



ELLIPSE DETECTION ON EMBRYO IMAGING USING RANDOM SAMPLE CONSENSUS (RANSAC) METHOD BASED ON ARC SEGMENT

Arie Rachmad Syulistyo*, Aprinaldi*, Anom Bowolaksono[†], Budi Wiweko[‡], Andrea Prati*, Dwi M.
J. Purnomo*, Wisnu Jatmiko*

*Faculty of Computer Science, Universitas Indonesia

[†] Faculty of Mathematic and Natural Science, Universitas Indonesia

[‡] Faculty of Medicine, University of Indonesia

* Department of Information Engineering University of Parma Parco Area delle Scienze

181/A I-43124 Parma, Italy

Emails: arie.rachmad@ui.ac.id, wisnuj@cs.ui.ac.id

Submitted: Mar. 31, 2016

Accepted: July. 21, 2016

Published: Sep. 1, 2016

Abstract- In Vitro Fertilization (IVF) is a method which is used to help couples who have a fertility problem. One of the problems of IVF is the success rate, which is only about 30%. One cause of the problem is the embryo morphology observation done by embryologist manually. Morphologically normal embryo does not mean the embryos are genetically normal. The aforementioned phenomena can be tested by using time lapse recording in which unavailable in the manual observation. Therefore it is very important to establish method for time lapsed recording of the embryos. This can be done by automatic observation on the embryo image, where the first step is to create a system that can automatically detect the embryo. This paper proposed Random Sample Consensus (RANSAC) method based on Arc Segment to automatically detect embryo.

From the experiment that have been conducted, the proposed method can detect single and multiple ellipse on embryo with a better accuracy than the previous method, EDCircles by 6% and 3% for single and double respectively.

Index-terms: EDCircles, RANSAC, Ellipse Detection, Blastomere, Embryo