V. (eds) Tools and Methods of Program Analysis. TMPA 2017. CCIS, vol 779, pp. 90–101. Springer, Cham. DOI: 10.1007/978-3-319-71734-0_8 [PDF]
- Associated Types and Constraint Propagation for Generic Programming in Scala // "Programming and Computer Software" (english trans. of "Programmirovanie"), 2015, No 4, pp. 224–230. DOI: 10.1134/S0361768815040064 [PDF].

Drafts

- Fuzzy-Testing A Subtyping Relation // 2018 [PDF]
- Handling Recursion in Generic Programming Using Closed Type Families (with A. Bolotina) // 2018 [PDF]

Russian

- Buliding parsers with algebraic effects // Proceedings of the First Russian Conference on Programming Languages and Compilers (PLC'17), 2017, pp. 185–190. With G. Lukyanov.
- Pelenitsyn A. Generic and meta- programming approach to design of software implementation of decoder for a class of algebraic geometry codes // "Prikladnaya informatika" (Applied computer science), 2012, No 2(38), pp. 60–70. [PDF], link to the draft in English.
- Pelenitsyn A. On exploiting one metaprogramming technique. Journal of the Ivanovo Mathematical Society, 2011, No. 1(8), pp.79–84. [PDF].
- Deundyak V., Pelenitsyn A. Operator-theoretic approach to Berlekamp–Massey Algorithm, // Izvestia vuzov (Universities' Bulletin), Sev.-Kav. Region (Caucasus Region), Estestvennie Nauki (Sciences), 2011, No. 3. Pp. 11–13. [PDF].
- Mayevskiy A., Pelenitsyn A. Software Implementation of Algebraic-Geometry Codec using Sakata algorithm, // Izvestia Yufu (Southern Federal University Bulletin), Technology Sciences, 2008, No. 8, pp. 196–198. [PDF].

In Conference Transactions (Russian)

- Pelenitsyn A. On Implementation of n-Dimensional BMS-algorithm Using Generic Programming // Transactions of Scientific School of I.B. Simonenko, 2010, pp. 197–203. [PDF] (in Russian).
- Mayevskiy A., Pelenitsyn A. Methodic Supply and IT-infrastructure for Teaching Low-Level Programming // Transactions of Scientific-Methodic Conference "Modern Information Technologies in Education", 2010, pp. 210–212. [PDF] (in Russian).
- Mayevskiy A., Pelenitsyn A. On Software Implementation of Algebraic-Geometry Codec using Sakata algorithm, // Transactions of X International Conference on Information Security and Safety, 2008, pp. 55–57.
- Pelenitsyn A. On Implementation of Decoder for a Class of Algebraic-Geometry Codes on Projectve Curves using Sakata algorithm, // Transactions of the Conference "Week of Science" in Southern Federal University, 2008, vol. 1, pp. 55–57. [PDF] (in Russian).
- Bragilevsky V., Mihalkovich S., Pelenitsyn A. Building Web-portal for Information and Education purposes on Computing Department // Transactions of Scientific-Methodic Conference "Modern Information Technologies in Education", 2008, pp. 48–49. [PDF] (in Russian).

Conference Talks: Research

International

2021 **ACM SIGPLAN conference on Systems, Programming, Languages, and Applications: Software for Humanity, 2021**, *OOPSLA Research Papers Track Talk "Type Stability in Julia: Avoiding Performance Pathologies in JIT Compilation"*, Chicago, USA, 2021

Link to the confrence page (inlcudes video)

2018 **ACM SIGPLAN Symposium on Scala, 2018**, *Student Talk "Julia Subtyping Lessons Scala Could Learn"*, St. Louis, USA, 2018 (co-located with ICFP)

2018 **2nd Workshop on Machine Learning Techniques for Programming Languages**, *Talk "Can We Learn Some PL Theory? How To Make Use of a Corpus of Subtype Checks"*, Amsterdam, The Netherlands, 2018 (co-located with ECOOP/ISSTA)

Russian

2015 **Scientific Conference "Modern Information Technologies and IT-Education"**, *talk "C++17 Concepts in their relation to C++0x ones"*, Lomonosov Moscov State University, Faculty of Computational Mathematics and Cybernetics

