# Anunay Kumar

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## Education

**University of Waterloo**, *BASC in Computer Engineering, Honours* 2020 - 2025

- **GPA: 3.90/4.0**
- Algorithms and Data Structures, Operating Systems, Embedded Microprocessor Systems, Systems Programming and Concurrency
- Advanced Discrete Mathematics, Probability and Statistics, Digital Hardware Systems

## Skills

**LANGUAGES:** Python, C++, Flutter/Dart, Javascript, SQL, Java
**FRAMEWORKS:** Tensorflow, PyTorch, Sci-kit Learn, Matplotlib, NodeJS, Express, ReactJS, Hugging Face, Pandas
**TOOLS:** Git, Linux, Bash Scripting, Firebase, Docker, AWS, Jenkins, JIRA, MongoDB, MySQL, Jupyter

## Experience

**Data Engineering - Purolator (Python, SQL, AWS, Spark)** Summer 2022 - Dec. 2022

- In charge of the Analytics team migration to AWS and Power BI
- Building the data pipeline to track discrepancies between generated orders and picked up orders

**Project X - Waterloo Data Science Team Researcher** Sept. 2022 - Current

- Currently writing a research paper that creates a deep learning ensemble model for Human Computer Interaction advancements with AI. (In Progress)

**Undergraduate Research - Social and Intelligent Robots Laboratory (C++, Python)** May 2022 - Current

- Implemented C++ Point Cloud Library in conjunction with OpenCV for semantic segmentation of 3D Point Cloud Data to generate dimensions for the Fetch Robot (in progress)

**Machine Learning Engineer - Blackberry (Python, Groovy, Docker, SQL)** Jan. 2022 - Apr. 2022

- Implemented a VM resource monitoring system in Linux using Grafana and Prometheus which was deployed using **Docker and Bash Scripts**
- Designed and optimized a static analysis tool checker for improving false-positive code classifications to improve developer productivity by **85%** using an efficient Random Forest and Category Boosting blended classifier through Tensorflow
- Used **AutoML** infrastructure and **complex SQL joins** and **dynamic pivots** for data engineering
- Identified critical data logic flaws that were mislabeling the training data and **designed a safe and fault-free data processing pipeline** using **SQL and Pandas**
- Optimised Jenkins Pipeline running an NLP model for open source license classification

**AI/ML/NLP Data Scientist - Genellipse Inc. (TensorFlow, ReactJS, SQL)** May 2021 - Aug. 2021

- Designed and optimized a **prediction neural network using TensorFlow and AutoML** that predicts potential client customers, increasing sales efficiency and resource allocation
- Improved prediction using **hyperparameter tuning**, custom metrics, **data stratification** and early stopping, resulting in a **94.8%** accurate model
- Designed an automation process software for Death Benefit Calculations for Life Insurance, using a custom data schema
- Created complex **DAX and SQL Queries and generated PowerBI reports** highlighting important data analytics for the client board
- Completely redesigned and programmed the Company's (Genellipse) Home Website using **ReactJS and Tailwind CSS**

**Full Stack Engineer - Global Spark (JavaScript, MERN)** Sept. 2021 - Sept. 2022

- Led backend API development and designing Mongoose schemas for efficient data lookup
- Created admin and hacker dashboard functionality for Hack the Globe - one of Canada's largest hackathons
- Designed functional code and REST API's for easy development using the MERN stack

## Projects

**FPGA Audio Player (C) - Embedded Microprocessors** Aug. 2022 - Sept. 2022

- Used Altera NIOS tools to debug and build a media player to play .wav files from onboard memory
- Implemented button debouncing using state machines for push button functionality
- Wave Audio Player could play Stereo and Mono 16 bit audio at normal, half and double speed

**Audio EQ Plugin Controller (C++)** June 2021 - June 2021

- Inspired to create this to learn audio processing logic and practice modern and **advanced C++ techniques**
- Implemented an audio EQ using modern C++ and the JUCE Audio Framework
- Developed a **real-time frequency manipulator** for left and right mono channels using JUCE Libraries and mathematical algorithms
- Packaged the above with a responsive UI using **C++ Graphics** library