September – 2018

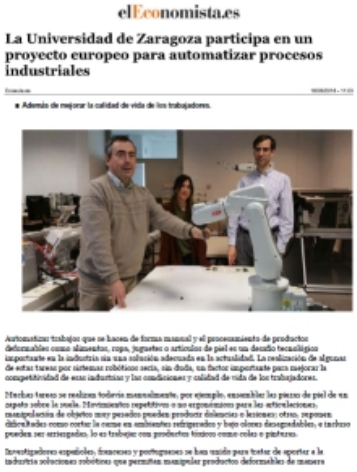
COMMANDIA NEWSLETTER

http://commandia.unizar.es

Collaborative Robotic Mobile Manipulation of Deformable Objects in Industrial Applications

March 16, 2018

COMMANDIA in elEconomista.es

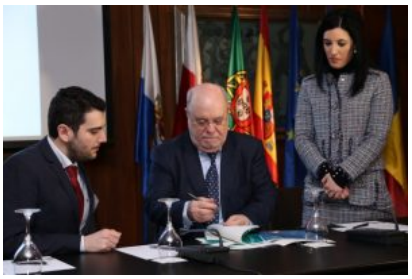

elEconomista.es

La Universidad de Zaragoza participa en un proyecto europeo para automatizar procesos industriales

The Universidad de Zaragoza participates in European Project for the automation of industrial processes.

April 10, 2018

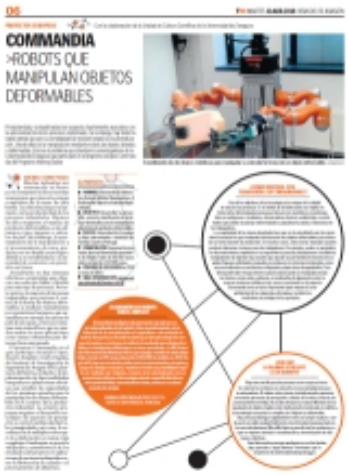
Signing of ERDF agreement



Juan Antonio Corrales (SIGMA) in the signing of the European Regional Development Fund (ERDF) Concession Agreement in Santander on April 10, 2018.

April 10, 2018

COMMANDIA in Heraldo de Aragón


COMMANDIA
>ROBOTS QUE MANIPULAN OBJETOS DEFORMABLES

The newspaper Heraldo de Aragón dedicates a full page to project COMMANDIA.

May 7, 2018

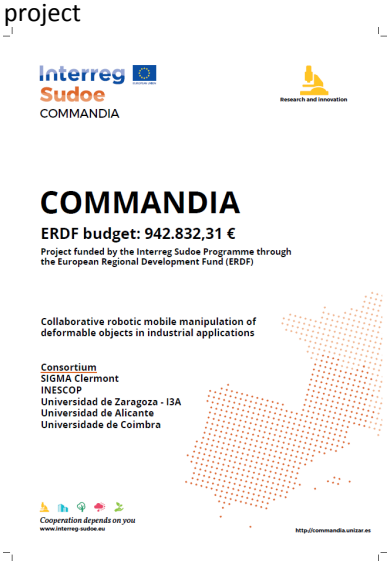
Meeting at INESCOP

Kick-off meeting of the COMMANDIA consortium at INESCOP on May 7th.

May 7, 2018

COMMANDIA poster

SUDOE poster of COMMANDIA project


Interreg Sudoe COMMANDIA

Research and Innovation

COMMANDIA

ERDF budget: 942.832,31 €

Project funded by the Interreg Sudoe Programme through the European Regional Development Fund (ERDF)

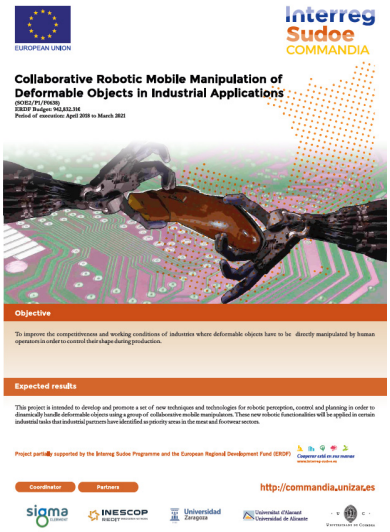
Collaborative robotic mobile manipulation of deformable objects in industrial applications

Consortium
SIGMA Clermont
INESCOP
Universidad de Zaragoza - I3A
Universidad de Alicante
Universidade de Coimbra

Cooperation depends on you
www.interreg-sudoe.eu

http://commandia.unizar.es

Extended version of the poster


EUROPEAN UNION

Interreg Sudoe COMMANDIA

Collaborative Robotic Mobile Manipulation of Deformable Objects in Industrial Applications

Objective

Expected results

http://commandia.unizar.es

Sponsoring: Project COMMANDIA (SOE2/P1/F0638) is partially supported by Interreg Sudoe Programme and European Regional Development Fund (ERDF).

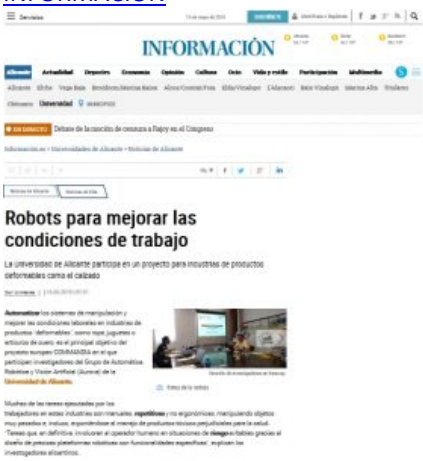
COMMANDIA NEWSLETTER

http://commandia.unizar.es

Collaborative Robotic Mobile Manipulation of Deformable Objects in Industrial Applications

May 31, 2018

COMMANDIA in Diario INFORMACIÓN



Robots to improve working conditions:
The University of Alicante participates in a project for deformable products industries such as footwear.

