

JOAN R. CASAS
Professor of Bridge Engineering
School of Civil Engineering. Department of Construction Engineering
Technical University of Catalunya (UPC-BarcelonaTech)

1. PERSONAL INFORMATION

Born, March 29, 1960: Married, three children; Spanish Citizen
Languages: Spanish, Catalan, English, French
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2. DEGREES

Ph. D. in Civil Engineering (Dr. Ingeniero de Caminos, Canales y Puertos), Technical University of Catalunya (UPC), 1988.
M.S. in Civil Engineering (Ingeniero de Caminos, Canales y Puertos), Technical University of Catalunya (UPC), 1984.

3. ACADEMIC, RESEARCH AND INDUSTRIAL APPOINTMENT

1999 - present	Professor of Bridge Engineering, School of Civil Engineering (UPC)
1990 - 1999	Associate Professor of Bridge Engineering, School of Civil Engineering (UPC)
1988 - 1990	Assistant Professor of Bridges, School of Civil Engineering (UPC)
1984 – 1988	Research Associate, School of Civil Engineering (UPC), Dynamic behaviour of structures. Health monitoring using vibration techniques

SPECIALIZATION

Main field: Bridge Safety and Durability. Reliability-based Inspection and Management of Concrete Bridges. Bridge loading. Life-cycle of bridges

Other fields: Concrete Bridge Design and Construction, Dynamic testing of bridges, Inspection methods and Structural Health Monitoring, Concrete Structures Repair and Strengthening

Current research interests: Robustness and Redundancy of Concrete Structures, Live Load modelling applied to reliability and safety analysis of bridges, Bridge Management Systems, advanced non-destructive techniques in bridge evaluation, repair and strengthening of existing bridges with advanced materials, long-term performance and life-cycle analysis of bridges.

4. VISITING PROFESSOR, SCIENTIST AND RESEARCHER

Visiting Professor, Indian Institute of Technology Madras, India, 2016
Visiting Professor, Kansai University, Osaka, Japan, 2012
Visiting Professor, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, México, 2007
Visiting Professor, Universidad Nacional de Chiapas, Tutxtla Rodríguez, México, 2007
Visiting Professor, University of Colorado, Boulder, USA, 2005
Visiting Professor, Swiss Federal Institute of Technology, Lausanne, Switzerland, 2005
Visiting Professor, Yamaguchi University, Ube, Japan, 2004
Visiting Professor, Wroclaw University of Technology, Wroclaw, Poland, 2004
Visiting Professor, Escuela Politécnica del Ejército, Quito, Ecuador, 1997
Visiting Professor, Universidad Católica de Córdoba, Córdoba, Argentina, 1993
Visiting Professor, Universidad Católica de Asunción, Asunción, Paraguay, 1993
Visiting Professor, Universidad de Chile, Santiago de Chile, Chile, 1991

5. HONORS, AWARDS AND FELLOWSHIPS

Bill Curtin Medal 1998, awarded by the Institution of Civil Engineers of United Kingdom to the best paper presented to the Institution describing **innovative design in civil engineering**

Special Service IABMAS award 2004, awarded by the International Association for Bridge Maintenance and Safety

Civil Engineering School Medal 2004, awarded by the School of Civil Engineering of the Technical University of Catalunya for **outstanding contribution to teaching activities and research in the field of civil engineering**.

2012 IABMAS Senior Prize, awarded by the International Association for Bridge Maintenance and Safety in **recognition of outstanding contributions to the application of advanced bridge inspection, assessment and monitoring techniques**.

2012 Outstanding Paper Award, awarded by IABSE (International Association for Bridge and Structural Engineering) to the best scientific paper published in the Journal of Structural Engineering during the year 2012

6. MEMBERSHIP OF PROFESSIONAL SOCIETIES

Secretary General of IABMAS (International Association for Bridge Maintenance and Safety), since 1999

Chairman of Working Commission I on Structural Performance, Safety and Analysis of IABSE (2009-2013)

Vice-chairman of Working Commission I on Structural Performance, Safety and Analysis of IABSE (2005-2009)

Member of FIB Working Commissions 3 (Existing Concrete Structures) and 8 (Structural Service Life)

Member of Technical Council on Life-Cycle Performance, Safety, Reliability and Risk of Structural Systems of ASCE (American Society of Civil Engineers)
Vice-Dean of the Professional Association of Civil Engineers of Catalonia
Member of IABSE (International Association for Bridge and Structural Engineering)
Member of Association of Professional Engineers of Spain
Member of ACHE (Spanish Association for Structural Concrete)
Member of FIB (Federation Internationale du Beton)
Member of ASCE (American Society of Civil Engineers)
Member of IALCCE (International Association for Life-cycle Civil Engineering)

7. EDITORIAL BOARD MEMBER

Editor

Managing Editor for Europe and Associate Editor, STRUCTURE AND INFRASTRUCTURE ENGINEERING, an International Peer-Reviewed Scientific Journal, Taylor & Francis Ltd., 2004-present

