

Ivan RISTOVIĆ

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Senior Software Developer | Researcher | Teaching Assistant

Passionate developer and researcher, open-source and free-software enthusiast. Interested in compilers, programming language implementations, software verification and programming paradigms (especially functional programming). Experienced in enterprise software development, primarily in Java and .NET ecosystems. Working as a Senior Researcher at Oracle Labs, on GraalVM core development and research. Working part-time as a Teaching Assistant at the Faculty of Mathematics in Belgrade.

WORK EXPERIENCE

Today April 2023	Senior Researcher, ORACLE LABS, Belgrade - Work on GraalVM - an advanced JDK with ahead-of-time compilation - Research on direct heap-object snapshotting, sharing, and transfer across VM instances - Employing JS engine snapshots to speedup JS queries in Oracle DB multilingual engine - Serverless density improvements through GC hinting and profiling - Core GraalVM development - Java Platform Module System (JPMS) support JVM Compilers GraalVM Snapshotting FaaS Serverless JPMS
Today October 2020	Teaching Assistant, DEPT. OF COMPUTER SCIENCE, FACULTY OF MATHEMATICS, Belgrade - Member of the Programming Languages And TOols (PLATO) group - Contributed to several faculty projects funded by the Ministry of Education Programming Paradigms Network Programming Functional Programming Software Verification Software Development II
April 2023 June 2021	Researcher, ORACLE LABS COLLABORATION WITH THE FACULTY OF MATHEMATICS, Belgrade - Work on GraalVM - an advanced JDK with ahead-of-time compilation - Greatly improved start-up times of Espresso, a JVM implementation on top of Truffle - Designed and implemented support for Java Platform Module System (JPMS) in GraalVM - Improved GraalVM JCK compatibility JVM HotSpot Java on Truffle Compilers GraalVM JCK
October 2020 October 2018	Junior Teaching Assistant, DEPT. OF COMPUTER SCIENCE, FACULTY OF MATHEMATICS, Belgrade - Low-footprint kiosk VM for student exams with emphasis on fault tolerance - Automated modular grading system for student exams - Automated organization of student projects on GitHub - Hands-on exam grading automation scripts Object-Oriented Programming Programming Paradigms Network Programming

EDUCATION

Today October 2020	PhD in Computer Science, FACULTY OF MATHEMATICS, Belgrade - PhD Thesis: <i>TBA</i> - Mentor: <i>Milena Vujošević Janičić</i> GPA: 10.00/10.00
June 2020 October 2017	MSc in Computer Science, FACULTY OF MATHEMATICS, Belgrade - MSc Thesis: <i>Language-invariant comparison of structurally-similar imperative code segments</i> - Mentor: <i>Milena Vujošević Janičić</i> GPA: 9.81/10.00
June 2017 October 2014	BSc in Computer Science, FACULTY OF MATHEMATICS, Belgrade Informatics group GPA: 9.17/10.00
2014 2010	High School, MATHEMATICS GROUP, UŽICE GYMNASIUM, Užice Final thesis: <i>Destructive Programs</i>, adv. <i>Dejan Cvijetić</i> GPA: 5.00/5.00

AWARDS, CERTIFICATES & SCHOLARSHIPS

2021	Annual Honorary Mention of the Mathematical Institute of the Serbian Academy of Sciences and Arts in the field of computing for MSc students
2012-2018	Scholarship of the Ministry of Education, Science and Technological Development
2014	“Vuk Karadžić” award for distinguished performance, Užice Gymnasium, Užice
2011	Scholarship of the City of Užice
2010	“Vuk Karadžić” award for distinguished performance, Prva osnovna škola kralja Petra II, Užice
2010	“Student of the Generation” awards, Prva osnovna škola kralja Petra II, Užice
	For subjects: Mathematics, Physics, Chemistry and English language
2008-2010	1st places in regional primary school Mathematics and English competitions
	2nd places in regional primary school Physics and Chemistry competitions

SKILLS

Programming languages	Java, C# (.NET), Python, Bash, C, C++ & Qt, LaTeX, Haskell, Scala, Prolog, Powershell
Databases	PostgreSQL, SQLite, MySQL, Microsoft SQL Server, Redis, Memcached
IDEs	Neovim, IntelliJ IDEA, Rider, VS, VS Code, Eclipse
Tools	Docker, Caddy, Nginx, Apache, Kubernetes, Ansible, AWS
Operating systems	Extensive GNU/Linux knowledge, especially for system administration

