SEA RAN CLEON LIEW

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EDUCATION

UNIVERSITY OF WATERLOO — Waterloo, ON
Bachelor of Mathematics — 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 — Waterloo, ON
AI Software Development Research Intern — 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
- Optimized and trained models on Compute Canada's High-Performance Computing (HPC) clusters

NOKIA — Ottawa, ON
Deep Packet Inspection Quality Assurance Intern — 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 — Calgary, AB (Remote in Toronto, ON)
Data Quality Assurance Intern — Jan 2022 - Apr 2022
- Developed web scrapers with Scrapy, Splash, and Lua to collect and organize multimedia content from various sources
- Tested web scrapers using AWS Batch and Cloudwatch
- 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 — Hong Kong
Assurance Practice Intern — 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
Machine Learning: scikit-learn, Keras, PyTorch, TensorFlow, Cuda
Web Scraping and Automation: BeautifulSoup, Scrapy, Splash, Selenium, Appium
Collaboration Tools: Git, Bitbucket, Jira, Confluence, AWS Batch and Cloudwatch
Others: Linux, Wireshark, LaTeX, MATLAB, Tableau, 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