2012 **Research and Pratice Conference: Free Open Source Software "FOSS Lviv 2012"**, *talk "Software Implementation of Decoder For a Class Of Error-Correcting Codes on Algebraic Curves: Designing on a Basis of Generic Metaprogramming Templates"*, Ivan Franko National University of Lviv, Lviv, Ukraine

2008 **Conference "Week of Science" in Southern Federal University**, *talk "On Implementation of Decoder for a Class of Algebraic-Geometry Codes on Projectve Curves using Sakata algorithm"*, Rostov-na-Donu, Russia

Seminar Talks

2021 **Linear Haskell**, *Boston Computation Club*, Boston, USA (virtually)
Video

2017 **Introduction to Dependent Types in Idris**, *PL Seminar Jr.*, Northeastern University, USA

2016 **Functional Visitors**, *Programming Languages and Compilers seminar*, Southern Federal University, Russia

2016 **Seminar on Galois Theory**, Southern Federal University, Russia

2011 **Minicourse on Galois Theory**, *Algebra seminar*, Southern Federal University, Russia

2011 **Talks "Foundations for programming Languages", "Automata and Formal Languages"**, *seminar for undergraduates "Introduction to Theoretical Computer Science"*, Southern Federal University, Russia

2009 **Talk "Higher-Order Computations and Model Checking"**, *Interchair seminar on Computer Science*, Southern Federal University, Russia

2009 **Talk "On multi-dimensional version of Berlekamp-Massey algorithm"**, *Seminar on Mathematical Methods in Information Safety and Security*, Southern Federal University, Russia

2009 **Talk "Inductive Data Types in Programming"**, *Seminar on Category Theory*, Southern Federal University, Russia

2008 **Talk "Spring Framework"**, *Rostov Java User Group*, Computing Center of Southern Federal University, Russia

Conference Talks: Education, Technology, Popular Science

International

2014 **Joint International Program For Scientific and Technology Cooperation**, *talk "Computer Science Projects Developed inside (in connection with) Department of Mathematics, Mechanics and Computer Sciences / SFedU"*, Sao Paulo, Rio de Janeiro, Fortaleza, Brasil

Russian

2015 **Scientific Conference "Modern Information Technologies in Education"**, *talk "Store and publication assignment infrastructure for Moodle LMS"*, Institute for Mathematics, Mechanics and Computer Science in honour of I. I. Vorovich, Rostov-na-Donu, Russia

2010 **Scientific-Methodic Conference "Modern Information Technologies in Education"**, *talk "Methodic Supply and IT-infrastructure for Teaching Low-Level Programming"*, Computing Center of Southern Federal University, Rostov-na-Donu, Russia

2008 **International Conference on Information Security and Safety**, *talk "Building Web-portal for Information and Education purposes on Computing Department"*, Taganrog, Russia

Teaching Experience

Teaching Assistantship at Northeastern University

- CS4500: Software Development — 2020 (Spring).
- CS4410/6410: Compilers — 2019 (Fall).

Teaching at Southern Federal University (in Russian, unless marked otherwise)

- Quantum Computations (lectures in English) — 2016 (Fall).
- Computer Architecture (lectures & labs) — 2013–2016 (Spring).
- Automata and Ciphers (lectures) — 2013–2016 (Fall).

- Programming Basics labs — 2008, 2010–2012, 2014–2016.
- Programming Languages labs — 2008, 2010, 2012–2015 (Fall).
- Functional Programming labs — 2011 (Spring).
- Automata and Languages — 2010 (Spring).
- Microprogramming/Assembler Programming labs — 2009 (Fall).
- Geometry and Algebra — 2009 (Fall).

Supervising Students at Southern Federal University

- *Structuring Effectful Computations* — MSc G. Lukyanov, 2017, [PDF]
- *Generic Programming and Zippers* — A. Bolotina, 2017
- *Generation of algebraic data types descriptions based on JSON data via Template Haskell* — BSc O. Maroseev, 2016
- *Generation of type class instances based on instances of superclasses via GHC API* — BSc O. Filippskaya, 2016
- *Functional parser for Markdown using monad combination and monoidal representation of input* — BSc G. Lukianov, 2015
- *Deduction system for linear logic in Haskell* — BSc V. Pankov, 2015

Summer Schools and Workshops

2018 **Programming Languages Mentoring Workshop @ ICFP**, St. Louis, USA, September 23rd 2018

2017 **Oregon Programming Languages Summer School**, *Univeristy of Oregon*, Eugene, USA, June 26th to July 8th 2017

