KIRILL ZIBOROV

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EDUCATION

Lomonosov Moscow State University
Combined Bachelor's & Master's Degree in Fundamental Mathematics   Sep 2017 – June 2023

- Thesis: Deductive Verification of Voting Smart Contract Properties

PROFESSIONAL EXPIRIENCE

Positive Technologies, Web3 Security Department
Senior Security Engineer   Jan 2024 – Present

Conducted 20+ security audits of smart contracts and blockchain applications across Ethereum, TON, HyperLedger Fabric, and Stellar platforms. Provided technical leadership and contributed to the development of smart contract verification tools for the TON blockchain. Performed formal verification of two consensus protocols. Designed and implemented challenges for Web3 CTF competitions.

Ivannikov Institute for System Programming of the RAS
Senior Researcher   Jan 2022 – Dec 2023

Contributed to the development of a framework for verifying C programs in Isabelle/HOL. Modeled C language data structures and formally verified OS components. Created and delivered a lecture course on Isabelle/HOL.

Leon Group LLC
Blockchain Engineer   May 2022 – July 2023

Developed and formally verified real-world asset (RWA) smart contracts. Contributed to the development of blockchain node infrastructure.

Innopolis University
Blockchain Engineer   July 2020 – Apr 2022

Developed and formally verified RWA smart contracts. Owned the framework for deductive verification of smart contracts using the HOL4 proof assistant. Formally verified the HotStuff consensus algorithm using the TLC model checker.

PUBLICATIONS & REPORTS

From Paradigm Shift to Audit Rift: Exploring Vulnerabilities and Audit Tips for TON Smart Contracts

Blockchain: Research and Applications (Preprint submitted, 2025)

Yury Yanovich, Sergey Sobolev, Yash Madhw, Kirill Ziborov, Vladimir Gorgadze, Victoria Kovalevskaya, Elizaveta Smirnova, Matvey Mishuris, Subodh Sharma

VeHa-2024 Formal Verification Contest: Two Years of Experience and Prospects (in Russian)

Proceedings of the Institute for System Programming of RAS, 2025

Dmitry Kondratyev, Sergey Staroletov, Irina Shoshmina, Kirill Ziborov, Anastasia Krasnenkova, Nikolay Shilov, Natalia Garanina, Timofey Cherganov

Research and Application of Formal Verification Approaches for Ethereum Smart Contracts

PSSV 2024: Program Semantics and Software Verification

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Formal Verification of Smart Contracts in the ConCert Framework

https://blog.positive.com/formal-verification-of-smart-contracts-in-the-concert-framework-e04ce79ddc09

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Verification of HotStuff BFT Consensus Protocol With TLA+/TLC in an Industrial Setting

CSOC 2021. Informatics and Cybernetics in Intelligent Systems.

Vladimir Kukharenko, Kirill Ziborov, Rafael Sadykov, Ruslan Rezin

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TEACHING EXPERIENCE

Lomonosov Moscow State University | Lecturer   Aug 2022

"Machine Learning and Software Verification" student school

Sirius University | Teaching Assistant   Nov 2021

Formal Methods of Software design and verification

Teaching assistant duties included leading a discussion section and grading student work.

SKILLS

Programming languages: Solidity, Go, C++, StandardML, CakeML

Tools: Coq, Isabelle, HOL4, TLA+, Certora Prover, Foundry, Git, Docker

Technologies: Formal Verification, Blockchain, Smart Contracts, Consensus Algorithms, Static Analysis, Programming Language Theory

Languages: English (Fluent), Russian (Native)