Sophia Pietsch

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Skills

Languages C++, C, Python, Java, C#, Scala, TypeScript/JavaScript, SQL
Technologies Tensorflow, PyTorch, Hadoop, Spark, Git, Jira, Microsoft SQL Server, PostgreSQL, Linux

Education

University of Waterloo *GPA: 96.24% / Major GPA: 96.8%*
Bachelor of Computer Science *September 2018 - April 2023*

Work Experience

Bloomberg *New York*
Software Engineering Intern *August 2022 - December 2022*
- Researched and prototyped algorithms for detecting performance regressions in a distributed system computing real-time trends in financial products, allowing detection of issues before they impact clients
- Identified suitable anomaly detection algorithms by evaluating their detection rate and accuracy, ensuring that engineers can confidently halt code promotion upon detection of an issue
- Designed and implemented an application using **Python** and the **Kats** library which uses the proposed algorithm to detect performance regressions, allowing resolution of issues without interruptions of service

Waabi Innovation Inc. *Toronto*
Research Intern *May 2022 - August 2022*
- Redesigned trajectory prediction models in **PyTorch** to accurately simulate the behaviour of vehicles most important to the self-driving vehicle, improving prediction metrics for these vehicles by 10%
- Simulated behaviour of other vehicles for each potential future trajectory of the self-driving vehicle, allowing the self-driving vehicle to drive more proactively by accounting for realistic reactions of other vehicles

University of Waterloo *Remote*
Undergraduate Research Fellowship *September 2021 - December 2021*
- Created a novel distributed anomaly detection system for PDF documents by clustering encrypted confidential data, allowing multiple parties to share early warnings about potential malware
- Designed a **PyTorch** autoencoder which preserves the similarity of 94% of feature vectors, allowing encryption of PDF representations and comparison of confidential files
- Improved resiliency against adversarial attacks by training autoencoder to be robust against small changes in PDFs, decreasing the number of misclassifications caused by such modifications by 50%

University of Waterloo *Remote*
Undergraduate Research Assistantship *May 2021 - August 2021*
- Created and implemented a new algorithm that reduces inequality comparisons over homomorphically encrypted data to a linear number of equality comparisons, using the **Microsoft SEAL** library and **C++**

Side Effects Software, Inc. *Remote*
3D Software Developer *January 2021 - April 2021*
- Created prototypes for a new editing tool in the Houdini 3D modeling and special effects software using **C++**, allowing artists to create better textures for 3D objects easier by reducing the stretching of texture maps
- Enabled fine-tuning of stretching through user-defined weights, ensuring that important portions of texture maps are not distorted on the 3D object

Microsoft *Remote*
Software Developer *May 2020 - August 2020*
- Implemented formatting options and units for numbers in Microsoft Lists using **TypeScript**, **React** and **C#**, solving concerns of 5.5 million active users as identified through the analysis of telemetry data in **Interana**

IBM *Toronto*
Software Developer *May 2019 - August 2019*
- Implemented end-to-end features exposing logs of client scripts for the ICM sales compensation software using **JavaScript**, **React**, **C#** and **SQL**, allowing users to debug custom actions
- Wrote **SQL** scripts to fix corrupted client models and performed root cause analyses to prevent further corruption, ensuring clients can use the software without interruption

Interests

AI, Machine Learning, Video Games, Cosmology, Cooking, Swimming, Skiing, Dancing, Drawing, Painting, Reading