

**Part A. PERSONAL INFORMATION**

CV date	25/05/21
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First and Family name	Joaquín Ojeda Granja
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Researcher codes	Open Researcher and Contributor ID (ORCID**)	0000-0002-6894-197X
	SCOPUS Author ID (*)	24784186500
	WoS Researcher ID (*)	I-2380-2014

(\*) Optional

(\*\*) Mandatory

**A.1. Current position**

Name of University/Institution	Universidad de Sevilla, Escuela Técnica Superior de Ingeniería
Department	Mechanical Engineering and Manufacturing

Current position	Profesor Titular de Universidad	From	24-05-2021
Key words	Biomechanics, Motion Analysis, Multibody System Dynamics		

**A.2. Education**

PhD, Licensed, Graduate	University	Year
Industrial Engineer	Universidad de Sevilla	2007
Master Degree	Universidad de Sevilla	2008
PhD Degree	Universidad de Sevilla	2012

**A.3. General indicators of quality of scientific production (see instructions)**

Number of doctoral theses supervised in the last 10 years: 1

Diseño de métodos observacional y tecnológico. Análisis innovador de parámetros espaciotemporales del paso.. M<sup>a</sup> del Carmen Ridao Fernández. Universidad de Sevilla, June 25, 2019.

A six-year period of research positively evaluated: 2011-2016.

Very relevant publications: 5 first quartile and 1 second quartile.

Total citations: 100. Average number of citations/year over the last 5 years (not including the current year): 15.2 citations/year. Source: ResearchGate.

Index h: 6. Source: ResearchGate (h=5, WoS; h=6, Scopus).

**Part B. CV SUMMARY (max. 3500 characters, including spaces)**

I started my research career in the field of Biomechanics by doing my final year project on internal bone remodeling. As a result of this work, I was awarded the first prize for the best end of degree project by the Association of Industrial Engineers of Western Andalusia in 2007. That same year, I obtained a FPI grant to do my doctoral thesis with Professor Juana Mayo also in the field of Biomechanics but with a different topic: the application of multi-body systems techniques to the analysis of human gait. I carried out two pre-doctoral stays. The first was at the University of Stuttgart under the direction of Peter Eberhard in 2008 for a duration of 6 months. This world-famous researcher directed me to work on the biomechanics of the middle ear in guinea pigs. The result of this research was an in-depth knowledge of multi-body systems techniques applied to Biomechanics. The second research stay was at the Human Performance Lab of the University of Calgary under the supervision of Dr. Benno Nigg in 2010 for a duration of 5 months working on experimental techniques of motion capture and principal component analysis applied to human walking. In 2012 I completed my doctoral thesis with mention of international and won second prize for the best doctoral thesis awarded by the National Association of Mechanical Engineering. In 2014 I obtained a scholarship to carry out a research stay at the University of Trujillo, Peru, to develop models of contact between the foot and the ground. As a result of this stay I was published in an international congress. In the year 2015 a new line of research has been initiated that tries to apply the techniques of movement analysis to cycling. The result of this work has been the obtaining of state funding



to develop a research project in this field, of which I am the main researcher. In November 2015 I was elected as a member of the governing committee of the Spanish Chapter of the European Society for Biomechanics, a position I have held until 2019; the last two years as president.

## **Part C. RELEVANT MERITS** (*sorted by typology*)

### **C.1. Publications** (*see instructions*)

Mayo, J., Ojeda, J. 2020. Influence of the kinematic constraints on dynamic residuals in inverse dynamic analysis during human gait without using force plates. *Multibody System Dynamics*. 50: 305-321.

Martín-Sosa, E., Martínez-Reina, J., Mayo, J., Ojeda, J. 2019. Influence of musculotendon geometry variability in muscle forces and hip bone-on-bone forces during walking. *PLoS ONE*. 14(9): e0222491.

Ojeda, J., Mayo, J. 2019. A procedure to estimate normal and friction contact parameters in the stance phase of the human gait. *Computer Methods in Biomechanics and Biomedical Engineering*. 22(8): 840-852.

Commisso, M.S., Ojeda, J., Mayo, J., Martínez-Reina, J. 2018. Influence of the Temporomandibular Joint in the Estimation of Bone Density in the Mandible through a Bone Remodelling Model. *Mathematical Problems in Engineering*. 2018:7243696.

Chamorro-Moriana, G., Ridao-Fernández, C., Ojeda, J., Benítez-Lugo, M., Sevillano, J.L. 2016. Reliability and validity study of the Chamorro Assisted gait Scale for people with sprained ankles, walking with forearm crutches. *PLoS ONE*. 11(5): e0155225.

Ojeda, J., Martínez-Reina, J.M., Mayo, J. 2016. The effect of kinematic constraints in the inverse dynamics problema in biomechanics. *Multibody System Dynamics*. 37:291–309.  
Martínez-Reina, J.M., Ojeda, J., Mayo, J. 2016. On the use of bone remodelling models to estimate the density distribution of bones. Uniqueness of the solution. *PLOS ONE* 11(2): e0148603.

