

Accepted Manuscript

Generative adversarial network based telecom fraud detection at the receiving bank

Yu-Jun Zheng, Xiao-Han Zhou, Wei-Guo Sheng, Yu Xue, Sheng-Yong Chen



PII: S0893-6080(18)30069-8
DOI: <https://doi.org/10.1016/j.neunet.2018.02.015>
Reference: NN 3906

To appear in: *Neural Networks*

Received date: 29 December 2017
Revised date: 22 February 2018
Accepted date: 26 February 2018

Please cite this article as: Zheng, Y.-J., Zhou, X.-H., Sheng, W.-G., Xue, Y., Chen, S.-Y., Generative adversarial network based telecom fraud detection at the receiving bank. *Neural Networks* (2018), <https://doi.org/10.1016/j.neunet.2018.02.015>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Generative Adversarial Network Based Telecom Fraud Detection at the Receiving Bank

Yu-Jun Zheng^{a,b,*}, Xiao-Han Zhou^b, Wei-Guo Sheng^a, Yu Xue^c,
Sheng-Yong Chen^b

^a*Institute of Service Engineering, Hangzhou Normal University, Hangzhou 311121, China*

^b*College of Computer Science & Technology, Zhejiang University of Technology,
Hangzhou 310023, China*

^c*School of Engineering and Computer Science, Victoria University of Wellington,
Wellington 6140, New Zealand*

Abstract

Recently telecom fraud has become a serious problem especially in developing countries such as China. At present, it can be very difficult to coordinate different agencies to prevent fraud completely. In this paper we study how to detect large transfers that are sent from victims deceived by fraudsters at the receiving bank. We propose a new generative adversarial network (GAN) based model to calculate for each large transfer a probability that it is fraudulent, such that the bank can take appropriate measures to prevent potential fraudsters to take the money if the probability exceeds a threshold. The inference model uses a deep denoising autoencoder to effectively learn the complex probabilistic relationship among the input features, and employs adversarial training that establishes a minimax game between a discriminator and a generator to accurately discriminate between positive samples and negative samples in the data distribution. We show that the model outperforms a set of well-known classification methods in experiments, and its applications in two commercial banks have reduced losses of about 10 million RMB in twelve weeks and significantly improved their business reputation.

Keywords: Intelligent data analysis, fraud detection, generative adversarial network (GAN), denoising autoencoder, deep learning

*Corresponding author. Tel.: +86-571-85290085.

Email address: yujun.zheng@computer.org (Yu-Jun Zheng)

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات