

ILIJA KOŠANIN

FULL-STACK SOFTWARE ENGINEER



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PERSONAL PROJECTS & TECHNOLOGIES

CalmWave:

- **Stack:** J (Java), S (Spring), P (PostgreSQL), H (HTMX)
- **Description:** CalmWave is a music streaming platform that allows authors to create personalized audio programs by combining different audio segments, similar to assembling songs into an album.
- **Development Philosophy:** I implemented server-side rendering (SSR) using Thymeleaf as the template engine. This approach dynamically renders small HTML components on the server and swaps them on the client side using the HTMX library. For audio playback, I utilized JavaScript with the Howler.js library. Additionally, I managed all static resources myself to ensure optimal caching strategies, thereby minimizing server load and maximizing application performance.

MrPlanet:

- **Stack:** B (Bun), E (ElysiaJS), T (Turso), H (HTMX)
- **Description:** MrPlanet is an interactive web blog application where users navigate a character through different platforms representing blog posts. Upon reaching a desired blog, users can teleport inside to read it.
- **Development Philosophy:** Utilizing Bun and ElysiaJS, I created a robust server for storing data and dynamically generating views using HTMX on the frontend. The entire game loop, including frontend physics and interactive elements, was implemented in plain JavaScript with custom logic. The application is responsive, adjusting layouts and controls based on the monitor size. Moreover, it is available as a Progressive Web App (PWA), allowing installation on mobile devices for enhanced accessibility.

COMMUNITY WORK

I am one of the founders of the Belgrade.js developers community, dedicated to organizing diverse lectures, workshops, and social gatherings for JavaScript developers. Our primary goal is to cultivate a sustainable community where developers eagerly share knowledge and engage in discussions about emerging technologies.

WORK HISTORY & EXPERIENCE

FULL-STACK developer

PlusPlusNT

mar 2022 - present

Product: NGO (New Generation Office) - simple and easy to use Document Management system build on Alfresco (open-source content management system (CMS) and enterprise document management system).

Front-End Development:

- **Technologies:** HTML, CSS, JS
- **Framework:** Angular
- **Role:** Development of flexible and versatile web components for user interfaces, with a strong emphasis on maximizing usability. Utilized NgRx within Angular to build reactive web applications. Collaborated on a team that successfully abstracted system logic into configurable entities. These entities are now universally applied across various frontend projects through npm dependencies, ensuring consistent and efficient implementation.

Back-End Development:

- **Technologies:** Java, Docker, PostgreSQL, SOLR (Apache Lucene)
- **Description:** The backend architecture centers on Alfresco, utilizing Java 11 and the Spring framework. PostgreSQL serves as the principal relational database, periodically synchronized with SOLR, which operates dual roles as both a robust search engine and a versatile NoSQL database.

Key Services and Modules:

1. Asynchronous Report Generation Module:

- **Implementation Details:**
 - **Initial Request:** The frontend sends a request to the backend to initiate report generation, receiving a task ID in response.
 - **Polling Mechanism:** The frontend periodically polls the backend, passing the task ID to check the status of the report generation task.
 - **Task Execution:** Backend uses ThreadPoolTaskExecutor to manage and execute custom tasks for each report asynchronously, ensuring efficient resource utilization.
 - **File Cleanup:** ThreadPoolTaskScheduler is employed to schedule the asynchronous deletion of generated task files after the frontend client has accessed them, maintaining system cleanliness and efficiency.

2. Government SEF Communication Service:

- Took the lead as maintainer and new feature developer for a standalone service facilitating communication with the government's SEF (Sistem elektronskih faktura). This service operates in a non-blocking, reactive manner using the Reactor Java library and state pattern design principles written in Java.

3. Digital Signature Verification and Timestamping Service:

- Led the development of a standalone service responsible for verifying the existence and validity of digital signatures on PDF documents, and for timestamping (altering the actual PDF content) using the timestamp API provided by the Serbian Postal Service. This reactive, non-blocking service utilizes PostgreSQL for data management written in Java.

Working with clients:

- Early in my career, I started in an entry-level sales position at a small startup specializing in SAAS sales (Employee development platform), where I worked for a year. This role provided me with foundational experience in client interaction and sales strategies, setting the stage for my transition into technical roles.
- In my current position, I have served as the lead developer on three distinct custom implementations for prominent clients, including RTS (Radio Television of Serbia), G4S Secure Solutions, and Mlekara Šabac. My responsibilities encompass gathering and interpreting client requirements, overseeing implementation, deployment to production, and providing ongoing support. While I did not handle all tasks individually, I was responsible for coordinating teams to achieve project objectives effectively.