

# SEA RAN CLEON LIEW

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## EDUCATION

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### UNIVERSITY OF WATERLOO

Bachelor of Mathematics

Waterloo, Ontario

Sep 2020 – Jun 2024

Major in Computational Mathematics; Minors in Computing

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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### UNIVERSITY OF WATERLOO

AI Research Assistant

Waterloo, Ontario

May 2023 – Dec 2023 & Dec 2023 – Apr 2024

FHIR Encoding Project under Prof. Bryan Tripp

Department of System Design Engineering

- Researched methods of encoding FHIR-formatted data to enhance the performance of the transformer model
- Investigated if the encoding method of interest can model the "importance function" of a value

Metastatic Cancer Research Project under Prof. Subha Kalyanamoorthy

Department of Chemistry

- Built various deep learning-based models using nerve cell images to predict cancer metastasis
- Applied methods including Machine Learning (SVM, Random Forest, VIT, ResNet, Inception), transfer learning, convolutional autoencoder, and various mixed approaches

### NOKIA

Deep Packet Inspection QA Engineering Student

Ottawa, Ontario

Sep 2022 – Dec 2022

- Leveraged Python, Selenium, and Appium to automate traffic detection testing on Web and Mobile platforms
- Used Wireshark to inspect packets and worked in a Linux environment (Fedora)
- Tested if application filters can capture applications' traffic and apply the corresponding Quality of Service (QoS) policies

### ONTOPICAL

Data Validation Intern

Calgary, Alberta (Remote in Toronto)

Jan 2022 - Apr 2022

- Utilized Scrapy, Splash, and Lua for building web scrapers that can crawl multimedia content
- Used Git, Bitbucket, Jira, and Confluence for version control and project management
- Followed an Agile Methodology and a Scrum framework

### PRICEWATERHOUSECOOPERS

Assurance Practice Intern

Hong Kong

May 2021 - Aug 2021

- Performed tasks like detail testing, breaking down financial statements, categorizing different transactions, and explaining fluctuations of accounts across years.
- Used Excel and an auditing software developed by PwC called Aura to assist with the tasks.

## SKILLS

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**Programming:** Python, R, SQL, C, Java, Bash Script, HTML

**Machine Learning:** scikit-learn, Keras, TensorFlow, Pytorch, Cuda

**Automation:** Selenium, Appium

**Web Scraping:** BeautifulSoup, Scrapy, Splash, Lua

**Networking:** Wireshark

**Others:** Linux, Git, LaTeX, Cloud Computing (AWS), Microsoft Office (Power BI, VBA), NumPy, Pandas

## PUBLICATIONS

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### USE OF SUBWORD TOKENIZATION FOR DOMAIN GENERATION ALGORITHM CLASSIFICATION

*Cybersecurity* 6, 49 (2023). (<https://cybersecurity.springeropen.com/articles/10.1186/s42400-023-00183-8>)

- Integrated scheme consisting of subword-based models for better classification of domains generated by various DGAs

### BEAM - AN ALGORITHM FOR DETECTING PHISHING LINK

2022 APSIPA Annual Summit and Conference, pp. 598-604. (<https://ieeexplore.ieee.org/document/9979860>)

- Developed an attention-based phishing detector by performing sub-word tokenization and fine-tuning the BERT model.