

Research And Innovation In Graphic Engineering: Tools For Achieving Sustainable Development Goals And Addressing Emerging Global Challenges

INTERNATIONAL CONGRESS | UPV | VALENCIA | 12-14 June | 2024

GENERAL INFORMATION | Full Program

We are delighted to welcome you to this pivotal conference, organized in collaboration with INGEGRAF, ADM, and SMART, and supported by ETSIADI and COGITI Valencia. As we gather here in Valencia, we are poised to explore the cutting-edge advancements in graphic engineering that are essential for achieving the United Nations' Sustainable Development Goals and tackling the emerging global challenges of our time.

Graphic engineering stands at the intersection of technology and creativity, driving innovation across various sectors such as architecture, industrial design, urban planning, and environmental management. This conference brings together leading experts, researchers, and practitioners from around the world to share their latest findings and developments. Our aim is to foster a collaborative environment where new ideas can flourish and impactful solutions can be created.

Through a series of insightful presentations, interactive workshops, and engaging discussions, we will delve into how graphic engineering can contribute to sustainable practices and solutions. This event is not just about sharing knowledge but also about building lasting partnerships that will drive positive change and innovation.

We are confident that your participation will enrich the discussions and contribute significantly to the success of this conference. Together, we can leverage the power of research and innovation in graphic engineering to create a more sustainable and resilient future.

Thank you for joining us, and we look forward to an inspiring and productive conference.

Warm regards,
The Organizing Committee

Speaker | Brainstorm Co. | Ricardo Montesa



In today's world, the convergence between the virtual and the real is becoming more apparent every time we watch television, whether it's in news, sports, or advertisements. A presenter walking among columns of graphics or a real character navigating through graphic environments in a movie are examples of how virtual reality and reality are merging.

To make this possible, there is a small number of companies and individuals capable of creating platforms that interact with both dimensions. Moreover, doing this within the demands of a fast-paced world, where we transition from HD to 8K and require hyper-realistic graphics to be generated for live broadcast, demands highly complex and advanced developments.

In Valencia, we are fortunate to have one of the most important figures in this field: Ricardo Montesa, the leader and founder of the company Brainstorm. He is also a Doctor of Industrial Engineering from the Universitat Politècnica de Valencia.

Ricardo Montesa and his team have had a long and continuously evolving career that began in 1994 with the first weather presentation programs. Later, in 1998, they created graphics for electoral processes in Germany, Japan, Spain, and many other countries. In 2001, they entered Hollywood productions. Additionally, they have worked and continue to work for the BBC, NASDAQ competition, NBC, and many others, including the Tokyo Olympics in 2021.

We are honored to present Ricardo Montesa, a pioneer whose innovations continue to shape the future of virtual and augmented reality in media.

PROGRAM | Wednesday, June 12th

8:30-9:30	Reception and Accreditations	ETSIADI / 7E building
9:30-10:30	Inauguration	
10:30-11:00	Coffe Break	
11:00-12:00	Presentations	
12:00-13:00		
13:00-14:00	Ordinary General Assembly INGEGRAP	
Starting at 14:00	Lunch (UPV)	El Trinquet Cafetería
Free Time		
18:00-20:00	Guided tour of La Marina de Valencia	Meeting Point at Parroquia St María del Mar
Starting at 20:30	Informal dinner at Marina Bech Club Restaurant	Marina Beach Club

PROGRAM | Thursday, June 13th

8:30-9:30	Presentations	ETSIADI / 7E building
9:30-10:30		
10:30-11:00	Coffe Break	
11:00-12:00	Presentations	
12:15-14:00	Plenary Session. BRAINSTORM COMPANY	
Starting at 14:00	Lunch (UPV)	El Trinquet Cafeteria
Free Time		
17:00-18:00	Guided Visit to Historical Center of Valencia	Meeting point Plaza de la Virgen
18:00-19:00		
Starting at 21:00	Event Dinner at Only You Hotel	Only YOU Hotel Valencia

PROGRAM | Friday, June 14th

10:30-11:00	Opening Valencian Breakfast	ETSIADI / 7E building
11:00-12:00	Presentations	
12:00-13:00		
13:15-14:00	Closing Session	
Starting at 14:00	Lunch (UPV)	El Trinquet Cafeteria

