marko.bachvarovski@gmail.com
+1(437)-986-4015
Toronto, Canada

markobachvarovski.com
github.com/markobachvarovski
linkedin.com/in/markobachvarovski

Marko Bachvarovski

Education

University of Toronto – Toronto, Canada   *September 2019 – June 2024*
Honours Bachelor of Science in Computer Science, Physics and Spanish

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
- Implemented a **platform-wide premium override feature** based on broker commission, permitting insurance companies to lower premium **without adversely impacting their profit margins**, resulting in a **100% increase in converted policies** and a **direct increase in revenue of 100%**
- 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**
- Redesigned **the minimum premium distribution system** across multiple coverages, enhancing **accuracy and reliability of distribution** in **one third** of applicable coverages

Personal Projects

NellieBot
A chatbot built to answer all your NBA queries!
- Added a retrieval-augmented generation capability that takes all games in NBA history, stores them in a SQL database and dynamically generates a query to retrieve games based on user request
- Implemented a natural language memorization ability, enabling Nellie to contextualize requests from past input, which allows the user to make queries without providing crucial information if it has been provided previously

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-anonimity, 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

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