

Georgy Dunaev

Curriculum Vitae

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in georgy-dunaev



Personal information

born on: 1993
marital status: unmarried
citizenship: russian
country of origin: Russia
country of residence: Germany

Languages

German: B2 (2024 B1 Zessko certificate)
English: C2 (2020 C1 IELTS certificate)
Russian: mothertongue

Contact information

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Higher education

2026 mathematics
(2 years) (master)
University of Potsdam,
Potsdam,
Faculty of Nature Sciences,
Institute of Mathematics

- 2019 computer science
(2 years) (master)
M. V. Lomonosov Moscow State University,
Moscow,
Faculty of Mechanics and Mathematics,
Department of Mathematical Logic and Theory of Algorithms
- 2016 applied mathematics
(4 years) (bachelor)
Bauman State Technical University
(National Research University),
Moscow,
Faculty of Fundamental Science,
Applied Mathematics

Work experience

- September 2024 – Teaching assistant, University of Potsdam, Potsdam
– April 2025
(6 months)
- January 2020 – Programmer/Developer, Bi.Zone, Moscow
– July 2020 (Continued the previous activity.)
(7 months)
- June 2019 – Programmer/Developer, Bi.Zone, Moscow
- December 2019 (Developed (in OCaml) the backend of the distributed system that uses
(7 months) various Linux-related virtualization technologies. Wrote asynchronous
code in OCaml, test cases for code in C++ and Python, test scenarios
for CI/CD for the testing stand.)
- April 2017 – Developer/Researcher, StartUp,
– April 2019 (Developed and formally verified smart-contracts using code generation
(2 years) methods, participated in blockchain and backend development.)
- July 2016 – Junior Engineer, LG Electronics, Moscow, www.lge.com
– December 2016 (Continued developing applications in the R&D department)
(6 months)
- December 2015 – Junior Engineer, LG Electronics, Moscow, www.lge.com
– March 2016 (Developed applications in the R&D department. Programmed micro-
(4 months) controllers STM32 for devices' prototypes. Participated in development
of the devices. Collected and processed graphical data of fingerprints,
eyes, and поверхностей различных материалов. Developed 3D scenes
for demos and adjusted visualization for Oculus Rift headset.)
- March 2015 – junior programmer, Geliosoft, Moscow
– April 2015 (Maintained a software product with a large amount of legacy code.)
(2 months)

Skills

Primary skills

- Proving theorems;
- Formal verification of theorems;
- Formal verification of program code and algorithms;
- Use of Git, $\text{\TeX}$ / $\text{\LaTeX}$, Linux;
- Use of the proof assistants: Isabelle, HOL(HOL4, HOL Light), Rocq, Hoq, Metamath, Lean;
- Programming in StandardML(PolyML, CakeML);
- Programming in OCaml.

Secondary skills

- Linux, Bash, Makefiles, ...;
- Docker;
- C++ (GDB, STL, OpenGL, MPI, OpenMP, WinApi, CUDA);
- Python (pytest, PEP8, ...);
- JavaScript, TypeScript, NodeJS(basics);
- MATLAB, Wolfram Mathematica, Maple;
- VS Code;
- Redmine, Jira, Confluence.

Mathematical achievements

1. <https://ObeliskProofAssistant.github.io/>
Developed a LCF-type proof assistant for Morse–Kelley class theory as a personal project.
2. Verified formally as a personal project the classical foundations of mathematics in two aspects:
 - a) as statements about soundness and completeness of classical predicate logic.
 - b) as verifying axioms of ZFC in one of the existing model of class of sets within standard non-constructive extension of Calculus of Inductive Constructions, using The Rocq Proof Assistant.
3. Proved, encoded and formally verified using software numerous statements about predicate logic, classes, sets, calculi, type-theories, uncertainty, etc.
4. Understood certain theorems of within the context of Gödel incompleteness theorem, i.e. Diagonal Lemma, Löb's theorem, etc.
5. Verified some theorems about contextual categories with use of some library for category theory, in order to partially verify a categorical semantics of Homotopy Type Theory.
6. Published the mechanizations of some set-theoretic theorems: for example, <https://www.isa-afp.org/entries/Recursion-Addition.html>.