

# Nikos C. Baxevanis

## *Resume*

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**Summary.** Expert in property-based testing, fuzzing, and automated bug discovery, with a focus on input shrinking, reproducible failure discovery, and execution instrumentation. At the Stacks Foundation, I built tools that uncovered consensus bugs and DoS risks before network upgrades. I maintain Hedgehog (the engine behind Echidna, Ethereum's first smart-contract fuzzer). Looking for roles where I can advance software correctness tooling, mentor engineers, and push the boundaries of automated bug detection—shaped by mission-critical Web2 infrastructure experience and cutting-edge blockchain protocol testing.

### **Key Accomplishments**

- Core contributor to Hedgehog (2016—present), a property-based testing framework for Haskell, F#, Scala, and R. Powered Echidna, the first smart-contract fuzzer for Ethereum developed by Trail of Bits. Helped shape the framework from early days and continue as active maintainer.
- Developed fuzzers and model-based testing tools for Rust and Clarity at Stacks Foundation, including rendezvous and madhouse-rs. These tools flagged consensus issues, denial-of-service vectors, and block production edge cases during the lead-up to a major network upgrade.
- Core contributor to AutoFixture (2011—2016), a leading .NET testing library (3.5k+ stars). Helped shape AutoFixture 3 and contributed major sub-tools like Fare for regex-constrained test data generation. Project later submitted to the .NET Foundation.
- Ported SplitMix (2017—2020), a fast splittable PRNG based on work by Steele, Lea, and Flood. Passes all dieharder tests and used in Hedgehog for replay and shrinking—critical components for reproducible failure discovery.

### **Professional Experience**

**Stacks Foundation.** Remote. *2022—present. Resident.* Developed formal fuzzing and automated testing infrastructure for blockchain smart contracts and consensus protocols. Focus: building tools for catching edge cases, differential testing, and creating testing frameworks that help protocol developers prevent bugs before deployment. Joined via the Critical Bounties program.

**Testing Infrastructure Consultant.** Remote. *2019—present. Freelance.* Design and implement comprehensive testing strategies for DeFi protocols, focusing on correctness and automated bug detection. Reviewed independent analysis on Uniswap v3 liquidity strategies, focusing on impermanent loss and fee optimization (first two parts of the series). Specialized in fuzzing and property-based testing implementations.

**KBMax.** Remote. *2014—2021. Principal Software Engineer.* Core developer for the first cloud-native CPQ with interactive 3D visualization on Azure—leveraging distributed systems expertise that now informs blockchain protocol testing. Played key role in architectural decisions and scalability solutions. Implemented comprehensive testing strategies that prevented production issues. Developed solutions ranging from Azure Storage Queue-based

distributed systems to Salesforce integration packages. Managed Azure infrastructure operations including massive database updates across thousands of databases spanning US/EU regions. Navigated full acquisition process including due diligence, technical assessments, and integration planning. Company acquired 2021.

**BetKernel.** Athens, Greece. 2009—2012. *CTO*. Built and led a team for an automated betting analytics platform leveraging live data and expert signals. Implemented robust testing infrastructure to ensure system reliability under high-frequency trading conditions. Led product development through to acquisition in 2012.

**Topologic.** Athens, Greece. 2005—2009. *Lead Software Engineer*. Shipped full-stack airport management and incident tracking software deployed at Athens Intl. Airport, using .NET & geospatial APIs. Established testing practices for mission-critical systems.

## Summary of Qualifications

- Deep expertise in property-based, model-based, fuzzing, and mutation testing.
- Proven track record of catching subtle bugs before systems go live.
- Contributed to testing libraries in Haskell, F#, .NET, Rust, and TypeScript.
- 20 years of software engineering; open source testing tool contributor since 2011.
- Extensive experience building testing infrastructure for critical systems.
- Navigated complete acquisition process including due diligence and technical assessments.
- Advocates correctness-by-design, comprehensive testing practices, and mentoring.

**Open Source & Writing.** Curated technical posts, open-source work, and selected endorsements available at [nikosbaxevanis.com](https://nikosbaxevanis.com).

## Education

**Technological Educational Institute of Athens.** 2002—2006. B.Sc. in Biomedical Engineering.

**Logistics.** Permanent resident in the Czech Republic. Greek citizen. Fluent in English and Greek.

*Last updated 22 July 2025.*