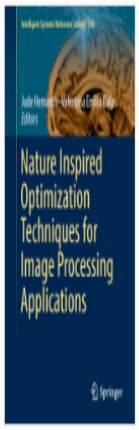
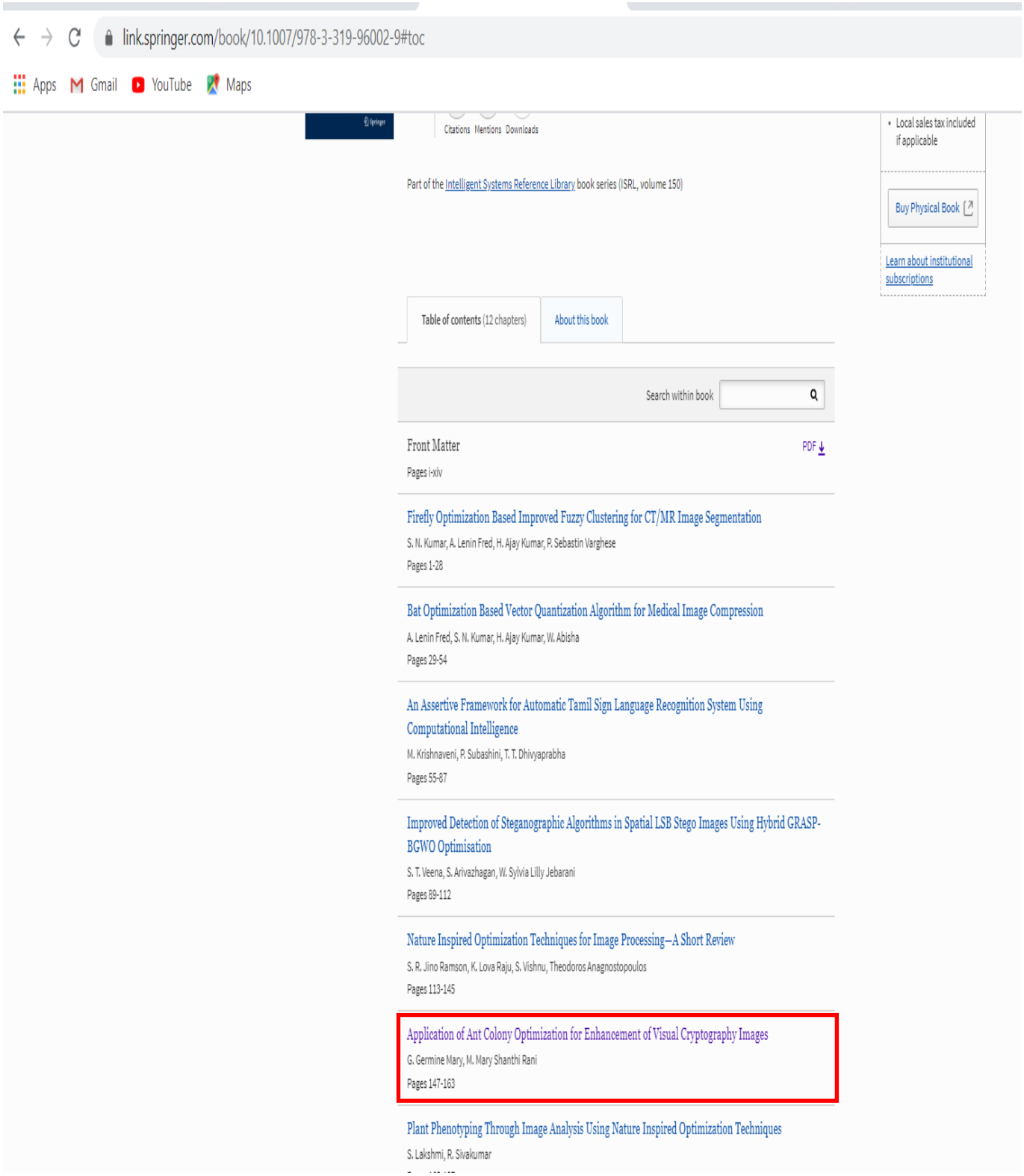