Associate Editor of the Journal of Bridge Engineering of ASCE (American Society of Civil Engineers). 2013-present

Specialty Chief-Editor of FRONTIERS IN THE BUILT ENVIRONMENT. BRIDGE SECTION. Frontiers. Nature Publishing Group. 2014-present

Editorial Board Member

Member of the Editorial Advisory Panel of “Bridge Engineering”. Proceedings of the Institution of Civil Engineers (ICE, UK), 2008-present

Member of the Editorial Advisory Board of the journal “The Open Civil Engineering Journal”, Bentham Science Publishers, 2009-present

Member of the Editorial Board of “Advances in Concrete Construction”

Member of the Editorial Board of “Structural Monitoring and Maintenance”

Associate Technical Editor of the journal “Experimental Mechanics”, edited by SEM (Society for Experimental Mechanics), 2000-2004

8. TEACHING ACTIVITIES AT UPC-BARCELONATECH

Undergraduate courses

- Introduction to management of structures and bridges
- Construction of bridges (basic)
- Introduction to civil engineering (for students in the first year)

Graduate courses

- Bridge design and construction (advanced)
- Inspection, assessment, maintenance and repair of bridges and structures

Doctoral theses

The following thesis have been presented under my supervision:

- Sobrino, J.A.: Evaluación del comportamiento funcional y de la seguridad estructural de puentes existentes de hormigón pretensado, 1994
- Crespo, C.: A reliability based methodology to define the Limit State of Decompression in prestressed concrete bridges, 1996
- Maldonado, E.: Metodología para la evaluación de la vulnerabilidad sísmica en puentes, 2000
- Ramírez, M.: Aplicación de los métodos de la lógica difusa al proyecto y construcción de puentes, 2000
- Landa, G.: Estudio experimental sobre el refuerzo a cortante de estructuras de hormigón mediante materiales compuestos, 2002
- Aire, C.: Estudio experimental del comportamiento del hormigón confinado sometido a compresión, 2002
- Salaverría, J.: Estudio experimental sobre la reparación y refuerzo de puentes utilizando fibras sintéticas y pretensado exterior, 2003
- Alarcón, A.: Estudio teórico- experimental sobre la reparación y refuerzo de puentes de dovelas con fibras de carbono, 2003
- Jara, M.: Diseño antisísmico de puentes con disipadores histeréticos de energía basado en desplazamientos, 2004
- Alonso, F.: Optimización conjunta de las políticas de mantenimiento y rehabilitación en puentes mediante algoritmos genéticos. Aplicación al sistema de gestión de puentes del Estado de Chiapas (México), 2006.
- Villalba, V.: Monitorización de la corrosión en estructuras postensada mediante sensores de fibra óptica, 2006
- Villalba, S.: Diseño y validación experimental de uniones mediante superposición con lazos de armaduras en viaductos de hormigón de sección transversal evolutiva. Optimización del proceso constructivo, 2010
- Gómez, J.D.: Evaluación estructural mediante pruebas de carga de puentes existentes. Aplicación a los puentes de carretera en Europa, 2010
- Valenzuela, M.: Refuerzo de puentes de luces medias por conversión en arco atirantado tipo network, 2012
- Contreras, C.: Verificación experimental de uniones mediante lazos de armadura y su aplicación en la construcción evolutiva de puentes, 2012
- Chambi, J.L.: Caracterización estadística de los modelos de confinamiento y determinación de coeficientes parciales de seguridad para el refuerzo de pilas de puentes de hormigón mediante materiales compuestos (CFRP), 2012
- Cavaco, E.: Robustness of corroded reinforced concrete Structures, 2013

9. ACADEMIC ACTIVITIES WITHIN UPC

- Vice-dean of foreign relations, School of Civil Engineering. 1997-2001
- Dean of the School of Civil Engineering. 2001-2004
- Director of the UPC- Ph. D. program “Construction Engineering”. 1992-2001, 2008-present. This program has been awarded with the mention of excellence by the Spanish Ministry of Education

- Director of the UPC- Master's program "Structural and Construction Engineering". 2011-2014

10. RESEARCH ACTIVITIES

European and International Projects:

- Experimental study on digital control of structures. NATO (North Atlantic Treaty Organization). (1988-1989). Role: member

- Advanced diagnostics and optimized rehabilitation of bridge systems. NATO (North Atlantic Treaty Organization). (1995-1999). Role: leader

- Decentralized active control of cable-stayed bridges. NATO (North Atlantic Treaty Organization). (1998-1999). Role: member

- Predicción de vida útil y gestión de puentes de hormigón afectados por ataques de tipo medioambiental. Committee for the Cultural and Scientific Exchange between Spain and USA. (07/2000-07/2001). Role: leader

- SAMARIS. Sustainable and Advanced Materials for Road InfraStructures. Guideline for assessment of highway bridges. European Commission. V Framework Program (2003-2005).

