

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

UNIVERSITY OF WATERLOO

AI Software Development Research Intern

Waterloo, ON

May 2023 – Dec 2023 & Dec 2023 – Apr 2024

FHIR Data Encoding Project under Prof. Bryan Tripp

Department of System Design Engineering

- 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

Department of Chemistry

- 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

NOKIA

Deep Packet Inspection Quality Assurance Intern

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

ONTOPICAL

Data Quality Assurance Intern

Calgary, AB (Remote in Toronto, ON)

Jan 2022 - Apr 2022

- Developed web scrapers with Scrapy, Splash, and Lua to collect and organize multimedia content from various sources
- Leveraged Git, Bitbucket, Jira, and Confluence for version control, task management, and documentation
- Worked within Agile Methodology, adhering to Scrum frameworks for project delivery

PRICEWATERHOUSECOOPERS

Assurance Practice Intern

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

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, Bitbucket, Jira, Confluence, LaTeX, Microsoft Office (Power BI, 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.