PROJECTS

SELF-HOSTED EXTENSIBLE CLOUD ARCHITECTURE  github.com/ivan-ristovic/cloud  cloud.ristovic.net Scalable and easy-to-deploy self-hosting cloud service architecture that powers my digital life. Nextcloud Self-Hosted Cloud Docker	2023
DOTFILES  github.com/ivan-ristovic/dotfiles System configuration management automation, with a configuration patching system. Dotfiles Configuration Docker	2021
LINVAST  github.com/LINVAST  NuGet Language-INVariant AST library for abstracting ANTLR parse trees of imperative languages. C# .NET Standard ANTLR AST	2020
THE GODFATHER  github.com/ivan-ristovic/the-godfather  DockerHub General-purpose Discord bot. Features include automatic administration and protection, music playback, games, RSS feeds, reactions and more. C# .NET Discord Docker	2018
MAZE-PATHFINDER  github.com/ivan-ristovic/maze-pathfinder Maze solver that scans a maze image and draws a path through the maze. Python Gtk DFS BFS Dijkstra A*	2017
SPECTRUM  github.com/ivan-ristovic/Spectrum 2D platformer/puzzle game team project. Use a variety of colors to hide objects on the level and find your way through. C++ Qt5	2017
RUBIK  github.com/ivan-ristovic/rubik Interactive 3D Rubik's cube. C OpenGL	2017

LANGUAGES

- English (fluent)
- Serbian (native)

HOBBIES

- Board games (Chess, Othello), computer games
- Motorsport (primarily rally)
- Snooker, Tennis

Patents

1. Ivan Ristović, Milena Vujosević Janićić, Peter Hofer, and Vojin Jovanović. “Object Snapshotting and Sharing Across Application Instances”. US Letter Patent ORC25139810-US-NP. 2025.

Journal Articles

1. Ivan Ristović, Milan Čugurović, Strahinja Stanojević, Marko Spasić, Vesna Marinković, and Milena Vujosević Janićić. “Machine Learning-Driven Prediction of Optimal Control Flow Graph Traversal Strategy”. In: *Serbian Journal of Electrical Engineering* 22.3 (2025). doi: **10.2298/SJEE250828003R**.

Conference Papers and Proceedings

1. Milan Čugurović, Ivan Ristović, Strahinja Stanojević, Marko Spasić, Vesna Marinković, and Milena Vujosević Janićić. “ML-Driven Prediction of Optimal CFG Traversal Algorithm in Modern JVM-Based Applications”. In: *Proceedings of the 12th International Conference on Electrical, Electronic and Computing Engineering*. June 2025. doi: **10.1109/IcETRAN66854.2025.11114103**.
2. Aleksandar Stefanović, Ivan Ristović, and Milena Vujošević Janićić. “Constant Folding of Reflective Calls via Static Analysis of Java Bytecode”. In: *Proceedings of the 14th Symposium “Mathematics and Applications”*. Dec. 2024.
3. Milica Karličić, Ivan Ristović, and Milena Vujošević Janićić. “Profiling-Based Adaptive GC Policy for Serverless”. In: *Proceedings of the 14th Symposium “Mathematics and Applications”*. Dec. 2024.
4. Marko Spasić, Ivan Ristović, Strahinja Stanojević, Milan Čugurović, Milica Karličić, and Milena Vujosević Janićić. “Evaluating GraalVM Compiler Performance using a Distributed Computing Cluster”. In: *Proceedings of the 15th Serbian Mathematical Congress*. June 2024.
5. Ivan Ristović, Milan Čugurović, Strahinja Stanojević, Marko Spasić, Vesna Marinković, and Milena Vujosević Janićić. “Efficient Control-Flow Graph Traversal”. In: *Proceedings of the 15th YUINFO Conference*. Mar. 2024.
6. Ivan Ristović, Milan Čugurović, Strahinja Stanojević, Marko Spasić, Vesna Marinković, and Milena Vujosević Janićić. “Analyzing Control Flow Graph Traversals”. In: *Proceedings of the 13th Symposium “Mathematics and Applications”*. Dec. 2023.
7. Ivan Ristović. “Pre-initialization of the Java Virtual Machine Context”. In: *Proceedings of the 13th Symposium “Mathematics and Applications”*. Dec. 2023.