June 8, 2018

Conference: The digital challenge in the footwear sector. INESCOP-Economía3

D. Miguel Davia, Head of Advanced Manufacturing at INESCOP, presented in the forum "El reto digital en el Sector Calzado", on 7th March 2018, the keynote "Servicios de apoyo desde Inescop a la digitalización del Sector Calzado" ("Support services from Inescop to the digitization of the Footwear Sector"). economia3.com

July 13, 2018

Paper: A Vision-Driven Collaborative Robotic Grasping System Tele-Operated by Surface Electromyography

Title: A Vision-Driven Collaborative Robotic Grasping System Tele-Operated by Surface Electromyography
Author: Andrés Úbeda, Brayan S. Zapata-Impata, Santiago T. Puente, Pablo Gil, Francisco Candelas and Fernando Torres
Journal: Sensors 2018, 18(7), 2366; https://doi.org/10.3390/s18072366
Abstract: This paper presents a system that combines computer vision and surface electromyography techniques to perform grasping tasks with a robotic hand. In order to achieve a reliable grasping action, the vision-driven system is used to compute pre-grasping poses of the robotic system based on the analysis of tridimensional object features. Then, the human operator can correct the pre-grasping pose of the robot using surface electromyographic signals from the forearm during wrist flexion and extension. Weak wrist flexions and extensions allow a fine adjustment of the robotic system to grasp the object and finally, when the operator considers that the grasping position is optimal, a strong flexion is performed to initiate the grasping of the object. The system has been tested with several subjects to check its performance showing a grasping accuracy of around 95% of the attempted grasps which increases in more than a 13% the grasping accuracy of previous experiments in which electromyographic control was not implemented. Download paper

September 7, 2018

Paper: Agarre bimanual de objetos asistido por visión

Title: Agarre bimanual de objetos asistido por visión
Author: J.A. Castro-Vargas, B.S. Zapata-Impata, P. Gil, J. Pomares
Conference: Tejado Balsera, Inés, et al. (eds.). Actas de las XXXIX Jornadas de Automática: Badajoz, 5-7 de Septiembre de 2018. ISBN 978-84-09-04460-3, pp. 1030-1037

Abstract: Manipulation tasks of objects, sometimes, require the use of two or more cooperating robots. In the industry 4.0, assistance robotic is being more and more demanded, for example, to carry out tasks such as lifting, dragging or pushing of both heavy and big packages. Consequently, it is possible to find robots with human appearance addressed on helping human operators in activities in which these types of movements occur. In this article, a vision-assisted robotic platform is presented to carry out both grasping tasks and bimanual manipulation of objects. The robotic platform consists of a

Sponsoring: Project COMMANDIA (SOE2/P1/F0638) is partially supported by Interreg Sudoe Programme and European Regional Development Fund (ERDF).

metallic torso with rotational joint at the hip and two industrial manipulators, with 7 degrees of freedom, which act as arms. Each arm mounts a multifinger robotic hand at the end. Each of the upper extremities uses visual perception from 3 RGBD sensors located in an eye-to-hand configuration. The platform has been successfully used and tested to carry out bimanual object grasping in order to develop cooperative manipulation tasks in a coordinated way between both robotic extremities.
Download paper

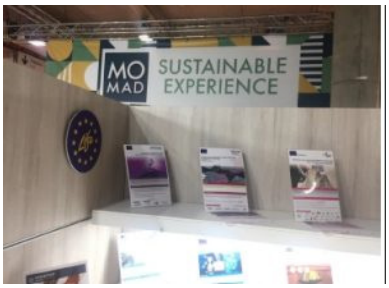
September 13, 2018

Paper: Non-Matrix Tactile Sensors: How Can Be Exploited Their Local Connectivity For Predicting Grasp Stability?

Title: Non-Matrix Tactile Sensors: How Can Be Exploited Their Local Connectivity For Predicting Grasp Stability?
Author: Brayan S. Zapata-Impata, Pablo Gil, Fernando Torres
Publication: arXiv.org – arXiv:1809.05551
Abstract: Tactile sensors supply useful information during the interaction with an object that can be used for assessing the stability of a grasp. Most of the previous works on this topic processed tactile readings as signals by calculating hand-picked features. Some of them have processed these readings as images calculating characteristics on matrix-like sensors. In this work, we explore how non-matrix sensors (sensors with taxels not arranged exactly in a matrix) can be processed as tactile images as well. In addition, we prove that they can be used for predicting grasp stability by training a Convolutional Neural Network (CNN) with them. We captured over 2500 real three-fingered grasps on 41 everyday objects to train a CNN that exploited the local connectivity inherent on the non-matrix tactile sensors, achieving 94.2% F1-score on predicting stability.
Paper download

September 30, 2018

MOMAD 2018



Stand of INESCOP at MOMAD

MOMAD, acronym for fashion in Madrid (MOda en MADrid), is a fair that takes place usually in September in Madrid fair pavilion, Ifema. MOMAD is the largest fashion showcase of the Iberian Peninsula for the presentation of new collections, new brand and retail concepts, lifestyle and trends.
Under the umbrella brand of ShoesRoom by MOMAD, footwear companies exhibit at MOMAD Fashion and Accesories show. Moreover, ShoesRoom also takes place in winter as a separate event, so they can present Fall/Winter and Spring/Summer collections.

September 30, 2018

Lineapelle exhibition

Lineapelle is an international exhibition held in Milan, about innovation focused in leather, accessories, components, fabrics, synthetics and models.

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