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Marko Bachvarovski

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Education

University of Toronto – Toronto, Canada

Honours Bachelor of Science in Physics, Computer Science and Spanish

September 2019 – June 2024

Professional Experience

Savi Finance | Back-end Developer

September 2022 – Present | TypeScript, Python, Express.js, MongoDB, GraphQL, JSON RPC, AWS

Financial application, designed to help people achieve their financial goals quicker

- Designed and implemented **the architecture** for the **notification** and **messaging service**
- Employed a **fan-out pattern architecture** and a **dead-letter queue** for handling unsuccessful deliveries
- Created the app's **first recurring job execution pipeline** to match and retrieve vendors
- Enhanced transaction data by implementing a vendor **retrieval algorithm** based on the **Levenshtein distance** from user input, **enabling users flexibility when entering transactions**
- Integrated Google authentication for third-party APIs within the application, enhancing **ease of use** and **user security** by **reducing system vulnerabilities**

Insurance Systems Inc. | Back-end Developer

April 2022 - August 2022, May 2023 – Present | JavaScript, Jet (proprietary), PostgreSQL, AWS

Large enterprise application designed to fulfill all requirements of an insurance company

- Optimized application performance by writing an algorithm to **detect unused variables** unable to be freed by the garbage collection mechanism, resulting in a **80% performance increase**
- Handled feature implementation under strict time pressure, implementing several features spanning different parts of the software architecture, including but not limited to, document generation, policy creation and resolving existing issue, within a few weeks' timeframe
- Leveraged existing technical knowledge to master company's proprietary technologies, delivering high quality work within the first 2 weeks of employment

Personal Projects

Smart Brain

An app that uses machine learning to recognize faces in pictures

- Incorporated it with a third-party API that is able to perform facial recognition. The app sends a request to the API with the image source, and the API responds with the coordinates of the face in the picture, which the app later displays on the screen
- Implemented an authentication mechanism which hashes user data before storing it, increasing user security

Password Checker

A program built for improving my security skills

- The user is able to enter a password which gets hashed using the SHA1 algorithm. The app then makes a request to "Have I been pwned?"'s servers to retrieve all passwords on record whose hashes begin with the same 5 characters
- To preserve k-anonymity, the remainder of the hash is compared locally, ensuring that the entire password never leaves the local environment. If a match is found, the user is alerted that their password has been compromised

Personal Portfolio

My personal portfolio, built predominantly using HTML and CSS

Skills

Proficient: TypeScript, Python, Express.js, MongoDB, GraphQL, JSON RPCs, Git, Async JavaScript, Microservice architecture

Familiar: Java, C++, HTML, CSS, React.js, PostgreSQL, Bootstrap, Jest, nx, AWS APIs, Numpy, Matlab