[73] Proprietor 專利所有人
Centre for Advances in Reliability and Safety Limited
產品可靠性暨系統安全研發中心有限公司
Units 1212-1213, 12/F., BLDG 19W
Hong Kong Science Park, Pak Shek Kok, N.T.
HONG KONG

[72] Inventor 發明人
LUN Pak Kong 倫栢江
TSANG Sik Ho 曾錫豪
PAN Yi Kun 潘奕昆
CHAN Yui Lam 陳銳霖
CHAN Tak Lam 陳德林
HUNG Yik Tung 洪益東

[74] Agent and / or address for service 代理人及/或送達地址
RLA IP PROFESSIONAL SERVICES LIMITED
Unit 328, Building 16W, Phase Three, Hong Kong Science Park
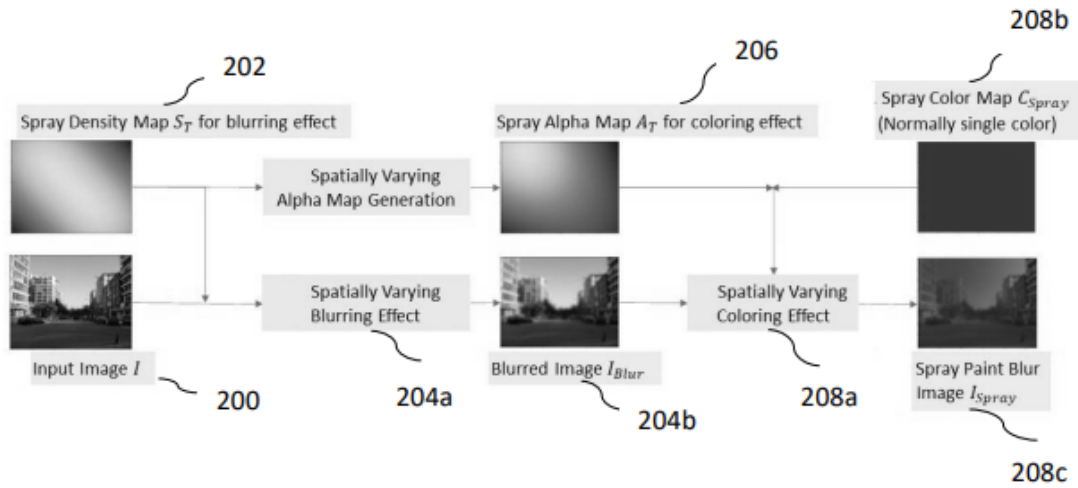Shatin
HONG KONG

[54] SYSTEM AND METHOD FOR SPRAY PAINT IMAGE SYNTHESIS IN SURVEILLANCE CAMERA ANOMALY DETECTION

於監控攝像機異常檢測中合成噴漆圖像的系統和方法

[57] The present invention discloses a system and method for detecting anomaly in a surveillance camera. The method allows the construction of an anomaly surveillance image dataset for training a surveillance camera anomaly detection deep neural network model. The method includes a spray paint images synthesizer that is used for constructing the dataset comprises the steps of: estimating a spray density map to represent the thickness of spray paint; preparing a Gaussian kernel with variance varied at each image location depending on the spray density; synthesizing the blurring effect given by the spray paint by mathematically convolving a surveillance image with the spatial-varying Gaussian function; estimating a spray alpha map to decide how strong the color appears on the image at each location; performing an element-wise weighted sum of the spray paint blur image and the spray paint color image with the weight depending on the spray alpha map; randomizing the design parameters to generate spray paint images of different spray paint patterns, thickness, and colors.

本發明公開了一種用於檢測監控攝像機異常的系統和方法。該方法允許構建用於訓練監控攝像機異常檢測深度神經網路模型的異常監控圖像資料集。該方法包括噴漆圖像合成器以用於構建資料集，包括以下步驟：估計噴漆密度圖以表示噴漆的

厚度；準備一個高斯核，其方差根據噴漆密度在每個圖像位置變化；通過將監控圖像與可變空間的高斯函數進行數學卷積來合成噴漆所產生的模糊效果；估計噴漆阿爾法圖以確定圖像上每個位置的顏色強度；執行噴漆模糊圖像和噴漆顏色圖像的逐元素加權和，權重取決於噴漆阿爾法圖；隨機設計參數以生成不同噴漆圖樣、厚度和顏色的噴漆圖像。