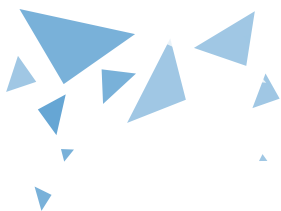


# TMCE 2018

Las Palmas de Gran Canaria, Spain

## Tools and Methods of Competitive Engineering Program





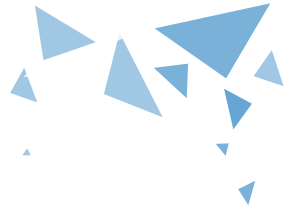
# TMCE 2018

## Las Palmas de Gran Canaria, Spain



TMCE 2018

Las Palmas de Gran Canaria, Spain



## **INTERNATIONAL SYMPOSIUM**

on

**Tools and methods of competitive engineering**

Las Palmas de Gran Canaria, Spain

07 – 11 May, 2018

Jointly organized by:

University of Las Palmas de Gran Canaria, Spain

Delft University of Technology, the Netherlands





## Welcome to TMCE 2018

It is difficult to believe that the very first International Tools and Methods of Competitive Engineering (TMCE) Symposium was held more than twenty years ago. But it is a fact! It was some 24 years ago when Prof. Dr. Imre Horváth and Prof. Dr. Károly Váradi - then young professors at the Technical University of Budapest, Hungary - initiated this series of events. And now, we are pleased to present the program booklet of the twelfth TMCE Symposium. The main objectives of the series of TMCE Symposia was stated as (i) aggregating and synthesizing multi-disciplinary engineering design knowledge, (ii) casting light on the latest engineering paradigms and influential technological trends, and (iii) dissemination of scientific knowledge towards industry and education. Over the years, many chairpersons and co-organizer teams supported the realization of these objectives. Not only podium presentations and the digital/printed Proceedings served as means of dissemination, but also workshops, discussion panels, and special issues of leading international journals. The TMCE symposia published more than 1000 peer-reviewed scientific papers so far. TMCE has become known all-over the world and has managed to build up a community for which this Symposium is one of the primary forums for publication and public debate.

The central theme of the professional program of TMCE 2018 is 'Implementation, application and utilization of smart systems'. The choice of this theme was stimulated by the understanding of the Program Committee that smart cyber-physical systems, by deeply penetrating into real-life physical processes and profiting from data-driven cyber-physical computing, can open new opportunities for service provisioning and dynamic resource management in human, social and industrial applications contexts. In addition many several traditional topics of competitive engineering will be addressed. The technical program of this Symposium includes 2 tracks of podium presentations, 8 keynote presentations, and 3 tracks of industrial and academic tutorials.

TMCE distinguishes itself from other conferences by offering attractive and entertaining social functions for each Symposium day. This tradition will not be broken in Las Palmas de Gran Canaria. A few highlights of the TMCE 2018 social program are: (1) on Monday, 7th May - Early Bird Reception, (2) on Tuesday, 8th May - Visit in the historic city center of Las Palmas de Gran Canaria, followed by the Reception of the Local Authorities, (3) on Wednesday, 9th May - Reception offered by the Chairmen, followed by the Gala Dinner in an exclusive hotel, (4) on Thursday, 10th May - A genuine Spanish Cultural Evening in a lovely place, and (5) on Friday, 23rd May - Excursion by buses to the some attractive places of the Island Gran Canaria. Further information about the daily social functions will be announced in the plenary sessions before the Lunch breaks.



# TMCE 2018

## Las Palmas de Gran Canaria, Spain

### Chairmen

Prof. Dr. Imre Horváth

Delft University of Technology, the Netherlands

Prof. Dr. José Pablo Suárez Rivero

University of Las Palmas de Grand Canaria, Spain

Prof. Dr. Pedro Manuel Hernández Castellano

University of Las Palmas de Grand Canaria, Spain

### Venue of Symposium

TMCE 2018 is held in the premises of the Faculty of Geography and History, Campus of Obelisco. Calle Pérez del Toro, 1, Las Palmas de Gran Canaria. The plenary opening session and the invited keynote presentations are held in the Conference Hall. The industrial tutorials and podium presentations are held in Santa Teresa Classrooms. The chairperson orientation meeting is in the Room B.21. For the location of the social functions please consult the later parts of this Program booklet.

### Proceedings of the TMCE 2018

The Proceedings contains all invited and contributed full-length papers. It is published in digital form on USB Flash Drive (ISBN/EAN: 978-94-6186-910-4).

### On-site registration

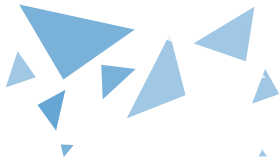
There are two options for registration for the Symposium:

(i) **Registration in a speeded up on-line process**

The delegates who intend to register will go through the standard registration process, starting with the administrative registration and then continue with the financial registration. They can use the regular on-line Registration Forms that can be found on the TMCE 2018 and the ULPGC-FPCT web sites. The colleagues working at the ULPGC-FPCT will make sure that the administrative matters are arranged immediately and the credit-card-based financial transaction is completed while the participant is present at the Symposium.

(ii) **Registration with on-site payment from the pocket**

The delegates who intend to register will first go through the administrative registration part of the standard registration process on-line. Then, they will pay the due participation fee in cash to the Delft chairman of the conference. There will be an Acknowledgement of payment letter filled in and signed by both the delegate and the chairman. Payments are accepted only in Euro.



## Registration fees

For information about the fees of various registrations please check the Registration Form on the TMCE 2018 web site.

## Language

The official language of the TMCE 2018 Symposium, including the digital Proceedings, is English.

