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	abstract		abstract	Electrical distribution poles are important assets in electricity supply. These poles need to be maintained in good condition to ensure they protect community safety, maintain reliability of supply, and meet legislative obligations. However, maintaining such a large volumes of assets is an expensive and challenging task. To address this, recent approaches utilise imagery data captured from helicopter and/or drone inspections. Whilst reducing the cost for manual inspection, manual analysis on each image is still required. As such, several image-based automated inspection systems have been proposed. In this paper, we target two major challenges: tiny object detection and extremely imbalanced datasets, which currently hinder the wide deployment of the automatic inspection. We propose a novel two-stage zoom-in detection method to gradually focus on the object of interest. To address the imbalanced dataset problem, we propose the resampling as well as reweighting schemes to iteratively adapt the model to the large intra-class variation of major class and balance the contributions to the loss from each class. Finally, we integrate these components together and devise a novel automatic inspection framework. Extensive experiments demonstrate that our proposed approaches are effective and can boost the performance compared to the baseline methods.		
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