FULL PROGRAM | Wednesday, June 12th

8:30-9:30	Reception and Accreditations									
9:30-10:30	Inauguration									
10:30-11:00	Coffe Break									
11:00-12:00	A11	3D Corneal Morpho-geometric Parameters in Healthy Patients Measured with an Optical Coherence Tomographer and a Scheimpflug Tomographer: A comparative Study	A21	Digitizing Operations for Enhanced Administrative Efficiency through Service Design and Frugal Innovation	A31	Lean requirements integration from the design phase of a sociotechnical system in Industry 5.0 context	A41	Digital Twin for Railway Sector: Cutting through the plethora of terms and classification of use cases.		
		New classification method for keratoconus based on geometric data obtained from representative point clouds of corneal surfaces		Digitalization of mental health tracking through a mobile app to monitor severe depression		Plagiarism detection in university assignments using custom programming code. Case study: Graphic Expression in Engineering		Kriging-Based Spatial Analysis and Risk Assessment of Heavy Metal Pollution in Leon Province		
		Comparative study between patient-specific 3D corneal geometric models generated from Pentacam, Sirius, and Galilei topographers		Design of customized face-protective masks for sport-related injuries by using reverse engineering and com-puter-aided design tools		Enhancing Graphic Expression Education in Secondary Education Students through the Integration of Flipped Classroom Methodologies and Virtual Reality Tools		Study and design of a floating collecting plastic system powered by green energy		
		Artificial Intelligence in Design: Its Acceptance Among College Students		Design of customized articulated ankle-foot orthoses by using reverse engineering and computer-aided design tools		Life cycle analysis of a freestanding gas range				
		questions-and-answers		questions-and-answers		questions-and-answers		questions-and-answers		
12:00-13:00	A12	Urban furniture design through the implementation of Artificial Intelligence and Additive Manufacturing	A22	Comparison of Developing Outdoor XR Applications for Android vs. Hololens 2	A32	Impact of uncertainties on the Stability Lobe Diagram for vibration evaluation in milling	A42	Towards enhanced quality assessment: Dimensional analysis of common errors in CAD 3D modeling process		
		Design of a robotic hand orthosis for post-surgical flexor tendon rehabilitation		Exploring possibilities for geopositioning in eXtended Reality (XR)		Directed Energy Deposition build strategy simulation and optimization for Additive Remanufacturing		Teaching descriptive geometry in Graphical Engineering by means of versatile problems		
		Digital tools for designers: Advancing in wearable prototyping through block programming		A comparative analysis of Code-Based Vs Visual Pro-gramming approaches for Extended Reality (XR) and BIM		Control of the deformations generated during the manufacturing process of metal splitter circular knives		On Graphical Expression: compilation and analysis of official teaching at Spanish civil engineering schools		
		Visual Programming for Minimum Viable Product in a health design project		Safety Developments for an Augmented Reality Platform to Enhance Human-Robot Collaboration		Development of a BIM library for NBS design		A current and global approach for the syllabus of a first graphic expression subject in a civil engineering degree		
		questions-and-answers		questions-and-answers		questions-and-answers		questions-and-answers		
13:00-14:00	Ordinary General Assembly INGEGRAF									
Starting at 14:00	Lunch (UPV) - Cafetería El Trinquet									
16:00-17:00	Free Time									
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18:00-20:00	Guided tour of La Marina de Valencia									
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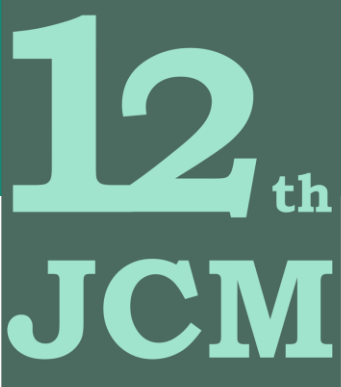
ONLINE PRESENTATION

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FULL PROGRAM | Thursday, June 13th