## Sponsors

University of Las Palmas de Grand Canaria, Spain

Delft University of Technology, the Netherlands

Corporation for the Economic Development of Gran Canaria (SPEGC), Spain

## Conduct of sessions

Keynote lectures will be presented on Tuesday, Wednesday and Thursday morning, while the technical paper sessions have been scheduled in the afternoons of the Symposium days. Please study the program for further details on scheduling of the presentations. Presenters of plenary talks have 40 – 45 minutes for their presentation, followed by 5 - 10 minutes questions. The time available for presenting technical papers is 19 - 20 minutes, followed by an approximately 20 minutes long general discussion (questions and answers).

## Best contribution awards

One contributor will be selected for the best senior contribution award, and one contributor for the best junior contribution award of TMCE 2018.

## Accommodation

The participants should make their own booking. For on-line reservation in other hotels visit the web-page <http://www.booking.com/city/es/laspalmas> In case you need to arrange a last minute booking, please contact the reservation manager of the partner hotels, which are typically located in the center part or in other central districts of Las Palmas de Gran Canaria.

## Program for accompanying persons

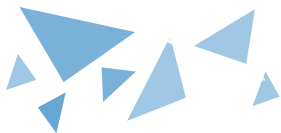
Spouses and accompanying persons may register for the Symposium's social program that includes all receptions, the Gala Dinner, the cultural program, and the one-day excursion. For attendees wishing to take part in additional tourist opportunities, a Post-Symposium tour can be arranged on-site. Please see the Registration Form for more information and prices.

