Daniil Berezun
(full name: Berezun Daniil Andrejevitsj)

Diemen, The Netherlands
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daniil.berezun@jetbrains.com

EDUCATION

Specialist (master's degree equivalent) in Mathematics and Computer Science,
Saint Petersburg State University, Faculty of Mathematics & Mechanics, Department of Computer Science, Saint Petersburg, Russia, received in July 2014

PhD in Mathematics and Computer Scince,
(formal translation from russian: PhD in Physico-Mathematical Sciences)
Saint Petersburg State University, Faculty of Mathematics & Mechanics, Department of Software Engineering, Saint Petersburg, Russia, received in March 2018

GRADUATION THESIS

Traversal-Based Normalization (PhD Thesis, in Russian),
Saint Petersburg State University, Mathematics & Mechanics Faculty, Saint Petersburg, 2018

Basic Primitives Implementation in Non-Conservative Garbage Collection Library for C++ (Master Thesis, in Russian),
Saint Petersburg State University, Mathematics & Mechanics Faculty, Saint Petersburg, 2014

COMPUTER SKILLS

Language experience: C/C++, Haskell, Coq, OCaml, x86 Assembly (GASM), Pascal, Java, Scala, Agda, F#, Refal, Logic programming (Prolog, mini-Kanren), and related tools

WORK EXPERIENCE

Industry

Senior Researcher	July 2022 — **Present**
JetBrains N.V., Amsterdam, The Netherlands	
Programmer	June 2014 — June 2022
IntelliJ Labs Co Ltd, Saint Petesburg, Russia	
Trainee	August 2013
IntelliJ Labs Co Ltd, Saint Petesburg, Russia	

Universities and Educational activities

Docent (Associate Professor)   Nov 2021 — June 2022
SPbU, Department of Mechanics and Mathematics, Saint Petersburg, Russia
Courses:
- Discrete mathematics (practises)

Senior Lecturer   Sep 2020 — Aug 2021
SPbU, Department of Mathematics and Computer Science, Saint Petersburg, Russia
Courses:
- Introduction into Linux
- OOP Basics
- Introduction into Compilers
- Basics of Programming Languages
- Computer Architecture
- Operating Systems: an Introduction
- Mathematical Logic for Programmers

Lecturer   Feb 2019 — May 2019
Computer Science Center, course on Programming Languages and Compilers, `https://compscicenter.ru/courses/compilers/2019-spring/`
Saint Petersburg, Russia

Lecturer   Feb 2019 — May 2019
Computer Science Center, course on Programming Languages and Compilers, `https://compscicenter.ru/courses/compilers/2019-spring/`
Saint Petersburg, Russia

Invited Lecturer   Sep 2019 — June 2022
The Higher School of Economics (University), Department of Computer Science, Saint Petersburg, Russia;
courses (lectures and practice): Meta-computations, Compilers

Docent (Associate Professor)   Sep 2018 — 2019
The Higher School of Economics (University), Department of Computer Science, Saint Petersburg, Russia;
courses (lectures and practice): Meta-computations, Compilers

Teacher Assistant   Feb 2018 — May 2018
Computer Science Center, course on Programming Languages and Compilers, `https://compscicenter.ru/courses/compilers/2018-spring/`
Saint Petersburg, Russia

Lecturer   Sep 2015 — Sep 2018
St. Petersburg Academic University, Department of Mathematical and Information Technologies, Saint Petersburg, Russia;
courses (lectures and practice): Meta-computations, Compilers

Lecturer
Feb 2015 — July 2015, Feb 2016 — July 2016, Feb 2017 — July 2017

Course "Constructing Language Processors: Technology and Tools", Department of Computer Technologies, Institute for Fine Mechanics and Optics, Saint Petersburg, Russia

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PUBLICATIONS *Dmitrii Kosarev, Daniil Berezun, Petr Lozov. Wildcard Logic Variables*
miniKanren 2022. 2022

