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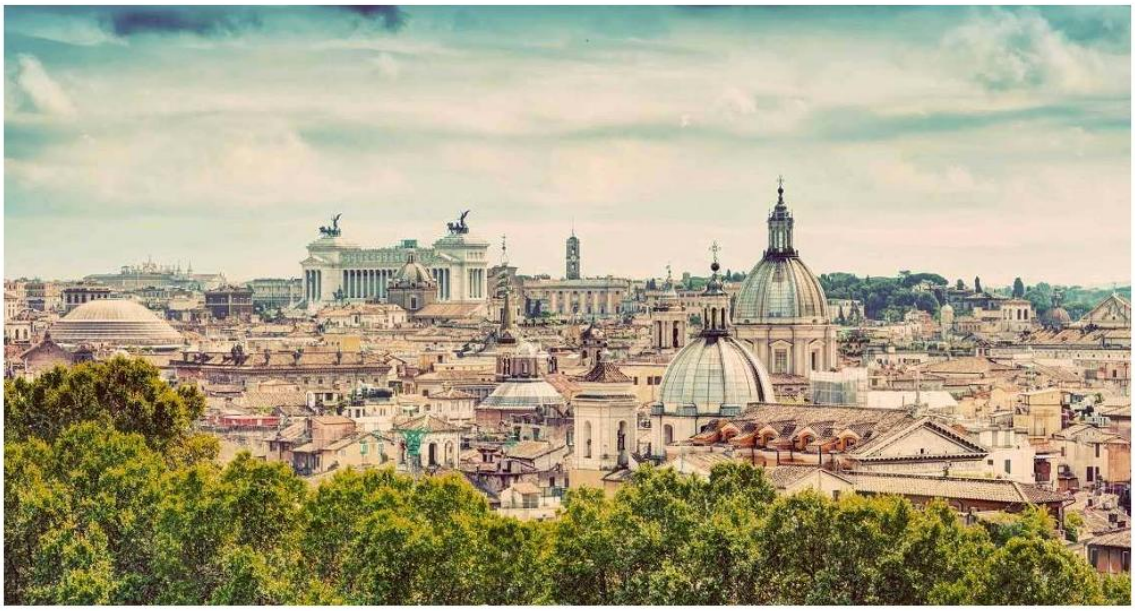

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Front Cover
Publication Year: 2019 , Page(s): 1 - 1

First Page
Publication Year: 2019 , Page(s): 1 - 1

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Publication Year: 2019 , Page(s): 1 - 1

Preface
Alessandro Neri; Azeddine Beghdadi
Publication Year: 2019 , Page(s): 1 - 1

Table of Contents
Publication Year: 2019 , Page(s): 1 - 3

Organizing Committee
Publication Year: 2019 , Page(s): 1 - 2

Reviewers
Publication Year: 2019 , Page(s): 1 - 1

Seven-Point Checklist with Convolutional Neural Networks for Melanoma Diagnosis
Saeed Alzahrani; Waleed Al-Nuaimy; Baidaa Al-Bander
Publication Year: 2019 , Page(s): 211 - 216
Cited by: Papers (11)
Abstract HTML

Use of Second-Order Statistics in Texture Synthesis-by-Analysis
Gaetano Scarano; Mauro Biagi; Roberto Cusani
Publication Year: 2019 , Page(s): 158 - 162
Abstract HTML

Deepkey: Keystroke Dynamics and CNN for Biometric Recognition on Mobile Devices

Emanuele Maiorana; Himanka Kalita; Patrizio Campisi

Publication Year: 2019 , Page(s): 181 - 186

Cited by: Papers (9)

Abstract HTML

Cockpit Video Coding with Temporal Prediction

Iulia Mitrica; Attilio Fiandrotti; Marco Cagnazzo; Eric Mercier; Christophe Ruellan

Publication Year: 2019 , Page(s): 28 - 33

Cited by: Papers (2)

Abstract HTML

Multi-Spectral Imaging for Artificial Ripened Banana Detection

Narayan Vetrekar; Raghavendra Ramachandra; Kiran B. Raja; R. S. Gad

Publication Year: 2019 , Page(s): 187 - 192

Cited by: Papers (7)

Abstract HTML

Shearlet-Based Light Field Reconstruction of Scenes with Non-Lambertian Properties

Sergio Moreschini; Robert Bregovic; Atanas Gotchev

Publication Year: 2019 , Page(s): 140 - 145

Cited by: Papers (3)

Abstract HTML

Multi-Spectral Imaging for Artificial Ripened Banana Detection

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Narayan Vetrekar ; Raghavendra Ramachandra ; Kiran B. Raja ; R. S. Gad All Authors

Abstract:
Ripening is a natural process that makes fruits edible and nutritious. With increasing demand, the practice to employ artificial ripening of fruits have been increased recently in the market chain to fulfill the needs of the consumer. Artificial ripening not only reduces the quality of fruits but also increases the health-related risk especially Calcium carbide(CaC_2), an artificial ripening agent, inherits the carcinogenic properties. Although the problem of detecting artificial ripening of fruits is important, the conventional methods based on chemical analysis are not feasible. In this paper, we present the use of multi-spectral imaging in eight narrow spectrum bands across VIS and NIR range to detect the artificial ripened banana. To present this approach, we introduce a newly constructed multi-spectral images collected from naturally and artificially ripened banana samples. The extensive experiments are performed on the large scale data set consists of 5760 banana samples by performing 10 fold cross-validation. The obtained average classification accuracy of 97.5% demonstrates the significance of multi-spectral imaging for differentiating natural and artificial ripened banana.

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