# TMCE 2018

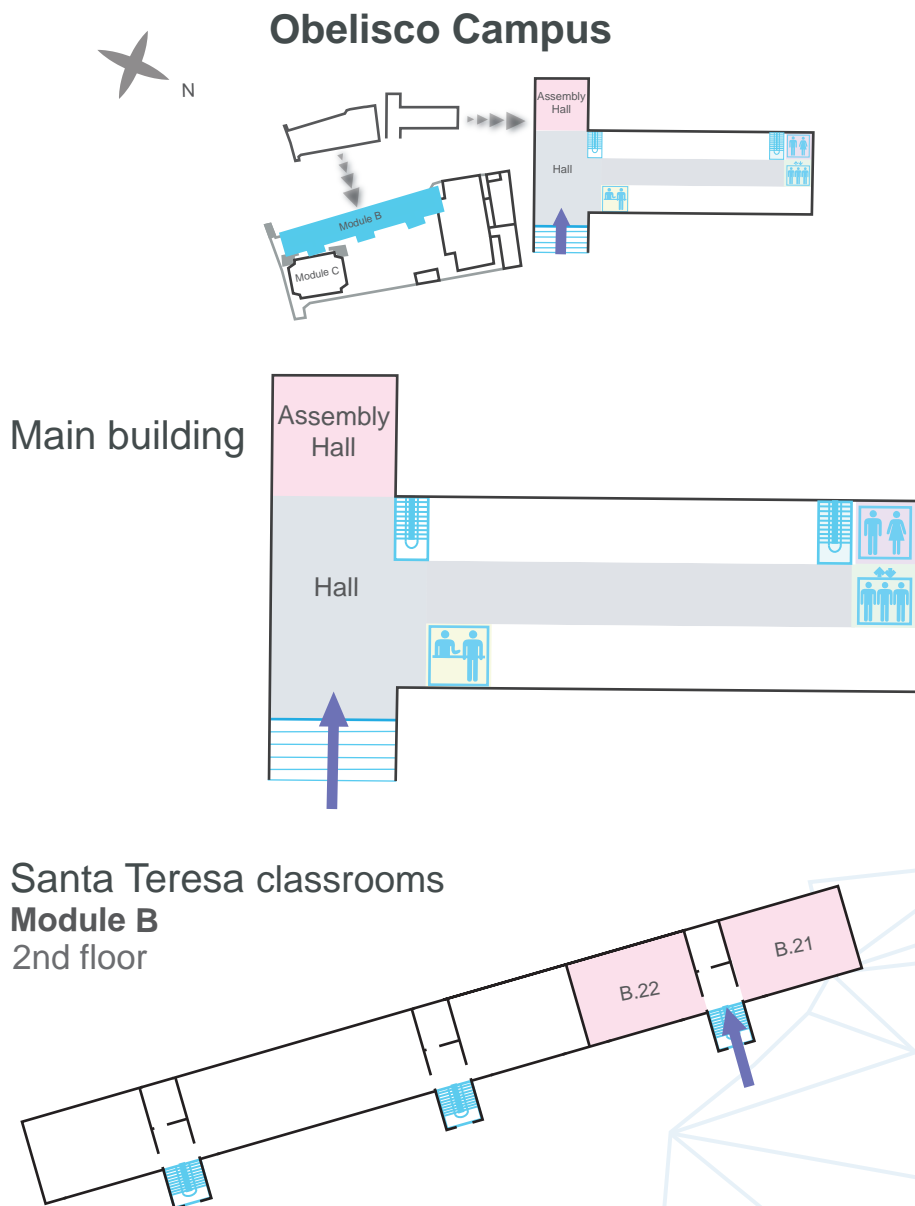
## Las Palmas de Gran Canaria, Spain

### SCHEME OF TRANSPORTATION

Date	Time	Departure:	Arrival:	Time
8 May 2018	08:15	Hotels, Las Canteras area	Venue - Campus of Obelisco	08:45
	18:45	Venue - Campus of Obelisco	Visit District Vegueta	19:00
	22:00	ULPGC Institutional Building	Hotels, Las Canteras area	22:30
9 May 2018	08:15	Hotels, Las Canteras area	Venue - Campus of Obelisco	08:45
	18:45	Venue - Campus of Obelisco	Hotels, Las Canteras area	19:00
	20:15	Hotels, City Center	Reina Isabel Hotel. Gala Dinner	20:30
	24:00	Reina Isabel Hotel. Gala Dinner	Hotels, City Center	00:30
10 May 2018	08:15	Hotels, Las Canteras area	Venue - Campus of Obelisco	08:45
	18:45	Venue - Campus of Obelisco	Visit Caldera de Bandama	19:30
	22:30	Caldera de Bandama	Hotels, Las Canteras area	23:00
11 May 2018	08:15	Hotels, Las Canteras area	Visit Agaete	08:45
	17:30	Galdar, Cueva Pintada	Visit Galdar, Cueva Pintada	18:00
	18:00	Hotels, Las Canteras area		19:00



## MAP OF THE VENUE



TMCE 2018

Las Palmas de Gran Canaria, Spain



## Organizers of TMCE 2018

### Members of the Organizing Committee

Chairman	Prof. Dr. Imre Horvath
Chairman	Prof. Dr. José P. Suárez
Chairman	Prof. Dr. Pedro M. Hernández
Financial matters	Mrs. Kira Sosa Gutierrez Mrs. Nayra González
Technical matters	Mrs. Fatima-Zara Abou Eddahab Mr. Daniel Espino
Web management	Ir. Adrie Kooijman
Graphical designs	Dr. Shahab Pourtalebi Ms. Sara Naranjo Ms. Cristina Corvo Ms. María Aguilar Mr. Adrián Vialard





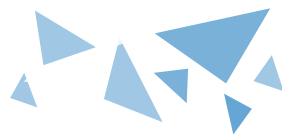
# TMCE 2018

## Las Palmas de Gran Canaria, Spain

Afternoon		07 May 2018, Monday	
Track:		Industrial tutorial - Track A	
Session:		Additive Manufacturing: Research and Innovation	
Place:		Room B.21	
Chair:		Prof. Dr. Mario Monzón	
Assistance:		Prof. Dr. Alejandro Yáñez	
Time	Title and presenter		
15:00 15:20	Standardization in additive manufacturing: Activities carried out by ISO and ASTM Prof. Dr. Mario Monzón (ES), ULPGC-CFI		
15:20 15:40	Design, finite element analysis and testing of implants fabricated by additive manufacturing Prof. PhD. Alejandro Yáñez (ES), ULPGC-BBRG Prof. PhD. Alberto Cuadrado (ES), ULPGC-BBRG		
15:40 16:00	The impact of biomechanical engineering and additive manufacturing on development of modern surgery Prof. PhD. David Pérez (ES), SCS-Universitary Hospital		
16:00 16:20	The Renaissance of patient's specific implants in the age of 3D printing: surgical applications and future development Mr. Donato Monopoli (IT), ITC-Government of the Canary Islands		
16:20 16:40	Metal additive manufacturing in the aeronautical industry Prof. PhD. Aitzol Lamikiz (ES), CFAA-UPV		
16:40 17:00	General discussion		
17:00 17:30	Coffee break		
17.30 19.00	Additive Manufacturing: Workshop (English and Spanish) Miguel Carrasco (ES) Eyser Hidráulica Luis Bernal (ES) ADM Tech Maarten Krzesinski (BE) Delta 3D Drago Díaz (ES) FabLab-ULL Daniel Espino (ES) MakerSpace-ULPGC		
19.00 20.00	Early Bird Reception Location: Santa Teresa Classrooms, Ground Floor		
20.00 20.30	Chairperson orientation meeting Room B.21		

# TMCE 2018

Las Palmas de Gran Canaria, Spain



Afternoon		07 May 2018, Monday	
Track:	Industrial tutorials - Track B		
Session	Tourism, design and competitive engineering: Research and innovation		
Place:	Room B.22		
Chair:	Prof. Dr. Alfonso Ruiz		
Assistance:	Prof. Dr. Carmelo León		
Time	Title and presenter		
15:00 15:30	Design management for tourism challenges Prof. Dr. Alfonso Ruiz (ES), ULL - Master Design Innovation for the Touristic Industry MIDIST		
15:30 16:00	Consumer perception and design in tourism Prof. Dr. Carmelo León (ES), ULPGC-Institute of Sustainable Tourism and Economic Development TIDES		
16:00 16:30	Gran Canaria: A destination view Prof. Pablo LLinares (ES), Gran Canaria Tourist Board		
16:30 17:00	General discussion		
17:00 17:30	Coffee break		
17:30 19:00	Tourism, design and competitive engineering: Workshop (English and Spanish) Carlos Jiménez (ES) Fine Arts Faculty, ULL Ignacio Bordes (ES) Civil and Industrial Engineering School, ULPGC Sergio Sánchez (ES) Asociación de Profesionales y Empresas de Diseño de Canarias (di-Ca)		
19.00 20.00	Early Bird Reception Location: Santa Teresa Classrooms, Ground Floor		
20.00 20.30	Chairperson orientation meeting Room B.21		