- SUSTAINABLE BRIDGES. Assessment for future traffic demands and longer lives. European Commission. Integrated Project. VI Framework Program (2004-2007)

- ARCHES. Assessment and Rehabilitation of Central European Highway Structures. European Commission. VI Framework Program (2006-2009)

- COST TU-601. Robustness of Structures. Action COST. European Commission. Member of the Management Committee

- MAINLINE. Maintenance, renewal and improvement of rail transport infrastructure to reduce economic and environmental impacts. European Commission. VII Framework Program (2011-2014)

- COST TU-1402. Quantifying the value of structural health monitoring. European Commission. Member of the Management Committee (2014-2017)

- COST TU-1406. Quality specifications for roadway bridges, standardization at a European Level (BridgeSpec). European Commission. Vice-Chair and Member of the Management Committee (2015-2018)

- TRUSS. Training in reducing uncertainty in structural safety. Marie Skłodowska-Curie ITN. Horizon 2020. European Commission (2015-2018)

11. PUBLICATIONS

Author or co-author of 26 books and chapters of books, 109 papers in refereed technical journals and over 200 communications to international scientific meetings.

(See attached list)

12. PROFESSIONAL ACTIVITIES- CONSULTING

Participation in more than 100 consulting and advising works related with bridges for private companies and Public Institutions. The most representative are cited:

Relevant to design and construction of new structures

- " Expert system for the design of precast girder bridges, cast in situ slabs and box-girder bridges". This work was developed for the Spanish Ministry of Public Works. (1989-1991).

- " Technical advising to the design and construction of the Alamillo cable-stayed bridge ". This work was developed for the Regional Government of Andalusia. (1989-92).

- " Technical advising to the construction of the Centenario cable-stayed bridge in Sevilla". This work was developed for the company EPTISA-INTEMAC (UTE). 1990.

- "Evaluation of dynamic amplification factor in bridges by non-conventional methods". This work was developed for the Spanish Ministry of Public Works. (1987-1989).

- Feasibility study and final pre-design of 3 prestressed concrete bridges in the railway high-speed line from Barcelona to the French border. This work was developed for the Railway Company of Catalonia. 1990 Ferrocarrils de la Generalitat de Catalunya

- Study on the unitary costs and construction process for the viaducts in the railway high-speed line from Barcelona to Madrid. This work was developed for the company SENER. 1992

- State of the art on the application of external prestressing in highway bridges. This work was developed for the Spanish Ministry of Public Works. (1991-1992)

- Assessment of the horizontal strength capacity of the new bridge over the Odiel river in Huelva. This work was developed for the Regional Government of Andalusia. 1993

- Evaluation of the up-to failure bending resistance of concrete highway bridges with external prestressing. This work was developed for the Spanish Ministry of Public Works. 1994.

- Independent checking of the design of the main bridge, East Viaduct and bridges in the island area of the inter-link from Rosario to Victoria in Argentina. This work was developed for the company Puentes del Litoral SA. (1998-2000)

Relevant to management and repair of existing structures

- " Bridge Management System for Overload Permit on the ACESA Highway Network". ACESA is a private highway company with a network of more than 500 Km. and 600 bridges. (1991-92).

- " Preliminary study about exceptional loads in the strategic highway network of Spain". This work was developed for Road Directorate of the Spanish Ministry of Public Works. (1993-1994).

- "Development of a Bridge Management System for overload permit in the Spanish trunk-road network". This work was developed for the Road Directorate of the Spanish Ministry of Public Works. (1996-98).

- "Development of assessment criteria and software for the overload permits in the bridge management system of Navarra (Spain)". This work was developed for the Road Directorate of the Region of Navarra. (1996-97).

- "Structural assessment and chemical and mechanical appraisal of the existing bridge OF- 50.2, over the A-7 highway". This work was developed for ACESA (private highway company). (1991-1993)

- "Inspection and condition assessment of the main infrastructures in Barcelona city". This work was developed for the Barcelona City Council. (1996-1997).

- "Technical Advising to the replacement of stays of the Chaco-Corrientes cable-stayed bridge". This work was developed as a part of an international team with Luis Berger International as the main partner, for the Argentinian Ministry of Public Works (1996-97).

- "Evaluation and repair of the bridges in the Zarate-Brazo Largo complex". This work was developed in a international JV with COWI from Denmark for the Argentinian Ministry of Public Works (1998-2000).

- "Bridge Management System for the bridges in the trunk road network of Catalonia. This work was developed for the Regional Government of Catalonia. (2006-2007)

- "Numerical and experimental study on the shear transfer in segmental concrete elements with dry joints strengthened with FRP composites and external prestressing". This work was developed for the Spanish Ministry of Public Works. (2003-2005).

- "Numerical simulation of the structural behaviour of concrete structures repaired and/or/strengthened with FRP composites. This work was developed for the Spanish Ministry of Public Works. (2003-2005)