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

Artificial Intelligence Software Development Research Assistant — Waterloo, ON
University of Waterloo — May 2023 – Apr 2024

FHIR Data Encoding Project under Prof. Bryan Tripp

- Implemented data encoding methods, including Spatial Semantic Pointers and Sinusoidal Encoding, to improve the input representation of FHIR-formatted data, enabling more efficient processing by the subsequent transformer model.
- Employed SQL to cleanse, normalize, and structure FHIR-formatted datasets, optimizing them for model input.

Metastatic Cancer Imaging Project under Prof. Subha Kalyaanamoorthy

- Developed deep learning programs for nerve cell image processing utilizing PyTorch, achieving 78.28% accuracy.
- Optimized models including SVM, Vision Transformer, and Autoencoder through cross-validation and hyperparameter tuning, using NumPy and Pandas for data handling and employing R (ggplot2) and Matplotlib for performance visualizations.
- Trained models on Compute Canada's High-Performance Computing (HPC) clusters, managing jobs with Bash scripting.

Deep Packet Inspection Quality Assurance Intern — Ottawa, ON
Nokia — Sep 2022 – Dec 2022

- Automated traffic detection testing for over 20 applications (Web, Android, IOS) using Python, Selenium, and Appium.
- Tested 60+ application filters to ensure accurate network traffic capture and correct Quality of Service policies application.
- Scheduled test executions via Linux Crontab and used Wireshark to inspect packets and troubleshoot traffic detection issues.

Data Quality Assurance Intern — Calgary, AB (Remote in Toronto, ON)
Ontopical — Jan 2022 - Apr 2022

- Developed over 50 web scrapers using Scrapy, Splash, and Lua to aid the ETL process for multimedia content aggregation.
- Monitored and tested web scrapers in AWS Batch, utilizing AWS CloudWatch and Power BI for performance dashboards.
- Leveraged Git, Bitbucket, Jira, and Confluence for version control and task management within an Agile Scrum framework.

Assurance Practice Intern — Hong Kong
PricewaterhouseCoopers — May 2021 - Aug 2021

- Conducted detail testing and control testing with PwC's auditing software Aura.
- Analyzed financial statements with Excel (VBA and Macros), identifying trends and fluctuations to inform audit conclusions.

SKILLS

Programming Languages: Python, R, SQL, C, Java, Bash, Lua, HTML, CSS
AI and Data Science: scikit-learn, Keras, PyTorch, TensorFlow, Cuda, Hugging Face, NumPy, Pandas, MATLAB
Data Analysis and Visualization: Matplotlib, Power BI, Tableau, Excel (VBA, Macros), LaTeX
Web Scraping and Automation: BeautifulSoup, Scrapy, Splash, Selenium, Appium
Cloud and Collaboration Tools: Git, Bitbucket, Jira, Confluence, AWS Batch, AWS CloudWatch, Jupyter Notebook
System Administration and Networking: Linux, Crontab, PuTTY, MobaXterm, Wireshark

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 NLP model BERT.