Ekaterina Verbitskaia, Daniil Berezun, Dmitry Boulytchev. On a Direction-Driven Functional Conversion
miniKanren 2022. 2022

Nikita Mishin, Daniil Berezun, Alexander Tiskin. Efficient Parallel Algorithms for String Comparison.
ICPP '21. 2021

I.Balashov, S.Grigorev, D.Berezun. Empirical Study of Partial Evaluation of Matrix and String Algorithms.
SYRCoSE'21, May '21

I.Tyulyandin, D.Berezun, S.Grigorev. Viterbi Algorithm Specialization Using Linear Algebra.
SEIM'21, Apr '12

Ekaterina Verbitskaia, Daniil Berezun, Dmitry Boulytchev. An Empirical Study of Partial Deduction for MiniKanren
VPT-21. 2021

Daniil Berezun, Dmitry Boulytchev. Reimplementing the Wheel: Teaching Compilers with a Small Self-Contained One.
TFPIE-2021. 2021

Ekaterina Verbitskaia, Daniil Berezun, Dmitry Boulytchev. An Empirical Study of Partial Deduction for MiniKanren
miniKanren 2020. 2020

E. Verbitskaia, I. Artemeva, D.Berezun. Binding-Time Analysis for miniKanren.
TEASE-LP'20, May '20.

Aleksey Tyurin, Daniil Berezun, Semyon Grigorev. Optimizing GPU programs by partial evaluation.
PPoPP '20: Proceedings of the 25th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming. 2020

A. Tyurin, I. Tyulyandin, V. Maltsev, I. Kirilenko, and D. Berezun. A Survey of Smart Contract Safety and Programming Languages.
Preliminary Proceedings of the 13 rd Spring/Summer Young Researchers' Colloquium on Software Engineering (SYRCoSE 2019), May 29-31, 2019 – Saratov, Russian Federation.

N. Mishin, A. Fefelov, V. Bushev, I. Kirilenko, and D. Berezun. Survey on Blockchain Technology, Consensus Algorithms, and Alternative Distributed Technologies.

SEIM-19. 2019

Daniil Berezun and Neil D. Jones. Compiling Untyped Lambda Calculus to Lower-Level Code by Game Semantics and Partial Evaluation (invited paper).
In Proceedings of the 2017 ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation (PEPM 2017). ACM, New York, NY, USA, 1-11. DOI: https://doi.org/10.1145/3018882.3020004

D. Berezun. Traversal-Based Normalization of Untyped Lambda Calculus (in Russian).
Journal "Известия высших учебных заведений. Северо-Кавказский регион. Технические науки", n. 4 (196), 2017

D. Berezun, Complete Head Linear Reduction (in Russian).
Journal "St. Petersburg State Polytechnical University Journal. Computer Science. Telecommunication and Control Systems", vol. 10, n. 3, pp. 59–82, 2017

D. Berezun, N.D. Jones. Working Notes: Compiling ULC to Lower-level Code by Game Semantics and Partial Evaluation.
Fifth International Valentin Turchin Workshop on Metacomputation, 2016

E. Moiseenko, D. Berezun. Incremental Garbage Collection Library for C++ (in Russian). In Proceedings of the SEIM-16, pp. 11–14, 2016, ISBN 978-5-9904408-4-5

D. Berezun. Basic Primitives Implementation in Non-Conservative Garbage Collection Library for C++ (in Russian).
Programming Languages and Tools Laboratory Annual Notices, Issue 2, Saint Petersburg, 2014

D. Berezun, D. Boulytchev. Precise Garbage Collection for C++ with a Non-Cooperative Compiler.
CEE-SECR '14, 2014, ISBN 978-1-4503-2889-0