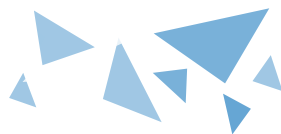


Afternoon		07 May 2018, Monday	
Track:	Academic tutorial - Track C ( <i>English and Spanish</i> )		
Session:	Engineering Education: Research and Innovation		
Place:	Room Module C Santa Teresa Classrooms		
Chair:	<i>Prof. Dr. Carlos Rioja</i>		
Assistance:	<i>Prof. Dr. Angel Fidalgo</i>		
Time	Title and presenter		
15:00	Engineering Education: Workshop ( <i>English and Spanish</i> )		
16:30	<i>Prof. Dr. Carlos Rioja (ES) STIMEY Project:</i> <i>Prof. Esteban Santana (ES) La Radio en la Educación</i> <i>Prof. Gloria Ruiz (ES) La Radio en la Educación</i> <i>Students of Civil and Industrial Engineering School</i> <i>Students of High school of Gran Canaria</i>		
16:30	Coffee break		
17:00			
17:30	Support, promote and improve European Higher Engineering Education		
18:00	<i>Prof. Dr. Carlos Rioja (ES)</i>		
18:30	Creating a second home for foreign students - the BME experience		
19:00	<i>Prof. Valéria Magdolna Balogh (HU), Dr. George Adam Horváth (HU)</i>		
19:30	Impacto y aplicación de las tendencias de innovación educativa en Ingenierías (Spanish)		
20:00	<i>Prof. Dr. Angel Fidalgo (ES)</i>		
20:30			
21:00	General discussion		
21:30			
22:00	Early Bird Reception		
22:30	Location: Santa Teresa Classrooms, Ground Floor		
23:00	Chairperson orientation meeting		
23:30	Room B.21		



TMCE 2018

Las Palmas de Gran Canaria, Spain



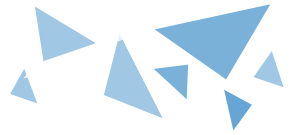
Morning		08 May 2018, Tuesday	
Session:	Opening of TMCE 2018		
Place:	Conference Hall		
Chair:	Prof. Dr. José Pablo Suárez Rivero		
Assistance:	Prof. Dr. Pedro Manuel Hernández Castellano		
Time	Title and presenter		
09.00	TMCE Symposia		
09.15	Promotion movie		
09.15	Welcome at the ULPGC - Address by:		
09.30	Prof. Dr. Rafael Robaina Romero, Rector of ULPGC		
09.30	Welcome in Gran Canaria - Address by:		
09.40	Mr. D. Antonio Morales, President of Cabildo de Gran Canaria		
09.40	Introducing TMCE 2018		
10.00	Prof. Dr. José Pablo Suárez Rivero, University of LP de GC		
10.00	Competitive engineering and the TMCE Symposia - Address by:		
10.10	Prof. Dr. Károly Váradí, Hungarian Academy of Sciences		
10.10	A symposium in a dynamically changing world - Address by:		
10.30	Prof. Dr. Imre Horváth, Delft University of Technology		
10.30	Morning coffee break		
11.00			



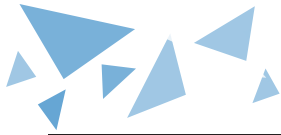


TMCE 2018  
Las Palmas de Gran Canaria, Spain

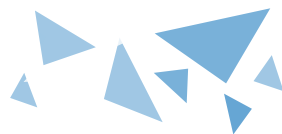
Morning		08 May 2018, Tuesday	
Session:	Keynote presentations		
Place:	Conference Hall		
Chair:	Prof. Dr. Imre Horváth		
Assistance:	Prof. Dr. Pedro Manuel Hernández Castellano		
Time	Title and presenter		
11.00	Competitive engineering in the age of Industry 4.0 and beyond		
11.55	Prof. Dr.-Ing. Iris Gräßler, Paderborn University (DE)		
11.55	System engineering from an industrial perspective		
12.50	Dr. Veerendra K. Rai, Tata Consultancy Services (IN)		
12.50	Announcements		
13.00	Prof. Dr. Pedro Manuel Hernández Castellano		
13.00	Lunch time break		
14.00			



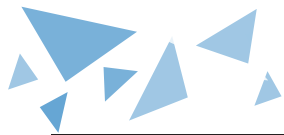
Afternoon		08 May 2018, Tuesday	
Track:		Engineering of systems	
Session:		Implementation of cyber-physical systems	
Place:		Room B.21	
Chair:		Imre Horváth (NL)	
Co-Chair:		Yan Wang (US)	
Time	Title and presenter		
14.00	A virtual reality based cyber physical framework for micro devices assembly		
14.20	Joe Cecil (US ), Sadiq Albuhamood (US), Parmesh Ramanathan (US)		
14.20	Towards validation of smart cyber-physical systems		
14.40	Jože Tavčar (SI), Jože Duhovnik (SI), Imre Horváth (NL)		
14.40	Trustworthiness in designing cyber-physical systems		
15.00	Yan Wang (US)		
15.00	Components and interactions: Paving the way to model agent-based cyber-physical social systems		
15.20	Stefano Borgo (IT), Emilio M. Sanfilippo (IT)		
15.40	General discussion		
16.00			
16.00	Coffee break		
16.20			



