

Zvonimir Jurelinac

I'm a software engineer, a husband and a father of four. I currently work at Mireo on a distributed spatiotemporal database called SpaceTime.

My interests are in *systems programming, database engines, distributed systems, network protocols, programming languages & tools* (a non-exhaustive list).

WORK

Lead Software Engineer, Mireo d.d.

Jul 2023 — Present

SpaceTime | Full-time | Zagreb, Croatia

- **Led small project teams** (2-4 people) working on the query engine and on data-science applications: did feature design and prioritization, mentoring, reviewing, coordinating.
- **Maintained the existing database engine** and led the effort to **implement a successor one**: parser, planner, physical/logical typesystem etc.
- Designed and implemented **database driver libraries** in Rust, C/C++ and Python: async, robust, zero-copy, streaming.

Senior Software Engineer, Mireo d.d.

Jul 2021 — Jul 2023

SpaceTime | Full-time | Zagreb, Croatia

- **Senior maintainer** of the database engine: implemented spatial joins, temporal & range types and functions, introduced the database catalog and users/roles/ACL model etc.
- Worked on a side project of **battery range prediction modelling**: implemented the data processing pipeline, initial model training and periodic retraining in streaming mode.
- **Mentored** other colleagues, **interviewed** job candidates, did **customer relations**.

Software Engineer, Mireo d.d.

Jul 2018 — Jul 2021

SpaceTime | Full-time | Zagreb, Croatia

- Implemented large parts of the **MSQL query engine** from scratch: *Apache Calcite*-based planner + **custom opts** and **physical placement** + LLVM IR codegen + JIT compilation
- Implemented full set of **builtin functions & relational operations**: aggregations, joins...
- Wrote full **documentation** of the query engine and it's features, covered it all with tests.
- Side project: implemented streaming of events from internal *Apache Kafka* data processing pipeline to the *EmberJS* web app through the C# backend using *WebSockets*.

Software Engineering Intern, Mireo d.d.

Sep 2017 — Jul 2018

Navigation | Part-time | Zagreb, Croatia

- Developed a CRM web app for **licencing, device management, reporting** and **software updating** (*EmberJS* + C# + MySQL stored procedures)
- Simplified saved places management in the navigation app, implemented **remote syncing** across devices via cloud storage.

EDUCATION

M.Sc. in Computer Engineering

Oct 2016 — Jul 2018

FER, University of Zagreb | GPA: 4.96/5.00

Graduated *summa cum laude*, Bronze Plaque "Josip Lončar" for academic achievements

B.Sc. in Computer Engineering

Oct 2013 — Jul 2016

FER, University of Zagreb | GPA: 5.00/5.00

"Josip Lončar" awards for academic results (years: 2014, 2015, 2016)

ACHIEVEMENTS

Central European Regional Contest (CERC)

2015

University competitive programming contest: 9th place out of 61 teams.

International Chemistry Olympiad (IChO)

2012 — 2013

Silver and bronze medals on olympiads in Washington and Moscow.

National academic competitions

2008 — 2013

Chemistry: 3× 1st, 1× 2nd place; History: 1st and 2nd places; Programming: 2nd place; Physics: 2nd award

CONTACT

address	Zagreb, Croatia
email	zvonimir@jurelinac.com
web	jurelinac.com/z
github	github.com/zjurelinac
linkedin	linkedin.com/zjurelinac

SKILLS

Programming languages

C++, Rust, Python, SQL, C, Java, HTML/CSS, JavaScript, C#, Go, Haskell

Databases and services

Postgres, SQLite, Nginx, MySQL, Kafka, Scylla, ZooKeeper, DRBD

DevOps and sysadmin tools

Linux, Git, Bash, Docker, Ansible, PyInfra, Nix, Jenkins, AWS

Soft skills

Leadership, Mentoring, Technical writing...

Languages

Croatian, English (fluent), German (basic)

PROJECTS

continuum

A distributed timeseries+geospatial database.

yamqtt

Yet another MQTT library in Rust.

INTERESTS

I like solving problems by writing code, seeking the simplest and most elegant way to do it.

I don't particularly like searching for bugs, so I try very hard to avoid making them in the first place, by repeatedly simplifying things, avoiding mutations and shared state, making things correct by construction, and by keeping code local, readable and obvious.

I like to build systems from robust foundations all the way to the top by composing well-defined and reusable components. When doing so, I hope to be less dumb next year than now, so I try to make systems easy to change, improve and extend as I learn more about the domain and the environment it lives in.

I like to make tools for myself and others to automate processes, speed up day-to-day work, make simple things easy and hard things possible.

Besides programming, I like to teach and explain things to others. I also really like to read books, write, cook, walk outdoors, and do things with my hands.