

# SEA RAN CLEON LIEW

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## SKILLS

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**Programming Languages:** Python, R, SQL, VBA, MATLAB, LaTeX

**Libraries:** scikit-learn, Keras, PyTorch, TensorFlow, Cuda, Hugging Face, NumPy, scipy, Pandas, Matplotlib, BeautifulSoup, Scrapy, Splash, Selenium, Appium

**Technologies:** Power BI, Tableau, Google Suite, Microsoft Office Suite, Excel (Pivot Tables, VBA, Macros), Git, Bitbucket, Jira, Confluence, AWS Batch, AWS CloudWatch, Jupyter Notebook, Linux, PuTTY, MobaXterm, Wireshark

## EDUCATION

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University of Waterloo

Waterloo, ON

Bachelor of Mathematics, Major in Computational Mathematics (Co-op), Minor in Computing

Sep 2020 – Jun 2024

- Cumulative GPA: 85/100; Graduated with Distinction
- Relevant Coursework: Designing Functional Programs; Elementary Algorithm Design and Data Abstraction; Data Types & Structures; Computational Statistics and Data Analysis; Neural Networks; Data Visualization

## WORK EXPERIENCE

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Data Science Research Assistant

Waterloo, ON

University of Waterloo

May 2023 – Feb 2024

**FHIR Health Data Encoding Project** under Prof. Bryan Tripp

- Implemented data encoding methods in **Python**, including Spatial Semantic Pointers and Sinusoidal Encoding, to enhance the quality of FHIR-formatted data inputs for transformer models, improving accuracy by 10.7%.
- Cleansed, normalized, and structured FHIR-formatted datasets, optimizing them for model input using **SQL**.

**Metastatic Cancer Image Analysis Project** under Prof. Subha Kalyanamoorthy

- Developed machine learning programs for nerve cell image processing utilizing **PyTorch**, achieving 78.28% accuracy.
- Optimized AI models including SVM, VIT, and CNN via cross-validation and hyperparameter tuning, using **NumPy**, **SciPy**, and **Pandas** for data handling and employing **R (ggplot2)** and **Matplotlib** for performance data visualizations.

DPI Automation Data Analyst Intern

Ottawa, ON

Nokia

Sep 2022 – Dec 2022

- Automated network traffic detection QA for 20+ applications (Web, Android, iOS) using **Python**, **Selenium**, and **Appium**.
- Analyzed traffic detection data captured by 60+ application filters by performing packet-level analysis using **Wireshark**, submitting bug reports for 4 filters to improve classification accuracy and enforce proper Quality-of-Service policies.
- Scheduled recurring data collection tasks using **Linux Crontab**.

Web Scraping Data Validation Analyst Intern

Calgary, AB (Remote in Toronto, ON)

Ontopical

Jan 2022 – Apr 2022

- Developed over 50 web scrapers to aid the ETL process for multimedia data collection using **Scrapy**, **Splash**, and **Lua**.
- Monitored and analyzed web scrapers' performance by leveraging **AWS Batch**, **AWS CloudWatch**, and **Power BI**.
- Did version control and task management within an **Agile Scrum** framework using **Git**, **Bitbucket**, **Jira**, and **Confluence**.

Financial Auditor Intern

Hong Kong

PricewaterhouseCoopers

May 2021 – Aug 2021

- Conducted detail testing and control testing with PwC's auditing software Aura to create audit reports for 4 companies.
- Analyzed financial statements, identifying trends and fluctuations to inform audit conclusions using dynamic reports in **Excel (Pivot Tables, VBA, and Macros)**.

## PUBLICATIONS

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[Use Of Subword Tokenization For Domain Generation Algorithm Classification](#) Cybersecurity 6, 49 (2023).

[Beam - An Algorithm For Detecting Phishing Link](#) 2022 APSIPA Annual Summit and Conference, pp. 598-604.