

# Gaurav Poona

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## Education

**HBSc. in Computer Science and Mathematics** *University of Toronto*

*September 2020 - April 2024*

Relevant coursework: Software design, Web programming, Intro to databases, Algorithm design and analysis, Data structures, Intro to software engineering, Neural networks and deep learning, Intro to machine learning, Computer vision

## Projects

### Kick Live

**Technologies Used:** Next.js, Flask, Redis, Nginx, AWS

- **Designed** and created a live football scores and information website, utilizing **Redis** to **optimize backend performance** and achieve a **95% reduction in response times**, showcasing expertise in **distributed systems**.
- **Deployed** the application on **AWS EC2**, providing a **scalable** and **highly available solution**, demonstrating understanding of **system design** and **cloud-based infrastructure**.
- **Integrated** external football APIs to ensure **accurate** and **real-time data** for 10,000+ matches and 9 different leagues, highlighting proficiency in handling **database technologies** and **real-time data processing**.

### Decidophobia

**Technologies Used:** Django, REST APIs, Next.js, PostgreSQL, Docker, HTML/CSS, Jira

- **Teamed** with **6 people** to **design** and **develop** an **online shopping aggregator website**, featuring **product listings** from **4 marketplaces**, utilizing **PostgreSQL** for **database management**
- **Engineered** a **neural collaborative filtering-based recommendation system**, handling **large datasets** and **complex distributed data**, tested on datasets with **100,000+ data points**, showcasing a deep understanding of **system design**.
- **Led Agile development** by coordinating **sprint planning** and **retrospectives**, with **standups** held every two days to ensure **efficient team communication** and effective **project management**.
- **Integrated Docker** for **containerization**, enabling **consistent development** and **production environments**, and **simplifying** the **deployment process** across various platforms.

### Neural Net

**Technologies Used:** Python, NumPy, Pandas, Matplotlib

- **Developed** a **Python-based neural network framework** from the ground up, gaining deep insight into **system design** and **optimization techniques**.
- **Incorporated** advanced **optimizers** such as **Adam** and **RMSProp**, resulting in a **60% increase** in **test accuracy**, while effectively addressing **complex system challenges** and enhancing **model performance**.
- **Trained** and **tested** neural networks on **multi-class** and **binary classification** tasks, achieving **test accuracy** above **90%**, demonstrating expertise in **Python** and **large-scale data processing**.
- **Optimized** the frameworks's performance through the integration of **mini-batch gradient descent**, reducing **training time** by **40%** and enhancing the framework's **scalability** for **larger datasets**.

## Volunteer Experience

**Intelligent Adaptive Interventions (IAI) Lab at UofT**

*September 2023 - December 2023*

- **Collaborated** with graduate students on research, providing **technical** and **administrative support**, enhancing the overall efficiency and progress of research initiatives.
- **Created** and **optimized large language models (LLMs)** to study the exploration and response generation of LLMs, demonstrating expertise in **advanced AI techniques** and model development.
- **Recorded and maintained organized records** of meetings, future plans, and progress, facilitating transparent **communication** and effective tracking of **project milestones**.

## Technical Skills

**Languages:** Python, JavaScript, SQL (PostgreSQL), Java, TypeScript, C, Kotlin, HTML/CSS, R

**Frameworks:** React, Next.js, Node.js, Django, Flask, jQuery, Bootstrap, Tailwind CSS, Vite

**Libraries:** TensorFlow, PyTorch, OpenCV, Pandas, NumPy, Matplotlib, Scikit-learn

**Developer Tools:** Git, Docker, AWS, Redis, Linux, Jira