

# RAPHAËL ONANA

SOFTWARE ENGINEERING

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## EXPERIENCE

### CATERPILLAR®

Caterpillar Inc. - Software Designer Intern

Jan 2025 – Apr 2025

Montreal, Canada

- Led the migration of 2 major CI/CD pipelines from Azure DevOps Server Pipelines to GitHub Actions by creating a structured migration plan supporting 2 development teams. Collaborated with the Team Lead to document 10+ requirements and write 5 user stories, ensuring 100% alignment with organizational goals.
- Optimized Build pipeline by implementing toolchain and dependency caching, reducing workflow runtime by 62%.
- Strengthened debugging capabilities by resolving 5 critical issues in the pipelines files and configurations, actively participated in troubleshooting sessions, digging into 10+ Make/CMake build files and writing Bash scripts to identify build and runtime issues in the system
- Integrated the GitHub Actions Importer into existing workflows, achieving up to 80% accuracy in pipeline translation. Documented the entire migration journey, identifying and addressing key challenges



Ford Motor Company - Test Automation Engineer Intern

May 2024 – Dec 2024

Ottawa, Canada

- Automated weekly manual token update process for stations using Python and Jenkins, reducing task time by 90%. Developed a pipeline to streamline the logging in nodes, processing device data and generating JSON files, significantly improving efficiency and saving hours of work
- Demonstrated leadership by mentoring new interns and contracts through 3 key workflows and 5 proprietary tools, creating 5 documentation pages that reduced onboarding time by 35% still used today. Provided 15+ hours of hands-on training that allowed the intern to independently manage test executions within 10 days
- Configured and maintained 10+ test stations simulating in-vehicle environments across 4 vehicle platforms, reducing station downtime by 35%. Resolved 12+ hardware-software issues using command-line diagnostics, while working with 15+ different hardware components including Sync Infotainment systems, arduino, telematics hardware.
- Developed a Python script using Pandas and NumPy to automate weekly station failure reports, automating 100% of manual Excel data processing, optimizing data analysis, and providing graph plots for further insights

## Projects

Syncwave | Python, FastAPI, Nextjs, React, Hero-ui, OAuth2

May, 2025

- Designed and currently implementing a full-stack web app, featuring a Next.js as frontend and a FastAPI backend with a rich CLI/UX, to automate YouTube-to-Spotify playlist transfers using OAuth2, Google, and Spotify APIs, boasting over 90% track match accuracy and built to support future cross-platform music synchronization

NBA\_Trends, Data Science Project | scipy, pandas, seaborn, numpy, matplotlib

April 2025

- Conducted statistical analysis on NBA game with 24k+ data observations to evaluate home court advantage and forecast reliability using python pandas, and scipy; visualizing team scoring distributions with seaborn and matplotlib, while quantifying forecast accuracy through correlation analysis and chi-square testing

FoodBank Ai – Hackathon uOttawa | Python, Flask, Pytorch, Numpy, Postgresql, React

Ottawa | Sep. 2024

- Led front-end development of FoodBank Ai, a gamified web app for food donations; with React and Bootstrap for an engaging UI; refined and optimized API data using Python for precise nutritional calculations and point allocation; and manually trained an AI model on this data, achieving 75% accuracy in fruit recognition

## EDUCATION

CARLETON UNIVERSITY

Sep 22 – May 27 | Exp.

B.S Computer Science Honors, AI/ML Stream & Maths, Statistics

Ottawa, ON

Certification (in progress) : Data Science, Machine Learning Specialization

Feb 25 – Present

## Relevant Coursework

- |                                  |   |  |   |
|----------------------------------|---|--|---|
| • Data Structures and Algorithms | • Object Oriented Prog. Systems Programming | • Software Engineering Web development | • Calculus, Statistics 3 Discrete Mathematics |
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## Technical Skills

**Programming Languages:** Python, Typescript, Javascript, Java, C, C++, HTML5/CSS, YAML

**Developer Tools:** Git, GitHub, Azure DevOps, Jenkins, GitHub Actions, Docker, Putty, Grafana, Linux, bash, Jira, VMs

**Frameworks:** Pandas, NumPy, NextJs, React, NodeJs, MongoDB, SQL, Tailwind, Bootstrap, AWS Cloud Practitioner

**Languages:** English, French