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

FHIR Data Encoding Project under Prof. Bryan Tripp   Dec 2023 – Apr 2024
- Implemented advanced 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 for data cleansing, normalization, and structuring FHIR formatted datasets to optimize model input.

Metastatic Cancer Imaging Project under Prof. Subha Kalyaanamoorthy   May 2023 – Dec 2023
- 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, using Bash scripting to manage jobs.

Deep Packet Inspection Quality Assurance Intern   Ottawa, ON
Nokia   Sep 2022 – Dec 2022
- Automated traffic detection testing for over 20 applications (Web, Android, IOS) utilizing Python, Selenium, and Appium.
- Tested over 60 application filters to ensure accurate network traffic capture and application of Quality of Service policies.
- Scheduled test execution with 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 with Scrapy, Splash, and Lua to aid the ETL process for multimedia content aggregation.
- Monitored and tested web scrapers in AWS Batch using 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 using Excel (VBA and Macro), 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.