

# SEA RAN CLEON LIEW

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## EDUCATION

### University of Waterloo Bachelor of Mathematics

Waterloo, ON  
Sep 2020 – Jun 2024

Major in Computational Mathematics; Minor 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

### Artificial Intelligence Software Development Research Intern University of Waterloo

Waterloo, ON

#### FHIR Data Encoding Project under Prof. Bryan Tripp

Dec 2023 – Apr 2024

- Researched methods of encoding FHIR-formatted data to enhance transformer model performance
- Implemented methods (e.g., Spatial Semantic Pointers, Sinusoidal Encoding) to model the "importance function" of values

#### Metastatic Cancer Imaging Project under Prof. Subha Kalyaanamoorthy

May 2023 – Dec 2023

- Designed and developed deep learning programs using Pytorch, processing nerve cell images to predict cancer metastasis
- Applied models and techniques including Support Vector Machine, Random Forest, Vision Transformer, ResNet, Inception, Transfer Learning, Convolutional Autoencoder, and various mixed approaches
- Optimized and trained models on Compute Canada's High-Performance Computing (HPC) clusters

### Deep Packet Inspection Quality Assurance Intern Nokia

Ottawa, ON  
Sep 2022 – Dec 2022

- Automated traffic detection testing for Web and Mobile platforms using Python, Selenium, and Appium
- Tested application filters to ensure proper capture of application traffic and application of Quality of Service (QoS) policies
- Inspected network packets using Wireshark to troubleshoot and verify the performance of the traffic detection system

### Data Quality Assurance Intern Ontopical

Calgary, AB (Remote in Toronto, ON)  
Jan 2022 - Apr 2022

- Developed web scrapers using Scrapy, Splash, and Lua to support the Extract, Transform, Load (ETL) process for collecting and organizing multimedia content from various sources
- Tested web scrapers in AWS Batch and monitored their performance with CloudWatch
- Leveraged Git, Bitbucket, Jira, and Confluence for version control and task management within an Agile Scrum framework

### Assurance Practice Intern PricewaterhouseCoopers

Hong Kong  
May 2021 - Aug 2021

- Conducted detailed testing and analysis of financial statements using Excel (VBA and Macro) and PwC's auditing software Aura, identifying trends, fluctuations, and discrepancies to inform audit conclusions

## SKILLS

**Languages:** Python, R, SQL, C, Java, Bash, Lua, HTML, CSS

**Machine Learning:** scikit-learn, Keras, PyTorch, TensorFlow, Cuda, Hugging Face

**Web Scraping and Automation:** BeautifulSoup, Scrapy, Splash, Selenium, Appium

**Collaboration Tools:** Git, Bitbucket, Jira, Confluence, AWS Batch and Cloudwatch

**Others:** Linux, Putty, Wireshark, LaTeX, MATLAB, Matplotlib, Tableau, Power BI, Excel (VBA, Macros), NumPy, Pandas

## PUBLICATIONS

### 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