

# Nipun Rustagi

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## EDUCATION

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### University of Toronto

*Honours Bachelor of Science in Computer Science*

Mississauga, ON

*Aug. 2021 – June 2025*

## TECHNICAL SKILLS

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**Languages:** Java, Python, JavaScript, C/C++, HTML/CSS, R, Matlab, MySQL, AWS

**Frameworks:** React, Flask, WordPress, Tensorflow, PyTorch, Docker

**Developer Tools:** Git, Google Cloud Platform, VS Code, Firebase, Grafana, Elasticsearch, Kibana

**Libraries:** Pandas, NumPy, Matplotlib, Sklearn, Seaborn, Tkinter

## EXPERIENCE

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### Machine Learning Software Developer Intern

May 2023 – Aug 2023

*BlackBerry*

*Waterloo, Canada*

- Spearheaded and deployed a cutting-edge hybrid ML model using **keras**, to detect malicious **Domain Generation Algorithms** with a processing time **50% faster** and **30% lower False Positive Rate** than existing models
- Pioneered the integration of **multi-language processing** capabilities into the **reputation/page categorization engine**, broadening system versatility and deployed it to various AWS regional clusters
- Spearheaded implementation of a state-of-the-art **malicious URL detection engine** employing **kafka stream**, **lexical-based feature engineering** for real-time processing of incoming URLs, leading to a 60% faster predictive model

### Python Developer I

September 2022 – Present

*University Health Network*

*Toronto, Canada*

- Implemented robust APIs for handling and parsing large amounts of complex document data (PyLaTeX) using Python (Django), JSON
- Developing python scripts which on an **automated** basis manage the **data relay** and transformation between external servers and network drive to carry out data quality testing
- Assisting the research data analysts and data engineers to ensure proper integration of any applications built

### Research Assistant

Aug 2020 – Dec 2020

*CHIREC International School*

- Researched and developed models with Mr. Mukund, a professor at BITS Pilani, to develop a **Network Intrusion Detection System** integrated with ML algorithms such as **XGBoost** and **Random Forest** to detect **DoS** and **Probe Network Intrusion Attacks** more efficiently
- Deployed models of **Backward Feature Elimination** and **Principal Component Analysis** that **maximized variance** between components by 40%, leading to a more accurate predictive model
- **Semi-automated** optimized hyper parameter value computation for the algorithms, **decreasing model training time by over 30%**

### Machine Learning Intern

Nov 2019 – Mar 2020

*Einsite*

- Deployed and streamlined a sensor-based software solution for **Object Detection** in construction sites to calculate worker productivity.
- Collaborated with the **Computer Vision** team to annotate the images based on object type such as worker, tractor, boulders
- Facilitated static code analysis and development of an **automated** Python script to **reduce image annotation time by over 50%**

## PROJECTS

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**Optimized Study Plan Scheduler** | *JavaScript, Python, SQLite, Firebase*

<https://github.com/utmgdsc/schedulr>

- Developed a **web-based study scheduler** in collaboration with the **Google Developer's Student Club** and **Prof Bahar Aameri** at the **University of Toronto Mississauga**, that takes on a student's course timetable for the semester and **auto-generates** a personalized study schedule based on a **greedy genetic algorithm**