

Accepted Manuscript

Yarn Features Extraction Using Image Processing and Computer Vision – A Study with Cotton and Polyester Yarns

Nuno Gonçalves, Vítor Carvalho, Michael Belsley, Rosa M. Vasconcelos, Filomena O. Soares, José Machado

PII: S0263-2241(15)00068-8

DOI: <http://dx.doi.org/10.1016/j.measurement.2015.02.010>

Reference: MEASUR 3255

To appear in: *Measurement*

Received Date: 18 October 2014

Revised Date: 25 December 2014

Accepted Date: 2 February 2015

Please cite this article as: N. Gonçalves, V. Carvalho, M. Belsley, R.M. Vasconcelos, F.O. Soares, J. Machado, Yarn Features Extraction Using Image Processing and Computer Vision – A Study with Cotton and Polyester Yarns, *Measurement* (2015), doi: <http://dx.doi.org/10.1016/j.measurement.2015.02.010>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Yarn Features Extraction Using Image Processing and Computer Vision – A Study with Cotton and Polyester Yarns

Nuno GONÇALVES¹, Vítor CARVALHO^{1,4}, Michael BELSLEY², Rosa M. VASCONCELOS³,
Filomena O. SOARES¹, José MACHADO⁵

¹*R&D Center Algoritmi, UM, Azurém, Guimarães, Portugal, email: filomena.soares @algoritmi.uminho.pt,
phone: +351 253 510 180*

²*DF, UM, Gualtar, Braga, Portugal, email: belsley @fisica.uminho.pt
phone: +351 253 604 320*

³*DET, UM, Azurém, Guimarães, Portugal, email: rosa@det.uminho.pt
phone: +351 253 510 280*

⁴*IPCA-EST, Vila Frescainha, Barcelos, Portugal, email: vcarvalho@ipca.pt
phone: +351 253 802 260*

⁵*MEtRICs Research Center, UM, Azurém, Guimarães, Portugal, email: jmachado@dem.uminho.pt
phone: +351 253 510 223*

Abstract The aim of this paper is the development of a new technological solution, for the automatic characterization of the yarn mass parameters (linear mass, diameter, and hairiness) based on image processing and computer vision techniques. A preliminary study for the detection and distinction between loop and protruding fibers is also presented. A custom-made application developed in LabVIEW from National Instruments with the IMAQ Vision Toolkit was used to acquire, analyze and process the yarn images. Some experimental results using cotton and polyester yarns were performed and compared with a commercial solution for validation. The presented approach allows a correct yarn parameterization improving products' quality in the textile industry.

Keywords Yarn linear mass, yarn diameter, yarn hairiness, image processing, computer vision, IMAQ vision.

Download English Version:

<https://daneshyari.com/en/article/7124395>

Download Persian Version:

<https://daneshyari.com/article/7124395>

[Daneshyari.com](https://daneshyari.com)