NIAN LIU

Vancouver, BC V6Z 1E0 - 514-569-7660 - liunian1997@live.com

Education

Concordia University — September 2021
Master of Science: Computer Science
Montreal, Canada

- 3.8/4.3 GPA

Hunan University — July 2018
Bachelor of Engineering: Computer Science
Changsha, China

Experience

Concordia University — September 2019 to September 2021
Research Assistant
Montreal, Canada

Characterizing Deprecated Deep Learning Python API: An Empirical Study on TensorFlow (Paper in Review)

- To the best of our knowledge, this is the first empirical study to reveal the current status of deprecated APIs in TensorFlow.
- Performed the first research discovering the rationale behind deprecated APIs in TensorFlow. We analyzed the deprecation message in 235 deprecated APIs and found 6 API deprecation reasons.
- Automatically uncover deprecated APIs in 12 existing deep learning models, which helps explore developers' reactions to TensorFlow deprecated APIs.
- Present a quantitative study about the impact of deprecated APIs in deep learning models accuracies.

An Empirical Study of the Impact of Architecture Refactoring on Software Performance

- Investigated 46 architecture refactoring related commits from 3 popular Java framework HBase, Cassandra, Hadoop, and classified them into 4 self-defined architecture refactoring categories.
- Run JUnit tests before and after commits to evaluate the performance (CPU Time, Memory Usage, and Response Time) difference.

Xinhua News Future Media Convergence Research Institution — July 2018 to March 2019
Software Engineer
Beijing, China

The Affective Benchmarking of Movies Based on the Physiological Data of Audiences

- Implemented an algorithm which monitors the affective benchmarking of movies based on the physiological responses of a real audience collected from Electro Dermal Activity (EDA) sensor.
- This algorithm could be used to predict movies' box office, help director understanding audiences' emotion and improve the plot later.

Detecting Attention During Real-Word Driving Tasks Using Physiological Sensors

- Built an unsupervised learning algorithm to divide the intensity of drivers' attention on broadcast based on the Electro Dermal Activity (EDA) data.

Coursework

- Implemented a coverage-guided fuzzer with jupyter notebook to test program bugs.
- Design of test case to detect four Java bug patterns defined in *FindBugs*.
- Implemented one Java project to detect three exception handling anti-patterns.
- Design of sparse matrix-vector multiplication algorithm with MapReduce technology using FLINK.

Skills

- C++, Java, Python, R, HTML, MATLAB, MySQL
- Chinese(native), English