

MSc(CS) Dissertation Public Seminar

Title: Blockchain Applications

Speaker: Chen Han

Date & Time: April 28 2020, Tuesday, 09:00am

Zoom Meeting Link: <https://hku.zoom.us/j/97941929084>

Meeting ID: 979 4192 9084

Password: 650009

Abstract:

Smart Contract has developed rapidly these years as an application of Blockchain. However, with its development, it also creates many security issues that have posed a great threat to the security of it. As a result of this, many institutions have begun to research security issues of smart contracts and have achieved some results. OYENTE is a successful example that can detect bugs like transaction-ordering dependence, timestamp dependence, mishandled exceptions and reentrancy vulnerability in smart contracts.

However, there are still some security holes that are difficult to be found because of different program languages, the complexity of contracts, the inconvenience of analyzing the execution order of contracts and some unknown reasons. So we will focus on analyzing security holes' patterns and upgrade OYENTE to find more security holes in smart contracts. The security holes we plan to solve are call stack depth limit and cross-function race condition.

About the Speaker:

Chen Han is currently a full-time MSc(CS) student of the Department of Computer Science in the University of Hong Kong. Her supervisor is Prof. SM Yiu.

All are welcome!

Tel: 3917-1828 for enquiries

MSc(CS) Dissertation Public Seminar

Title: Methylation Identification and Its Automation Using Single Molecule Sequencing

Speaker: Negi Mishty

Date & Time: April 28 2020, Tuesday, 09:45am

Zoom Meeting Link: <https://hku.zoom.us/j/97941929084>

Meeting ID: 979 4192 9084

Password: 650009

Abstract:

Research on epigenetic modifications like DNA methylation can offer significant insights into diagnosis, prognosis and response for treatment of several diseases. DNA methylation has also been implicated in playing a role in plant growth and response to stress. While Oxford Nanopore MinION permits real-time analysis of DNA strands and detection of epigenetic marks in native DNA, the performance of available tools for identifying methylation using MinION is largely unknown across different sequence contexts. The study aims to fill this gap through systematic exploration of the strengths and limitations of existing tools. An end-to-end automated pipeline implemented using snakemake has been developed to make methylation calling more accessible to end users. Modularisation of tools through snakemake further helps manage complex computational workflows with customisability. Tools can be run separately or as part of the methylation detection workflows. A model for 5mC detection in CHH and CHG context has been trained using Tombo's motif-specific estimation module in an attempt to improve the tool's specificity. Feasibility of training new models for RNA and DNA methylation detection has also been explored at length. Finally, an ensemble method for integrating methylation calls by selected tools has been developed that results in overall improved sensitivity and specificity.

About the Speaker:

Negi Mishty is currently a full-time MSc(CS) student of the Department of Computer Science in the University of Hong Kong. Her supervisor is Dr. Ruibang Luo.

All are welcome!

Tel: 3917-1828 for enquiries

MSc(CS) Dissertation Public Seminar

Title: Understanding Financial Reports with NLP

Speaker: Wang Yi

Date & Time: April 28 2020, Tuesday, 10:30am

Zoom Meeting Link: <https://hku.zoom.us/j/97941929084>

Meeting ID: 979 4192 9084

Password: 650009

Abstract:

From 2005, the U.S. Securities and Exchange Commission (the SEC) starts to force mutual funds to submit their quarter, semi-annual and annual report (N-Q, N-CSRS and N-CSR) to the database of SEC, which is open to the public. These reports contain many useful information that is valuable in many financial research fields. However, these reports files are HTML files with very different structures. Financial information may be stored in different tables or unstructured sentences. In addition, many financial research projects are based on panel data which require a large number of data in different companies in different years. As a result, it is an onerous but meaningful work to make the CDS data available and open source. In our project, first, we apply different algorithm to parse the different structures of these reports in HTML files. Then I use 4 popular NLP algorithms HMM, CRF, Bi-LSTM and Bi-LSTM-CRF model to work as named-entity tools to extract CDS information from unstructured sentences. We found that among these 4 models CRF, Bi-LSTM and Bi-LSTM-CRF perform better than HMM model.

About the Speaker:

Wang Yi is currently a full-time MSc(CS) student of the Department of Computer Science in the University of Hong Kong. Her supervisor is Dr. Ruibang Luo.

All are welcome!

Tel: 3917-1828 for enquiries