Afternoon		08 May 2018, Tuesday	
Track:		Support for engineering	
Session:		Assembly, disassembly and generations	
Place:		Room B.22	
Chair:		Károly Váradi (HU)	
Co-Chair:		Elise Gruhier (FR)	
Time		Title and presenter	
14.00		Registration of shapes for mechanical assembly	
14.20		Hariharan Krishnamurthy (IN), Dibakar Sen (IN)	
14.20		A CAD model relationship matrix generation and influence	
14.40		coefficient determination Ameni Eltaief (FR), Borhen Louhichi (FR), Sébastien Remy (FR), Guillaume Ducellier (FR), Benoit Eynard (FR)	
14.40		Towards the integration of disassembly technological	
15.00		relationships for sustainable product enhancement Elise Gruhier (FR), Robin Kromer (FR), Nicolas Perry (FR)	
15.00		Decision heuristics in PGE – Product generation engineering	
15.20		Nikola Bursac (DE), Narucha Tanaiutchawoot (DE), Simon Rapp (DE), Albert Albers (DE), Jan Breitschuh (DE), Claudia Eckert (DE)	
15.20		Pitch 2.0 – Concept of early evaluation of product profiles in	
15.40		product generation engineering Thilo Richter (DE), Jonas Heimicke (DE), Nicolas Reiß (DE), Jan Breitschuh (DE), Albert Albers (DE), Marius Gutzeit (DE), Benjamin Walter (DE), Nikola Bursac (DE)	
15.40		General discussion	
16.00			
16.00		Coffee break	
16.20			



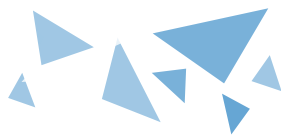
Afternoon		08 May 2018, Tuesday	
Track:		Engineering of systems	
Session:		Application of complex systems	
Place:		Room B.21	
Chair:		<i>Iris Graessler (DE)</i>	
Co-Chair:		<i>Jože Tavčar (SI)</i>	
Time		Title and presenter	
16.20		The design of IOT based smart simulation environments for orthopedic surgical training	
16.40		<i>Joe Cecil (US), Avinash Gupta (US), Miguel Pirela-Cruz (US), Parmesh Ramanathan (US)</i>	
16.40		Observation of intention, action and conduct by cyber-physical systems in home care context	
17.00		<i>Imre Horváth (NL)</i>	
17.00		Manufacturing process selection integrated in the design process	
17.20		<i>Pedro Hernández-Castellano (ES), María Dolores Martínez-Rivero (ES), María Dolores Marrero-Alemán (ES), Luis Suárez-García (ES)</i>	
17.20		Constructing personalized messages for informing cyber-physical systems based on dynamic context information processing	
17.40		<i>Yongzhe Li (NL), Imre Horváth (NL), Zoltán Rusák (NL)</i>	
17.40		G-codes and free-form motions	
18.00		<i>Ben Cross (UK), Robert J. Cripps (UK), Jason Matthews (UK), Glen Mullineux (UK)</i>	
18.00		General discussion	
18.20			



Afternoon		08 May 2018, Tuesday	
Track:	Support for engineering		
Session:	Data driven design		
Place:	Room B.22		
Chair:	Yong Zheng (CA)		
Co-Chair:	Duncan Coulter (SA)		
Time	Title and presenter		
16.20 16.40	BOLEPI: A machine learning framework for forecasting project outcomes Thabo Daniel Mphuthi (SA), Duncan Anthony Coulter (SA)		
16.40 17.00	An auditory dataset of passing vehicles recorded with a smartphone Pavlo Bazilinskyy (NL), Arne van der Aa (NL), Michael Schoustra (NL), John Spruit (NL), Laurens Staats (NL), Klaas Jan van der Vlist (NL), Joost de Winter (NL)		
17.00 17.20	What do designers miss regarding the outputs of data analytics tools in the context of possible product improvements? Fatima-Zahra Abou Eddahab (NL), Imre Horváth (NL)		
17.20 17.40	Design with industry 4.0 - Priorization of sensor data for a smart data driven product development process Tobias Stürmlinger (DE), Bartosz Gladysz (DE), Markus Strauch (DE), Albert Albers (DE)		
17.40 18.00	Design intervention for productivity improvement in glass bangles manufacturing unit Kiran Kumari Mahato (IN), Pratul Chandra Kalita (IN), Amarendra Kumar Das (IN)		
18.00 18.20	General discussion		

TMCE 2018

Las Palmas de Gran Canaria, Spain



Evening

08 May 2018, Tuesday

Event	'Walk around Vegueta' <a href="http://lpavisit.com/en/activities/urban-routes/1516-ruta-barrio-de-vegueta">http://lpavisit.com/en/activities/urban-routes/1516-ruta-barrio-de-vegueta</a>
Time	19:00 - 20.00
Place:	Santa Ana Square
Dress code:	Business casual
Event	'Mayor Reception'
Time	20:00 - 22.00
Destination:	ULPGC Institutional Building <a href="https://www.ulpgc.es/presentacion">https://www.ulpgc.es/presentacion</a>

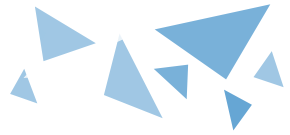


TMCE 2018  
Las Palmas de Gran Canaria, Spain

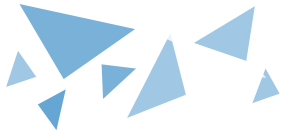
Morning		09 May 2018, Wednesday	
Session:	Keynote presentations		
Place:	Conference Hall		
Chair:	Prof. Dr. Imre Horváth		
Assistance:	Prof. Dr. Pedro Manuel Hernández Castellano		
Time	Title and presenter		
09.00 10.00	The current cyber technology revolution: Trends, promises and pitfalls Prof. Dr. Joe Cecil, Oklahoma State University (US)		
10.00 11.00	How can an emotional brain be rationally creative? Prof. Dr. Yong Zeng, Concordia University (CA)		
11.00 11.20	Coffee break		
11.20 12.20	Implementation of a support system for the technical management of the production of an injection plant Prof. Dr. Javier Castany Valeri, University of Zaragoza (ES)		
12.20 12.30	Announcements Prof. Dr. Pedro Manuel Hernández Castellano		
12.30 14.00	Lunch time break		



