

## **BIOGRAPHICAL SKETCH**

Sheikh Rabiul Islam was born in Bagerhat, Bangladesh. He received his Bachelor of Science in Computer Science from Islamic University of Technology, Bangladesh in December 2010. He worked as a software engineer for 4 years in telecommunication industry. He started his Ph.D. in Computer Science at Tennessee Tech University as a direct Ph.D. student, which he is still perusing. He is also working as a Graduate Teaching Assistant in The Department of Computer Science at Tennessee Tech.

## **EDUCATION**

M.S., Computer Science  
Tennessee Technological University

B.S., Computer Science  
Islamic University of Technology, Bangladesh



## **College of Engineering**

**TENNESSEE TECH**

The Department of  
Computer Science

Announces the Thesis Defense

Of

Sheikh Rabiul Islam

In Partial Fulfillment of the Requirements

For the degree of

Master's of Science in Computer Science

29<sup>th</sup> March, 2018 at 10 am

Held at

Bruner Hall, Room 206

University Drive

Tennessee Technological University

Cookeville, TN, 38505

## **FIELD OF STUDY**

Computer Science

## **THESIS TOPIC**

An Efficient Technique for Mining Bad Credit Accounts  
from both OLAP and OLTP.

## **EXAMINING COMMITTEE**

Dr. Sheikh Ghafoor (Co-Chairperson)

Dr. William Eberle (Co-Chairperson)

Dr. Doug Talbert (Committee member)

## **ABSTRACT**

Credit card companies classify accounts as a good or bad based on historical data where a bad account may default on payments in the near future. If an account is classified as a bad account, then further action can be taken to investigate the actual nature of the account and take preventive actions. In addition, marking an account as "good" when it is actually bad, could lead to loss of revenue - and marking an account as "bad" when it is actually good, could lead to loss of business. However, detecting bad credit card accounts in real time from Online Transaction Processing (OLTP) data is challenging due to the volume of data needed to be processed to compute the risk factor. We propose an approach which precomputes and maintains the risk probability of an account based on historical transactions data from offline data or data from a data warehouse. Furthermore, using the most recent OLTP transactional data, risk probability is calculated for the latest transaction and combined with the previously computed risk probability from the data warehouse. If accumulated risk probability crosses a predefined threshold, then the account is treated as a bad account and is flagged for manual verification. In addition, our approach is efficient in terms of computation time and resources requirement because no transaction is processed more than once for the risk factor calculation. Another factor that makes our approach efficient is the early detection of bad accounts or fraud attempts as soon as the transaction takes place, which leads to a decrease in lost revenue.