



University of Pavia

Ph.D. School of Electrical and Electronics Engineering and Computer Science

SEMINAR

Ant Algorithm for Image Edge Detection

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Dip. di Ingegneria Industriale e dell'Informazione

Abstract:

Ant colony optimization is a population-based metaheuristic that mimics the foraging behavior of ants to find approximate solutions to difficult optimization problems. We present an ACO-based technique for image edge detection. The purpose of detecting sharp changes in image brightness is to capture important events and changes in properties of the world. The result of applying an edge detector to an image may lead to a set of connected curves that indicate the boundaries of objects, the boundaries of surface markings as well as curves that correspond to discontinuities in surface orientation. An ACO-based approach has the potential of overcoming the limitations of conventional methods. Furthermore, it can readily be parallelized, which makes the algorithm easily adaptable for distributed systems.

Bio: Stefka Fidanova was born in Stara Zagora, Bulgaria in February 14 1964. She received her master and PhD degrees from Sofia University, Bulgaria in 1988 and 1999 respectively. Since 1993 she works in the Institute of Information and Communication Technologies (former Institute of Parallel Processing) at Bulgarian Academy of Science. Her main fields of research are stochastic methods for combinatorial optimization, parallel algorithms, mathematical modeling. She has several long stays in foreign universities as: 1995, 6 months at Institute of Applied Mathematics and IMAG - Centre National de Recherche Scientifique - LMC, Grenoble, France; 1999, 1 year Post.Doc at Institute National de Recherche en Informatique et en Automatique, Sophia-Antipolis, France; 2000-2002, 2 years Marie Curie Fellow of EC at IRIDIA Universite Libre de Bruxelles, Belgium; 2007, 3 months invited professor University of Malaga, Spain. She has more than 110 publications including 10 books and book chapters. Her results are cited more than 320 times.

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