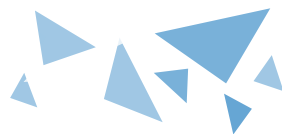




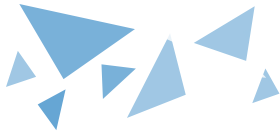
Afternoon		09 May 2018, Wednesday	
Track:		Engineering of systems	
Session:		Agent-enabled systems	
Place:		Room B.21	
Chair:		<i>Elisabeth Ehlers (SA)</i>	
Co-Chair:		<i>Veerendra K. Rai (IN)</i>	
Time	Title and presenter		
14.00 14.20	Revisiting the society of mind: Convolutional neural networks via multi-agent systems <i>Mich�lle Cullinan (SA), Duncan Anthony Coulter (SA)</i>		
14.20 14.40	Holonc agents for design and manufacturing integration in virtual digital cells <i>Alain-J�r�me Foug�res (FR), Egon Ostrosi (FR)</i>		
14.40 15.00	CESIMAS: A continual evaluative self-aware immune-inspired multi agent critical information infrastructure protection system model <i>Jan Hendrik van Niekerk (SA), Elizabeth Marie Ehlers (SA)</i>		
15.00 15.20	A project monitoring methodology for distributed product generation engineering <i>Benjamin Walter (DE), Katharina D�hr (DE), Nikola Bursac (DE), Albert Albers (DE)</i>		
15.20 15.40	Holonc superposition intelligence of multi-agent systems <i>Gerard Gouws (SA), Elizabeth Marie Ehlers SA)</i>		
15.40 16.00	General discussion		
16.00 16.20	Coffee break		



Afternoon		09 May 2018, Wednesday	
Track:		Support for engineering	
Session:		Methods, methodologies and tools	
Place:		Room B.22	
Chair:		Yuemin Hou (CN)	
Co-Chair:		Robert Wendrich (NL)	
Time		Title and presenter	
14.00 14.20		Emergent methods, methodologies, tools and technologies for design and engineering processes <i>Robert E. Wendrich (NL)</i>	
14.20 14.40		Evaluation of a method supporting the integration of packaging development into product development using an assessment framework for methodologies under development <i>Damien Motte (SE), Robert Bjärnemo (SE), Gunilla Jönson (SE)</i>	
14.40 15.00		Food packaging design: Case of study about perception of shapes and reliefs thermoformed? <i>Lucía Rodríguez-Parada (ES), Pedro F. Mayuet Ares (ES), Rafael Bienvenido Bárcena (ES)</i>	
15.00 15.20		A generic function decomposition framework inspired by biology <i>Yuemin Hou (CN)</i>	
15.20 15.40		Towards human-induced failure assessment during early design <i>Salman Ahmed (US), H. Onan Demirel (US), Irem Y. Tumer (US), Robert B. Stone (US)</i> <i>*skype presentation*</i>	
15.40 16.00		General discussion	
16.00 16.20		Coffee break	



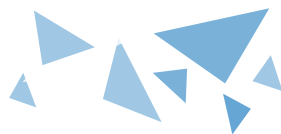
Afternoon		09 May 2018, Wednesday	
Track:		Engineering of systems	
Session:		Smart systems engineering	
Place:		Room B.21	
Chair:		Stefan Boschert (DE)	
Co-Chair:		Yongseng Ma (CA)	
Time		Title and presenter	
16.20 16.40		Adaptive supply chain systems - Conceptual framework using Internet of Things (IOT) Parthasarathi Ramakrishnan (CA), Yongsheng Ma (CA)	
16.40 17.00		Smart Systems Engineering (SMARTSE) – Uniformed approach for exchange of functional and behavior models for simulation using Functional Modelling Interface (FMI) Timo Wekerle (DE), Josip Stjepandić (DE), Alain Pfouga (DE), Claas Blume (DE)	
17.00 17.20		Next generation digital twin Stefan Boschert (DE), Christoph Heinrich (DE), Roland Rosen (DE)	
17.20 17.40		The evolution of computer assisted product design and manufacturing tools to smart systems for the factories of the future Giampaolo Campana (IT), Barbara Cimatti (IT), Mattia Mele (IT)	
17.40 18.00		Protecting distributed computer systems through an artificial immune system Merrick Kenna Bengis (SA), Elizabeth Marie Ehlers (SA)	
18.00 18.20		General discussion	



Afternoon		09 May 2018, Wednesday	
Track:		Support for engineering	
Session:		Additive manufacturing technologies	
Place:		Room B.22	
Chair:		<i>Puneet Tandon (IN)</i>	
Co-Chair:		<i>Johan Ölvander (SE)</i>	
Time		Title and presenter	
16.20 16.40		Discrete element method to study the powder-bed layer characteristics in additive manufacturing <i>Robin Kromer (FR), Emilie Le Guen (FR), Corinne Arvieux (FR), Eric Lacoste (FR), Jean Marc Agullo (FR), Gaëlle Vanard (FR), Simon Perusin (FR)</i>	
16.40 17.00		An optimization framework for additive manufacturing given topology optimization results <i>Anton Wiberg (SE), Johan Persson (SE), Johan Ölvander (SE)</i>	
17.00 17.20		Interactive training material about additive manufacturing technologies <i>Pedro M. Hernández-Castellano (ES), Alejandro Gutierrez-Barcenilla (ES), María Dolores Martínez-Rivero (ES), María Dolores Marrero-Alemán (ES), Luis Suárez-García (ES), Rubén Paz-Hernández (ES), Antonio Nizardo Benítez-Vega (ES)</i>	
17.20 17.40		Simulation of early-ejected injection-moulded plastic parts with integrated FEA <i>Junyu Fu (CA), Yongsheng Ma (CA)</i>	
17.40 18.00		Development of thickness prediction strategy in incremental forming for improvement in part evaluation <i>Satwik Priyadarshi (IN), Saurabh Verma (IN), Puneet Tandon (IN)</i>	
18.00 18.20		General discussion	

