

Accepted Manuscript

Modified Histogram-Based Segmentation and Adaptive Distance Tracking of Sperm Cells Image Sequences

Fateme Mostajer Kheirkhah , Hamid Reza Sadegh Mohammadi , Abdolhossein Shahverdi

PII: S0169-2607(16)30852-5
DOI: [10.1016/j.cmpb.2017.11.005](https://doi.org/10.1016/j.cmpb.2017.11.005)
Reference: COMM 4536



To appear in: *Computer Methods and Programs in Biomedicine*

Received date: 16 August 2016
Revised date: 9 October 2017
Accepted date: 6 November 2017

Please cite this article as: Fateme Mostajer Kheirkhah , Hamid Reza Sadegh Mohammadi , Abdolhossein Shahverdi , Modified Histogram-Based Segmentation and Adaptive Distance Tracking of Sperm Cells Image Sequences, *Computer Methods and Programs in Biomedicine* (2017), doi: [10.1016/j.cmpb.2017.11.005](https://doi.org/10.1016/j.cmpb.2017.11.005)

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.

Modified Histogram-Based Segmentation and Adaptive Distance Tracking of Sperm Cells Image Sequences

Fateme Mostajer Kheirkhah¹ (corresponding author)

fkheirkhah@gmail.com

Hamid Reza Sadegh Mohammadi¹

mohammadis@acecr.ac.ir

Abdolhossein Shahverdi²

shahverdi@royaninstitute.org

¹Iranian Research Institute for Electrical Engineering, ACECR, Tehran, I. R. Iran

²Royan Institute, ACECR, Tehran, I. R. Iran

Abstract

. Proper recognition and tracking of microscopic sperm cells in video images are vital steps of male infertility diagnosis and treatment. The segmentation and detection of sperms in microscopic image analysis is a complicate process as a result of their small sizes, fast movements, and considerable collisions. Histogram-based thresholding schemes are very popular for this purpose, since they are quite fast and provide almost acceptable results. This paper proposes a combined method for sperm cells detection, which consists of a non-linear pre-processing stage, a histogram-based thresholding algorithm, and a tracking method based on an adaptive distance scheme. The results of conducted experiments verify the superiority of the proposed scheme with incorporated Kittler algorithm compared to the other competitive methods in the majority of cases.

Keywords: *Histogram-based thresholding, Sperm cells, Motility analysis, Segmentation, Tracking, Adaptive distance*

Download English Version:

<https://daneshyari.com/en/article/6891170>

Download Persian Version:

<https://daneshyari.com/article/6891170>

[Daneshyari.com](https://daneshyari.com)