OTHER ACTIVITIES

Talks
- "Partial Evaluation and Normalisation by Traversals", Games for Logic and Programming Languages XI (GaLoP 2016), 20-3 April 2016, Eindhoven, Netherlands
- "Lambda Calculus and Traversal-Based Normalization", PLC 2017, 3–5 April 2017, Postov-on-Don, Russia
- "Compiling, Untyped Lambda Calculus to Lower-Level Code by Game Semantics and Partial Evaluation" Games for Logic and Programming Languages XII (GaLoP 2017), 22–23 April 2017, Uppsala, Sweden
- "Traversal-Based Normalization", Seminar in Keldysh Institute of Applied Mathematics of Russian Academy of Science, 25 October 2017, Moscow, Russia
- "Traversal-Based Normalization", Seminar in The Program Systems Institute of Russian Academy of Science, 26 October 2017, Pereslavl-Zalessky, Russia

- "Lambda Calculus and Normalization", Seminar "Mathematical Questions in Compiuter Science", 27 October 2017, Lomonosov Moskow State University, Department of Mechanics and Mathematics, Moscow, Russia

Working Visits
- Visiting prof. Neil D. Jones, Department of Computer Science of DIKU, Copenhagen, Denmark
    - October–November 2015
    - November 2017
- Visiting prof. Luke C.-H. Ong, Department of Computer Science, Oxford University, Oxford, UK
    - February 2016
    - April 2016
    - March 2017

Participation in Schools and Other Professional Activities
- "RoboCup for Lego NXT", Summer School, Summer 2011
- Academic Project "QReal:Robots", 09.2011 - 06.2012
- Summer School on "Memory Management" by Oleg Pliss, Aug 2013, `https://research.jetbrains.org/groups/plt_lab/schools?id=2`
- Winter School on "Metacalculations" by Ilya Klyuchnikov, Feb 2014, `https://research.jetbrains.org/groups/plt_lab/schools?id=3`
- Summer School on "Programs and Proofs: Mechanizing Mathematics with Dependent Types" by Ilya Sergey, Aug 2014, `https://research.jetbrains.org/groups/plt_lab/schools?id=4`
- Winter School on "Abstract Interpretation" by Jan Midtgaard, Feb 2015, `https://research.jetbrains.org/groups/plt_lab/schools?id=5`
- Oregon Programming Languages Summer School (OPLSS), 2015, `https://www.cs.uoregon.edu/research/summerschool/summer15/curriculum.html`
- Summer School on "Relational Programming" by William Byrd, August 2015, `https://research.jetbrains.org/groups/plt_lab/schools?id=6`
- Midlands Graduate School in the Foundations of Computing Science (MGS 2016), University of Birmingham, UK, 11–15 April, 2016, `http://www.cs.bham.ac.uk/~pbl/mgs2016/`
- Summer School on "Game Semantics" by Dan Ghica August 2016, `https://research.jetbrains.org/groups/plt_lab/schools?id=10`
- Winter School on "Denotational Semantics" by Achim Jung, Feb 2017, `https://research.jetbrains.org/groups/plt_lab/schools?id=11`
- Summer School on "Weak Memory Consistency" by Viktor Vafeiadis and Ori Lahav August 2017, `https://research.jetbrains.org/groups/plt_lab/schools?id=13`

- Summer School on "Category Theory" by prof. John Power, August 2018, `https://research.jetbrains.org/groups/plt_lab/schools?id=17`
- Estonian Winter Schools in Computer Science (EWSCS), March 2019, `http://cs.ioc.ee/ewscs/2019/`
- PC Member, SEIM'18, Saint Petersburg, Russia, `https://seim-conf.org/archive/2018/`
- PC Member, SEIM'19, Saint Petersburg, Russia, `https://seim-conf.org/en/about/organizers/`
- PC Member, SEIM'20, Saint Petersburg, Russia
- PC Member, SEIM'21, Saint Petersburg, Russia
- Co-chair, SEIM'22, Saint Petersburg, Russia, `https://seim-conf.org/en/about/`
- Co-chair, miniKanren Workshop (co-located with ICFP), Ljublana, Slovenia

Other
- Musical Education, 2 music schools (piano, classic guitar)
- Sport Education, fencing, 6 years