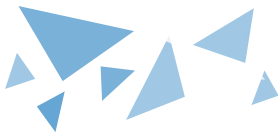
TMCE 2018

Las Palmas de Gran Canaria, Spain



Evening		09 May 2018, Wednesday	
Event	"Reception offered by the Chairman of TMCE 2018"		
Time	20:30 - 21.00		
Place:	Reina Isabel Hotel, Alfredo L. Jones 40.		
Dress code:	Long evening dress for ladies and bow tie for gentlemen		
Event	"Gala Dinner of TMCE 2018"		
Time	21:00 - 24.00		
Destination:	Reina Isabel Hotel (Salón Baldaquino) <a href="https://www.bullhotels.com/en/hotels/reina-isabel-spa/hotel-for-events-and-business-in-gran-canaria">https://www.bullhotels.com/en/hotels/reina-isabel-spa/hotel-for-events-and-business-in-gran-canaria</a>		





Morning		10 May 2018, Thursday	
Session:	Keynote presentations		
Place:	Conference Hall		
Chair:	Prof. Dr. José Pablo Suárez Rivero (ES)		
Assistance:	Prof. Dr. Pedro Manuel Hernández Castellano (ES)		
Time	Title and presenter		
09.00 10.00	How to make impossible objects possible: Anamorphic NURBS deformation Prof. Dr. Javier Sánchez-Reyes, University of Castilla-La Mancha (ES)		
10.00 11.00	How about the IQ of a "Smart City"? Prof. Dr. I. Sevil Sariyildiz, Delft University of Technology (NL)		
11.00 11.20	Coffee break		
11.20 12.20	Racing through Russian deserts ... Dr. Elmer D. van Grondelle, Delft University of Technology (NL)		
12.20 12.30	Announcements Prof. Dr. Pedro Manuel Hernández Castellano		
12.30 14.00	Lunch time break		



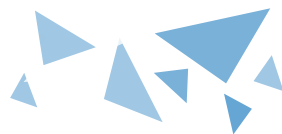


Afternoon		10 May 2018, Thursday	
Track:		Engineering of systems	
Session:		Architecture, construction and urban-design	
Place:		Room B.21	
Chair:		<i>I. Sevil Sariyildiz (NL)</i>	
Co-Chair:		<i>Garrett Keenaghan (IR)</i>	
Time	Title and presenter		
14.00 14.20	NEOMORPH VR: A multi-user virtual reality conceptual design platform for architecture and urbanism using procedural game technologies <i>Claudiu Bârsan-Pipu (NL)</i>		
14.20 14.40	A survey of different design rules-based techniques for facility layout problems <i>Mariam Besbes (FR), Roberta Costa Affonso (FR), Marc Zolghadri (FR), Faouzi Masmoudi (TN), Mohamed Haddar (TN)</i>		
14.40 15.00	Diagrid façade design for public pool building using differential evolution <i>Nezahat Puren Unlu (TR), Berk Ekici (TR), Ioannis Chatzikonstantinou (TR), I. Sevil Sariyildiz (NL), M. Fatih Tasgetiren (TR), Cemre Cubukcuoglu (NL)</i>		
15.00 15.20	Implementing a prototype of a web-based refrigeration engineering education system using blended enablers <i>Garrett Keenaghan (IR), Imre Horváth (NL)</i>		
15.20 15.40	Eye movements while cycling in GTA V <i>Pavlo Bazilinskyy (NL), Niels Heisterkamp (NL), Philine Luik (NL), Stijn Klevering (NL), Assia Haddou (NL), Michiel Zult (NL), George Dialynas (NL), Dimitra Dodou (NL), Joost de Winter (NL)</i>		
15.40 16.00	General discussion		
16.00 16.20	Coffee break		



Afternoon		10 May 2018, Thursday	
Track:	Support for engineering		
Session:	Modeling, design and analysis		
Place:	Room B.22		
Chair:	<i>Javier Sánchez-Reyes (ES)</i>		
Co-Chair:	<i>Zuhal Erden (TR)</i>		
Time	Title and presenter		
14.00	An image-based method to classify power lines in LIDAR point clouds		
14.20	<i>Sebastián Ortega (ES), Agustín Trujillo (ES), José Miguel Santana (ES), José Pablo Suárez (ES)</i>		
14.20	Automated retrieval of arbitrary complex similar CAD-parts based on dimensionless invariants		
14.40	<i>Dennis Kaiser (DE), Stephan Rudolph (DE)</i>		
14.40	Tennis string-bed response measurement		
15.00	<i>Rod Valentine (UK)</i>		
15.00	Development and implementation of behavioural modules for platform-based mechatronic design		
15.20	<i>Zuhal Erden (TR)</i>		
15.20	General discussion		
16.00	Coffee break		
16.20			





