

## Cells Detection and Recognition in Bone Marrow Examination with Deep Learning Method

**Authors :** Shiyin He, Zheng Huang

**Abstract :** In this paper, deep learning methods are applied in bio-medical field to detect and count different types of cells in an automatic way instead of manual work in medical practice, specifically in bone marrow examination. The process is mainly composed of two steps, detection and recognition. Mask-Region-Convolutional Neural Networks (Mask-RCNN) was used for detection and image segmentation to extract cells and then Convolutional Neural Networks (CNN), as well as Deep Residual Network (ResNet) was used to classify. Result of cell detection network shows high efficiency to meet application requirements. For the cell recognition network, two networks are compared and the final system is fully applicable.

**Keywords :** cell detection, cell recognition, deep learning, Mask-RCNN, ResNet

**Conference Title :** ICSP 2018 : International Conference on Signal Processing

**Conference Location :** London, United Kingdom

**Conference Dates :** November 19-20, 2018