8:30-9:30	A11	Artificial Intelligence and Machine Learning approaches in Eco-Design for Additive Manufacturing: a literature review	A21	Can end-users create their own products? Applying modular design with prosumers and novice designers	A31	Enhancing Sustainability and Performance in Automotive Suspension Systems Through Innovative Design	A41	A Visual Programming Approach to T Hydrofoil Design
		Comparative Study In Terms Of Mechanical Properties Of Different Pla With Respect To Other Materials Applied In Additive Manufacturing		Design of a new medicines management system aligned with patients' requirements.		Improved stiffness model for helical compression springs with variable pitch		Conceptual design of a semi-automatic seed-planting hiking pole
		Optimization of printing parameters using Taguchi method to improve the quality of parts produced by Metal Binder Jetting		A co-design approach for strong sustainability through a territorial framework		Accurate flat patterns of developable spatial surfaces in CeDG		Parametric Design and Adaptive Sizing of Lattice Structures for MEX Additive Manufacturing
		A methodology for weld bead geometry and operating condition determination in WAAM				Ecodesign of marine industry and agricultural sector devices using bio-based biodegradable plastics combined with additive manufacturing		
		questions-and-answers		questions-and-answers		questions-and-answers		questions-and-answers
9:30-10:30	A12	Real-Time Analysis of Geometric Variations in AM Parts Across Different Printing Orientations Using Reduced-Order Modelling	A22	Fractal Geometries Design for Three-Dimensional Printing: Analysis of Performance and Vibration Response for Product Design	A32	Optimisation of bioink for 3d bioprinting: effects of cul-ture medium on printability, rheology and cell viability	A42	Optimisation of the three-dimensional distribution of support points for the generation of 3D models using UAV photogrammetry.
		Enhancing Sustainability Assessment in Material Extrusion Additive Manufacturing		A definition approach to Circular Design for product design and development		Evaluation of a paddle tennis racket performance made of sustainable materials		Point cloud classification and analysis for facade restoration
		Enhancing Mechanical Performance of 3D-Printed PEEK via Vacuum Infiltration		How to gather patients' emotions during service exploration in oncology care paths		3D Printing of carbonaceous hydrogel electrodes for energy applications		Bus Route Segmentation for Performance Optimization Using Geographical Mapping Tools
		PROTHEUS Framework: Improving Sustainable Design of Product with a Cognitive Bot		Personalized furniture using parametric CAD applications		Manufacture of Mycelium-Based Biocomposites in Molds Made from the Same Biocomposite		A Novel Methodology for Graphically Visualizing and Analyzing Public Transport Networks
		questions-and-answers		questions-and-answers		questions-and-answers		questions-and-answers
10:30-11:00	Coffe Break							
11:00-12:00	A13	Effect of 3D Printing Parameters on Mechanical Properties of Sintered Alumina	A23	Manufacture of Sustainable Cork Stoppers for Spirits through Compression Molding	A33	The ergonomic design of the rollator handles	A43	Knowledge Synthesis Of The Influence Of Process Parameters On Wire-Feed Laser Additive Manufacturing (WLAM)
		Characterization of elastomers used in seatback of wheelchairs dedicated to Paralympic athletes		Design concept of an Innovative Smart Buoy for Marine Environment Monitoring		A knowledge-based approach for a CAD-embedded tool preventing hygienic design issues in food processing machinery		Novel differential entropy-based approach for Delaunay mesh quality assessment
		Mock Circulation Loop mathematical model for Cardiac Assist Device testing		Conceptual design of a cardioid condenser microphone housing for professional producers in the music industry using Kansei Engineering		Design of an Electric two-seater vehicle		Art, technique and citizenship: a space where the New European Bauhaus converges. Case Study of the Mucho Mas Mayo Art Festival
		Ethical and Sustainable Participative Design of a Highly Customizable Assistive Device for a Quadriplegic Stu-dent		Textured Surfaces Development with Parametric Design for Product Customization		Power Augmenter Parametric Analysis for OWC Take-off Performance Enhancement		An experience to improve the understanding and development of problems in the subject of Graphic Expression through explanatory time lapse videos
		questions-and-answers		questions-and-answers		questions-and-answers		questions-and-answers
12:15-14:00	Plenary Session. BRAINSTORM Co.							
Starting at 14:00	Lunch (UPV) - Cafetería El Trinquet							
16:00-17:00	Free Time							
17:00-18:00	Guided Visit to Historical Center of Valencia. Meeting Point "Plaza de la Virgen"							
18:00-19:00								
Starting at 21:00	Event Dinner at Only You Hotel							

ONLINE PRESENTATION



FULL PROGRAM | Friday, June 14th

10:30-11:00	Opening Breakfast							
11:00-12:00	A12	Peer assessment in Engineering Graphics through Moodle Workshop activity	A22	Scan to HBIM: A Pathway to Sustainable divulgation of the built heritage	A32	Engineering graphics applied to the assembly process of a two-cylinder entablature steam engine with parallel motion crosshead designed by Henry Muncaster	A42	Interactive Industrial Design Applied to Modular Product Development
		Active approach to the teaching-learning process of Graphic Expression through a University-Business project. Methodological proposal for the graphic survey of buildings and coherent intervention of their facades.		VR to correct Valgus and Varus in Surgery Operations		Engineering graphics applied to the assembly process of a one-cylinder horizontal steam engine with a crosshead trunk guide designed by Henry Muncaster		Design Thinking as a vehicle to increase efficiency in negotiation through creative processes
		Application of a Graphical Tool for optimising Safety Way Guidance Systems in a subject of a Master's Degree in Occupational Health and Safety		Assessing the French value network of air-to-water heat pump and confronting it with functional economy principles		Integration and Optimization of Three-Dimensional Models for the Enhancement of Cultural Heritage		An approach to the definition of an automatic system for determining geometric and dimensional tolerances in CAD systems.
				Exploring 3D reconstruction methods for assessing biometric parameters in avocado trees		Method for analysing the positioning of components in mechanical assemblies		Improving language skills in graphic engineering coursers through gamification
		questions-and-answers		questions-and-answers		questions-and-answers		questions-and-answers
12:00-13:00	A13	Design of a wearable for sustainable livestock farming	A23	Design-Driven Approaches for Enhanced Antibioqram Utilization: Integrating User-Centered Design Methodologies with Clinical Expertise	A33	Remote Sensing, Machine Learning, and Image Processing for Environmental Conservation	A43	Improving the dynamic performance of a motorbike chassis using hybrid sandwich material.
		Monitoring of Buildings as an Element of a Sustainable Construction Process. New Methodologies and Challenges		Validation of the spatio-temporal visual control of the construction of industrial and commercial areas by means of GBAS connections		Industrial product design of an abaca and bio-polymer composite application		Virtual Reconstructions of the New Bridge of Ronda (Spain): Exploring its Heritage Significance and the Possibilities of Graphic Expression
		Applying Strategies to Improve the Sustainability of a Retail Space Model		Impact of resampling and interpolation methods on the quality of Digital Elevation Models		Lattice structures grading for stiffness optimization: an approach based on field-driven design and topology optimization		Analysis of Graphical Responses in Energy Efficiency Simulators
		An experimental method for the reproduction of defects in Sheet Moulding Compound composites		Parametric geometric model of an endothelial cell monolayer; a tool to unravel cancer metastasis through finite element simulation		Basic Seat Assembly Concept Assessment of civil aircraft through conceptual design for assembly methodology		
		questions-and-answers		questions-and-answers		questions-and-answers		questions-and-answers
Starting 13:15	Closing Session and Lunch UPV							

