SWARM OPTIMIZATION ALGORITHM FOR BOUNDARY DETECTION IN IMAGES

MAJOR PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF

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Submitted By:

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CERTIFICATE

This is to certify that **Resham Wadhwa (2K13/ISY/20)** has carried out the major project titled "**Swarm Optimization algorithm for boundary detection in images**" in partial fulfilment of the requirements for the award of Master of Technology degree in Information Systems by **Delhi Technological University**.

The major project is bonafide piece of work carried out and completed under my supervision and guidance during the academic session 2013-2015. To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other University/Institute for the award of any degree or diploma.

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ABSTRACT

Swarm Intelligence uses a set of particles that move through the given search space and gather local information. This limited memory of particles is then used for solving problems. In this paper, we present algorithms based on the swarm intelligence based technique - the firefly algorithm. To generate boundaries, extra particles are removed by applying an appropriate threshold mechanism. In ACO, ants are distributed throughout the image and the movement takes place on the basis of pheromones, heuristics and the probability value. In the proposed firefly algorithm for Boundary Detection, fireflies are distributed in an image and the movement towards the solution depends upon the brightness and attraction amongst the fireflies. These algorithms' performance is evaluated using Berkeley Segmentation DataSet (BSDS) and is compared with those of existing boundary detection algorithms via BSDS benchmark.

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