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A novel vision-based web page segmentation algorithm

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With the rapid development of microelectronics technology and mobile communication technology, mobile phone users have increased rapidly. However, mobile phone cannot present the content of web page designed for PC properly because of the limitations of mobile phone screen size and computing power. The contradictions have become increasingly prominent and sharp with the rapid growth of mobile phone users and the rapid development of mobile communication technology. For this problem, proposing vision-based webpage segmentation (VWS) technology, from the visual perspective of identifying characteristic of web content blocks (CBs) to addressing the problems of accurately and efficiently display Web pages in mobile browser and to improve the user experience. The novel technology innovatively describes the visual features of CBs from six dimensions; the weight for each dimension can be confirmed by Weights Direct Determination of Neural Networks which can determine value of weight by only one step, based on the human visual characteristics and innovatively regards web page segmentation as grouping optimization problem based on the optimization theory. Therefore, web page can be divided into subpages network which each sub-page suitable for mobile browser rendering and the semantic of it is complete and maximized. Quantitative analysis and qualitative analysis prove that VWS technology work well to solve the problem of web pages displayed in the phone rightly and has a better user experience.

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Cylindrical coordinates security visualization for multiple domain command and control botnet detection

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The botnets are one of the most dangerous species of network-based attack. They cause severe network disruptions through massive coordinated attacks nowadays and the results of this disruption frequently cost enterprises large sums in financial losses. In this paper, we make an in-depth investigation on the issue of botnet detection and present a new security visualization tool for visualizing botnet behaviors on DNS traffic. The core mechanism is developed with the objective of enabling users to recognize security threats promptly and mitigate the damages by only visualizing DNS traffic in cylindrical coordinates. We compare our visualization method with the existing ones and the experimental results show that ours has greater perceptual efficiency. The ideas and results of this study will contribute towards designing an advanced visualization technique that offers better security. Also, the approach proposed in this study can be utilized to derive new and valuable insights in security aspects from the complex correlations of Big Data.

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