HOW TO ARRIVE

Universitat Politècnica de Valencia
Transports

12th
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BUS

Info [HERE](#)

Línea 9: La Torre – Universidades.
Línea 18: Nuevo Hospital La Fe – Universidades.
Línea 29: Avenida del Cid – Universidades.
Línea 40: Estación del Norte – Universidades.
Línea 41: Plaza España – Universidades / Estación
de Cabañal, servicio solo en días lectivos.
Línea 71: Barrio de la Luz – Universidades.
Línea 93

RAILROAD

Info [HERE](#)

CAR

Free Parking contact with
organisation

TAXI

Quite cheap (around 7
Euros/travel)

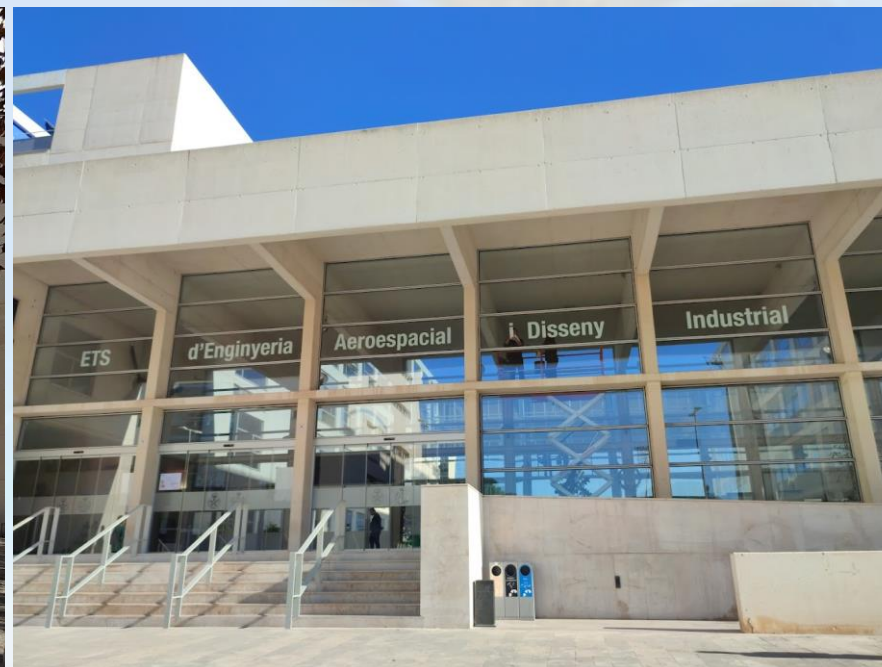
Bus and railroad tickets --- sold at ESTANCO
(Tobacco shops)

Escuela Técnica Superior de Ingeniería Aeroespacial y Diseño Industrial.

Building 7E. UPV

[-Google Maps-](#)

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LUNCH AT UNIVERSITY

El Trinquet Cafetería
Building 9D. UPV
[Google Maps](#)



12th
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June 12th

MEETING POINTS

18:00 | Parroquia St. María del Mar
La Marina de Valencia

[Google Maps](#)



20:30 | Marina Beach Club

[Google Maps](#)



12th
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June 13th

MEETING POINTS

12th
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17:00 | Plaza de la Virgen
Historic Center Tour
[Google Maps](#)



21:00 | Only YOU Hotel Valencia
[Google Maps](#)