Nature Inspired Optimization Techniques for Image Processing Applications

Editors (view affiliations)

Jude Hemanth, Valentina Emilia Balas

Part of the Intelligent Systems Reference Library book series (ISRL, volume 150)


link.springer.com/book/10.1007/978-3-319-96002-9#toc
Apps
Gmail
YouTube
Maps
Citations Mentions Downloads
Local sales tax included if applicable
Part of the Intelligent Systems Reference Library book series (ISRL, volume 150)
Buy Physical Book
Learn about institutional subscriptions
Table of contents (12 chapters)
About this book
Search within book
Front Matter
PDF
Pages i-xiv
Firefly Optimization Based Improved Fuzzy Clustering for CT/MR Image Segmentation
S. N. Kumar, A. Lenin Fred, H. Ajay Kumar, P. Sebastin Varghese
Pages 1-28
Bat Optimization Based Vector Quantization Algorithm for Medical Image Compression
A. Lenin Fred, S. N. Kumar, H. Ajay Kumar, W. Abisha
Pages 29-54
An Assertive Framework for Automatic Tamil Sign Language Recognition System Using Computational Intelligence
M. Krishnaveni, P. Subashini, T. T. Dhivyaprabha
Pages 55-87
Improved Detection of Steganographic Algorithms in Spatial LSB Stego Images Using Hybrid GRASP-BGWO Optimisation
S. T. Veena, S. Arivazhagan, W. Sylvia Lilly Jebarani
Pages 89-112
Nature Inspired Optimization Techniques for Image Processing—A Short Review
S. R. Jino Ramson, K. Lova Raju, S. Vishnu, Theodoros Anagnostopoulos
Pages 113-145
Application of Ant Colony Optimization for Enhancement of Visual Cryptography Images
G. Germine Mary, M. Mary Shanthi Rani
Pages 147-163
Plant Phenotyping Through Image Analysis Using Nature Inspired Optimization Techniques
S. Lakshmi, R. Sivakumar

Chapter 6
Application of Ant Colony Optimization for Enhancement of Visual Cryptography Images

G. Germine Mary and M. Mary Shanthi Rani

Abstract Visual Cryptography is a method that shows the idea of maintaining secrecy by concealing secrets in images. An image may be separated into k shares that can be stacked together to recover the first image approximately. This secret sharing scheme enables distribution of a secret amongst *n* persons, such that only predefined approved persons will be able to recreate the secret. In Visual Cryptography, the secret can be remade visually by superimposing shares. One of the fundamental disadvantage of conventional Visual Cryptography is the pixel expansion, where every pixel is substituted by *m* sub-pixels in each share that results in the loss of resolution. Thus enhancing the visual nature of Visual Cryptography is a generally researched area. The proposed technique improves the visual quality and resolution of Visual Cryptography utilizing the Ant Colony Optimization Algorithm and it takes into account a wide range of images, color and also gray. The proposed technique builds the quality and sharpness of the image. It is assessed subjectively regarding human visual perception and quantitatively utilizing standard measurements.

Keywords Ant colony optimization · Visual cryptography · Image enhancement Image security · Secret sharing · Human visual perception · Pheromone trail

G. G. Mary (✉)
Fatima College, Madurai, Tamil Nadu, India
e-mail: germinemary@yahoo.co.in

M. M. S. Rani
Gandhigram Rural Institute—Deemed University, Gandhigram,
Dindigul, Tamil Nadu, India
e-mail: drmaryshanthi@gmail.com

J. Hemanth and V. E. Balas (eds.), *Nature Inspired Optimization Techniques for Image Processing Applications*, Intelligent Systems Reference Library 150,
https://doi.org/10.1007/978-3-319-96002-9_6