2015 **Summer School on Generic and Effectful Programming**, *Department of Computer Science, Univeristy of Oxford*, St Anne's College, Oxford, 6th to 10th July 2015

2011 **Summer School "Algebra and Geometry"**, *Laboratory of Algebraic Geometry in the National Research University Higher School of Economics, Teachers' Training University of Yaroslavl'*, Yaroslavl', Russia

2010 **Microsoft Algorithms and Data Structures Summer School**, *Microsoft Research in Silicon Valey*, Saint-Petersburg, Russia

2010 **Winter School on Applied Mathematics and Computer Science**, *National Research University Higher School of Economics*, Moscow province, Russia

2009 **Marktoberdorf Summer School "Logics and Languages for Reliability and Security"**, Marktoberdorf, Germany

Community Service

Academic Conference Organization

ICFP '22 Artifact Evaluation Committee

ETAPS '19 Web Co-Chair

ML4PL '18 Organizer

PLC '17 Organizer

ECOOP '18, SPLASH '18, ICFP '20, '21 Student Volunteer

Book Translations (English to Russian)

- Dowek, Gilles, Levy, Jean-Jacques. Introduction to the Theory of Programming Languages. / Springer. 2011. Russian translation together with V. Bragilevsky. Published by DMK Press in 2013. Link to web page, link to Google.Books preview.
- Bird, Richard. Pearls of Functional Algorithm Design. / Cambridge University Press. 2010. Russian translation together with V. Bragilevsky. Published by DMK Press in 2013. Link to web page, link to Google.Books preview.

Open Source Software Contributions

GHC — contributor	The Glasgow Haskell Compiler (10+ commits)
BNFC-meta — maintainer	Embedding BNF grammars into Haskell source via Template Haskell
Monads.jl — maintainer	Monadic do-notation for the Julia programming language

Pet Projects

covid-19-in-russia	Updating the Wikipedia table showing dynamics of COVID-19 in Russia by region / Julia, 2020
tiger-test	The v2 of check-test (see below) developed at NEU / Haskell, 2019
subtype-fuzzer	A fuzzer to test a tricky subtype relation as found in the Julia programming language / Haskel, 2018
chek-test	Remove groove from checking students' submissions / Haskell, 2016
cpp-mv-poly	C++-implementation of multivariate polynomials and the BMS-algrithm massively using C++ templates
mmcs-entrance	Generation of entrance diagrams (in PNG) in MMCS/SFedU from oficial data (XLS) / Java, 2010
lj-comments-notifier	Notifications about new comments in some livejournal.com-based blog / Haskell, 2011
Project Euler	Link to the participant record / Haskell (mostly), C++
Me @ GitHub	ulysses4ever

Computer skills

Programming languages	Proficient: Haskell, Julia; Experienced: C++, Java, C, Pascal; Familiar: Scala, C#
Markup, Scripting	LaTeX, HTML, CSS, JavaScript, PHP, bash, Regular expressions
Environment	Git, Make, Nix, Emacs, Wiki/Markdown
Operating systems	**GNU/Linux family**, Windows family

Awards, Scholarships, etc.

2012	**Participation in all-russian final of international student olympiad "IT-planet"**, competition: "Oracle Java Olympic"

2012 **Diploma for taking second place in regional stage of international student olympiad "IT-planet"**, competition: "Oracle Java Olympic"

2012 **Participation in the final stage of VI Open Programming Contest of Southern Federal University**, individual event

2011 **Scholarship from foundation "Education and Science on the South of Russia"**

2011 **Rector's commendation for participating in international accreditation of unversity teaching programmes**, *Southern Federal University*

2008 **Diploma for the best talk**, *student session during annual "Week of Science", Southern Federal University*

Personal Info

Gender	Male
Pronouns	He/His/him
Marital status	Married to Julia Belyakova
Current place of living	Boston, USA
Citizenship, Homeland	Russia
Name spelling	To reflect the reality, my first name transliteration should be, in fact, something like Artyom. Also, there is no 'ch' sound after the 'r' sound — just 't'.
Languages	Russian: Native; English: Advanced (IELTS exam band score 7.5 taken in 2012)

Non-technical Interests

Classical literature	Homer, Goethe, Joyce, Kafka, Camus, Sartr, Brodsky
Art cinema	Bergman, Fellini, Truffaut, Tarkovsky, Wenders, Kitano, von Trier