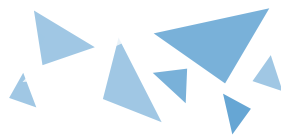
Afternoon		10 May 2018, Thursday	
Track:		Engineering of systems	
Session:		Socially responsible engineering	
Place:		Room B.21	
Chair:		<i>Lau Langeveld (NL)</i>	
Co-Chair:		<i>Els Du Bois (BE)</i>	
Time		Title and presenter	
16.20 16.40		Eye tracking study on successful micro-strategies by design engineers for the synthesis-driven analysis of technical systems <i>Sven Matthiesen (DE), Thomas Nelius (DE)</i>	
16.40 17.00		Product design for elderly: The need for a new design methodology <i>Lau Langeveld (NL)</i>	
17.00 17.20		Towards green e-commerce systems: Opportunities for fresh food delivery <i>Els Du Bois (BE), Cedric Wery (BE), Paul Bailleul (BE)</i>	
17.20 17.40		Early detection of Alzheimer's disease using white matter and grey matter alterations in the wavelet domain <i>Shiwangi Mishra (IN), Pritee Khanna (IN)</i>	
17.40 18.00		The connected society calls for macro-engineering <i>Shuichi Fukuda (JP)</i> <i>*skype presentation*</i>	
18.00 18.20		General discussion	



Afternoon		10 May 2018, Thursday	
Track:		Support for engineering	
Session:		Geometry and image processing	
Place:		Room B.22	
Chair:		<i>Benoit Eynard (FR)</i>	
Co-Chair:		<i>Prasad S. Onkar (IN)</i>	
Time		Title and presenter	
16.20		Mesh segmentation driven by bijective parameterization	
16.40		<i>Daniel Mejia (CO), Oscar Ruiz-Salguero (CO), Carlos Cadavid (CO), Jairo R. Sánchez (CO), Jorge Posada (CO), Diego A. Acosta (CO)</i>	
16.40		Predicting haptic perception of textile texture and analysis	
17.00		between smooth rough preferences through images <i>K.V. Rakhin (IN), Prasad S. Onkar (IN)</i>	
17.00		Non-manifold modelling of lattice materials using kinematically	
17.20		constrained FEA <i>Diego Montoya-Zapata (CO), Oscar Ruiz-Salguero (CO), Juan Lalinde-Pulido (CO), Juan Pareja-Corcho (CO), Jorge Posada (CO)</i>	
17.20		Types of free-form motion	
17.40		<i>Ben Cross (UK), Robert J. Cripps (UK), Glen Mullineux (UK)</i>	
17.40		3D retrieval in huge CAD databases: New shape-based	
18.00		similarity calculation approach <i>Ahmed Fradi (FR), Borhen Louhichi (FR), Mohamed Ali Mahjoub (FR), Benoit Eynard (FR)</i>	
18.00		General discussion	
18.20			

TMCE 2018

Las Palmas de Gran Canaria, Spain



Afternoon		10 May 2018, Thursday	
Event	'Visit <i>Pico y Caldera de Bandama</i> ' short sightseeing tour by buses <a href="http://www.turismosantabrigida.es/index.php/descubre-santa-brigida/paisajes-y-naturaleza?id=33">http://www.turismosantabrigida.es/index.php/descubre-santa-brigida/paisajes-y-naturaleza?id=33</a>		
Time	19:00 - 20.30		
Place:	Santa Brígida		
Dress code:	Business casual		
Event	'Canarian cultural program'		
Time	20:30 - 23.00		
Destination:	Restaurante Bodegón Vandama Carretera Bandama, 116. Santa Brígida <a href="http://www.bodegonvandama.com/">http://www.bodegonvandama.com/</a>		





All day		11 May 2018, Friday	
Event	" <i>Visit Agaete y Cueva Pintada</i> " excursion by buses		
Time	09:00 - 18.00		
Destination:	Agaete y Gáldar		
Dress code:	Casual		
Time	Activities		
09:00 09:15	Departure from hotels		
10:00 12:00	Visit to ecological coffee plantation ' <i>Finca los Castaños</i> ' <a href="http://cafevalledeagaete.com/">http://cafevalledeagaete.com/</a>		
12:00 12:30	Visit 'Puerto de las Nieves'		
12:30 14:00	Lunch 'Restaurant Las Nasas' <a href="http://www.aytoagaete.es/lugares/restaurante-las-nasas">http://www.aytoagaete.es/lugares/restaurante-las-nasas</a>		
14:00 14:30	Transfer to the city of Gáldar		
14:30 17:00	Visit ' <i>Cueva Pintada</i> ' <a href="http://www.cuevapintada.com/">http://www.cuevapintada.com/</a>		
17:00 17:30	Coffee break		
17:30 18:00	Return to hotels		

# TMCE 2018

## Las Palmas de Gran Canaria, Spain



### Notes





# TMCE 2018

## Las Palmas de Gran Canaria, Spain



# TMCE 2018

## Las Palmas de Gran Canaria, Spain

### Sponsors and partners



UNIVERSIDAD DE LAS PALMAS  
DE GRAN CANARIA



spegc  
Secretaría de  
Promoción Económica



smartdest  
DESTINO TURÍSTICO INTELIGENTE



Interreg  
Fondo Europeo de Desarrollo Regional



ADM Tech<sup>NT</sup>



EYSER  
hidráulica



DELTA3D



Ayuntamiento  
de Las Palmas  
de Gran Canaria



GranCanaria  
Convention Bureau



UNIVERSIDAD DE LAS PALMAS DE GRAN C. NARIA  
Escuela de Ingenierías Industriales y Civiles



Gobierno  
de Canarias

Consejería de Educación  
y Universidades

ULL  
Universidad  
de La Laguna

Facultad de Humanidades  
Sección de Bellas Artes



Fundación Parque Científico Tecnológico  
Universidad de Las Palmas de Gran Canaria



Aguas de Teror



Autobuses  
La Palmita

# TMCE 2018

Las Palmas de Gran Canaria, Spain



Online version