

# Sat Arora

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US & Canadian Dual Citizen – No work permit required

## EDUCATION

### University of Waterloo

GPA: **91.4%**

*Bachelor of Computer Science (Artificial Intelligence Specialization)*

*Sep. 2021 – Apr. 2026 (Expected)*

- Awarded **1 of 10** René Descartes National Scholarships (**\$20000**) from the Waterloo Faculty of Mathematics
- President of the Waterloo Computer Science Club; cofounded events, initiatives, and the CS Class Profile

## EXPERIENCE

### Ramp

Sep. – Dec. 2024

*Software Engineer Intern – Backend (Incoming)*

*New York, NY*

- Product innovation intern for a startup providing businesses with a comprehensive spend management platform

### Matroid

May – Aug. 2024

*Software Engineer Intern – Infrastructure*

*Palo Alto, CA*

- Accelerated Docker container startup time by **50%** by removing redundant pre-loaded models and optimizing computer vision code in Python, resulting in faster deployment with leaner dependencies
- **Engineered a real-time device detection system** that seamlessly synchronizes connection data to MongoDB clusters, enabling on-premise compute systems to automatically discover and utilize devices for live monitorings
- Integrated cameras as **live video sources** into Matroid, enabling **real-time inference without extra latency** compared to livestreams, ensuring instant analysis and decision-making for time-sensitive applications

### Miovision

May – Aug. 2023

*Software Engineer Intern*

*Kitchener, ON*

- Implemented **REST** endpoints to configure traffic detection devices with a new Advanced Transportation Controller (ATC) standard with **Java** and **SQL**, deploying to **3000+ intersections in USA** by Q4 2023
- Collaborated across multi-functional teams in software and device management to build a fluid UX with **Angular.js** for the new ATC controller, tested with **Cypress** for **over 90% coverage**
- Led the backend development of a new flexible export jobs feature using **C#/.NET** for the new traffic study experience **impacting all customers**, allowing users to export reports based on filters and user permissions

### Ontario Ministry of Finance

Sep. – Dec. 2022

*Database Administrator Intern*

*Toronto, ON*

- Reduced database migration time to a **SQL** server solution by automating the extraction of data from old databases, resulting in **90%** faster total extraction time and **saving over 1 month** in the migration process
- **Refactored data file interpreters** to generate **30+** page labour statistics reports with **50%** faster compilation
- Automated the comparison process of weekly economic statistics using **Python** and **Pandas**, resulting in a **70%** decrease in time required to push data to **1000+** statisticians through the intranet site

## PROJECTS

### Class Activation Mapping and Object Detector 🌀 | Python, PyTorch/Torchvision, Matplotlib, NumPy, CUDA

- Trained a face-detection **CNN** using 2000+ images and tested with 500+ images, achieving **99%+** accuracy
- **Extracted image heat maps** for classes using **Global Average Pooling** on the CNN's final convolutional layer, which identified the location of dominant facial features with high accuracy
- Generalized the heat map process to work with **multiclass classifier models**, tested for **100+** classes

### WatIamLOST (Hackathon Winner) 🌀 | React Native, TypeScript, Express.js, MongoDB, Figma

- Simulated a free classroom finder and a study room booking system for students to navigate the UW campus

### RPG Game Engine & Renderer 🌀 | Java, Swing, AWT

- Architected a **Java** interface for users to build their own top-down and platform games, heavily using **object-oriented principles** for customization of enemy damage and type, objects/blocks, and storylines

## TECHNICAL SKILLS

**Languages:** Python, C/C++, Java, JavaScript/TypeScript, Bash, SQL, C#, .NET, R, Racket

**Technologies:** Node.js, MongoDB, Express.js, AWS/S3, PyTorch/Torchvision, NumPy, Pandas, Apache Spark, Hadoop, CUDA, Linux, Docker, Kubernetes, DHCP, Java Swing/AWT, Electron, Firebase, Git, React.js, Angular.js