Commisso, MS, Martinez-reina, J, Ojeda, J, Mayo, J. 2015. Finite element analysis of the human mastication cycle. *Journal of the Mechanical Behavior of Biomedical Materials*. 41: 23-35

Ojeda, J., Martínez-Reina, J., Mayo, J. 2014. A method to evaluate human skeletal models using marker residuals and global optimization. *Mechanism and Machine Theory*. 73: 259-272.

Ojeda, J., martínez-Reina, J., García-Aznar, JM, Domínguez, J. 2011. Numerical simulation of bone remodelling around dental implants. *Proceedings of the Institution of Mechanical Engineers Part H- Journal of Engineering in Medicine*. 225: 897-906.

Ojeda, J., Mayo, J., Martínez-Reina, J., 2011, Cost function in muscle redundancy problems: Computational aspects, *Mechanics Based Design of Structures and Machines*, Vol 39: 268-284.

### **C.2. Research projects**

Title: Diseño de un banco de pruebas para la optimización de la cinemática y la cinética 3D en la práctica del ciclismo (DPI2016-80796-P)

Funding entity: Ministry of Science and Innovation

Call for applications: National



Participants: University of Seville  
Principal Investigator 1: Joaquín Ojeda Granja  
Principal Investigator 2: Juana Mayo Núñez  
Duration: 4 years  
Amount: 151.855  
Role developed: principal investigator  
Dedication: complete

Title: Red española de investigación en Biomecánica (DPI2017-90572-REDT)  
Financing entity: Ministry of Economy and Competitiveness  
Call for applications: National  
Principal Investigator: Josep Maria Font Llagunes  
Duration: 2 years  
Amount: 8.000  
Role developed: researcher  
Dedication: complete

Title: Análisis predictivo de la marcha incluyendo un modelo multisegmento del pie para aplicación clínica (DPI2013-44371-P)  
Funding entity: Ministry of Science and Innovation  
Call for applications: National  
Participants: University of Seville  
Principal Investigator: Juana Mayo Núñez  
Amount: 60000 euros.  
Role developed: collaborating researcher  
Dedication: complete

Title: Cooperación de la Biomecánica y la Mecanobiología para el modelado del aparato locomotor humano (DPI2009-11792)  
Funding entity: Ministry of Science and Innovation  
National Call for Proposals  
Participants: University of Seville.  
Duration: 1-1-2010, 31-12-2012  
Principal Investigator: Juana Mayo Núñez  
Amount: 112530 euros.  
Role developed: collaborating researcher  
Dedication: complete.

Title: Biomecánica de la mandíbula humana (Proyecto de Excelencia TEP03115)  
Financing entity: Junta de Andalucía  
Regional Call for Proposals  
Participants: University of Seville.  
Duration: 31-1-2008, 30-1-2012  
Principal Investigator: Juana Mayo Núñez  
Amount: 281688 euros.  
Role played: collaborating researcher  
Dedication: complete.

Title: Aplicación de las técnicas de sistemas multicuerpo al aparato locomotor humano (DPI2006-15613-C03-03)  
Funding entity: Ministry of Education and Science  
National call  
Participants: University of Seville, University of La Coruña, Polytechnic University of Madrid.  
Duration: 1-10-2006, 30-9-2009  
Principal Investigator: Juana Mayo Núñez  
Amount: 80949 euros.  
Role developed: predoctoral fellow  
Dedication: complete.



### **C.3. Contracts, technological or transfer merits**

Title: Análisis del diseño mecánico, elaboración del diseño estructural, análisis dinámico y asesoramiento en la construcción y pruebas del sistema procesador de bioetanol.

Funding entity: Abengoa Hidrógeno.

Participants: Association for Research and Industrial Cooperation of Andalusia (AICIA).

Duration: 10-2013, 12-2016

Principal Investigator: Jaime Domínguez Abascal

Role developed: collaborating researcher.

Dedication: partial

### **C.4 Coordination and management activities**

Title: Member of the steering committee of the Spanish Chapter of the European Society for Biomechanics. Date: 20/11/2015 - 22/10/2019

### **C.5 Awards**

Second prize awarded by the National Association of Mechanical Engineering in the II Prize for the Best Doctoral Thesis, 2014

First prize for the Best End-of-Career Project by the Colegio Oficial de Ingenieros Industriales de Andalucía Occidental, 2007.

### **C.6 Grants obtained**

Pre-doctoral training aid for research staff (FPI)

Objective: completion of the doctoral thesis.

Funding entity: Ministry of Education and Science

Date: 02/07/2007-19/02/2010

Place: University of Seville

Pre-doctoral support for research staff mobility (modality A)

Objective: to carry out a research stay

Financing entity: University of Seville

Date: 15/06/2010-15/09/2010

Place: Human Performance Laboratory, University of Calgary, Canada

Incentive for the mobility of research staff from Andalusian universities (Pre-doctoral assistance)

Objective: to carry out a research stay

Funding entity: Junta de Andalucía

Date: 15/09/2010-02/12/2010

Place: Human Performance Laboratory, University of Calgary, Canada

Santander Young Professors and Researchers Scholarship (Postdoctoral Scholarship)

Objective: to carry out a research stay

Financing entity: Banco Santander

Date: 01/10/2014-14/01/2015 Place: National University of Trujillo, Peru