



Enrique Zuazua

Curriculum Vitae

(Basque Country, Spain, September 28, 1961)
<https://dcn.nat.fau.eu/zuazua> ■ ResearcherID: K2033-2017
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Short Bio

Enrique Zuazua (Eibar, Basque Country, Spain, <https://dcn.nat.fau.eu/zuazua>) holds, since September 2019, the Chair for Dynamics, Control, Machine Learning and Numerics - Alexander von Humboldt Professorship, at the Department of Mathematics of the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) in Germany and part-time appointments at Universidad Autónoma de Madrid (UAM) and the Fundación Deusto, Bilbao. He is also Chief Algorithm Scientist at Sherpa.ai (<https://sherpa.ai>), a member of the Basque Academy "Jakiunde", Fellow of the Artificial Intelligence Industry Academy (AIIA), of the Asia-Pacific Artificial Intelligence Association (AAIA) and of the Academia of Europaea.

He holds a degree in Mathematics (1984) from the University of the Basque Country, and a dual Ph.D. degree from the same university (1987) and the Université Pierre et Marie Curie, Paris (1988). In 1990 he became Professor of Applied Mathematics at the Universidad Complutense de Madrid, to later move to UAM in 2001. He has been awarded the Euskadi (Basque Country) Prize for Science and Technology 2006 and the National Julio Rey Pastor Prize 2007 in Mathematics and Information and Communication Technology and the Advanced Grants of the European Research Council (ERC) NUMERIWAVES in 2010, DyCon in 2016 and CoDeFeL in 2022. In 2022 he was awarded the W.T. and Idalia Reid Prize of SIAM. He was invited section speaker in "Control and Optimization" in ICM2006, Madrid.

With over 300 articles published, his work had an important impact ($h\text{-index} = 50$). He has supervised over 30 PhD students and a broad network of master students, post-doctoral researchers and research and management technicians.

His fields of expertise in the broad area of Applied Mathematics include Partial Differential Equations, Systems Control, Numerical Analysis and Machine Learning.

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He is the co-editor-in-chief of the Journals "Mathematical Control and Related Fields" and "Advances in Continuous and Discrete Models" and member of the editorial committee of other Journals and of scientific committees of various centers and agencies. He was the first Manager for Mathematics of the Spanish National Research Plan in 1999-2002, the Founding Scientific Director of the Basque Center for Applied Mathematics (BCAM) in 2008-2012 and in 2016 he launched the Chair of Computational Mathematics at the Deusto Foundation, both in Bilbao. Since 2021 he is the speaker of the FAU Research Center for Mathematics of Data (FAU MoD). He also develops an intense dissemination agenda, gathered at <https://cmc.deusto.eus/enzuazua/>.

Education

- 1988 PhD in Applied Mathematics, Université Pierre et Marie Curie, Paris
- 1987 PhD in Applied Mathematics, University of the Basque Country, Bilbao, Basque Country, Spain
- 1985 Master (DEA) in Numerical Analysis, Université Pierre et Marie Curie, Paris
- 1984 Bachelor in Mathematics, University of the Basque Country, Bilbao, Basque Country, Spain

Current Positions

- 2019- Chair Professor (W3). FAU, Friedrich-Alexander Universität Erlangen-Nürnberg in Dynamics, Control, Machine Learning and Numerics, Alexander von Humboldt Professor
- 2021- Speaker FAU MoD - Research Center for Mathematics of Data
- 2021- Chief Algorithm Scientist at Sherpa.ai, Bilbao, Basque Country, Spain (part-time)
- 2016- Director of the Chair of Computational Mathematics at Deusto Foundation, Bilbao, Spain (part-time)
- 2001- Full Professor in Applied Mathematics at the Autonomous University of Madrid (UAM), Spain (part-time)

Previous Positions

- 2008-2015 Ikerbasque Research Professor, Bilbao, Spain
- 1990-2000 Full Professor in Applied Mathematics at the Complutense University of Madrid (UCM), Spain
- 1988-1990 Associate Professor in Mathematical Analysis at the Autonomous University of Madrid (UAM), Spain
- 1987-1988 Assistant Professor, University of the Basque Country, Bilbao, Basque Country, Spain

Fellowships and Awards

- 2023-2028 ERC Advanced Grant CoDeFeL, (2.5M€)
- 2023-2027 INRIA International Chair - Advanced Career, France
- 2022 W.T. and Idalia Reid Prize, SIAM

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- 2021 Top Talent Ciencia Award, Bilbao, Spain, Deia Newspaper
- 2018-2026 Alexander von Humboldt Professor, FAU, Germany(3.5M€)
- 2018 Invited profile in "Arbolmat", El Árbol de las Matemáticas, UNIVERSIA,
<https://www.arbolmat.com/enrique-zuazua/>
- 2016-2021 ERC Advanced Grant DyCon, (2M€)
- 2016-2020 Agence Nationale de la Recherche, France ICON Grant, (600 K€)
- 2015-2019 High-End Foreign Teacher of the University of Sichuan, Chengdu, China
- 2015- Ambassador of FAU, Erlangen, Germany
- 2015- Member of Academia Europaea
- July 2014 Doctor Honoris Causa, Université de Lorraine, France
- 2014-2015 Humboldt Research Award 2013, FAU, Germany, (60 K€)
- 2013-2014 CIMI Excellence Chair, Toulouse, France, (Spring Semester)
- 2013-2014 "Research in Paris" Award, Paris City Hall, (Fall Semester)
- 2010-2015 ERC Advanced Grant NUMERIWAVES (1.7 M€)
- 2007 J. Rey Pastor National Prize, Spain
- 2007- Full member of "Jakiunde", the Basque Academy for Science, Arts and Letters
- 2006 Science and Technology Euskadi Prize, Basque Government
- 2004 "Highly Cited Researcher", ISI Institute (Thomson)

Supervision of graduate students and postdoctoral fellows

30 PhDs (see Math Genealogy) from Brazil, Chile, China, France, Mexico, US, Romania, Spain, etc., over 70 postdocs and over 60 Master Theses and several IT managers in the Spanish and German science systems. (<https://genealogy.math.ndsu.nodak.edu/id.php?id=88528>)

Teaching Activities

- 1987- All levels (undergraduate, master, doctoral and research courses, etc.). At present mainly on the Masters Degree in Computational and Applied Mathematics (CAM), FAU.

Institutional Responsibilities

- 2021- Spokesperson of the Research Center for Mathematics of Data (FAU MoD), FAU, Erlangen, Germany
- 2016- Director of the Chair in Computational Mathematics, Deusto Foundation, Bilbao, Basque Country, Spain
- 2012-2013 Founding Director of BCAM Chair in PDE, Control and Numerics, BCAM, Spain
- 2008-2012 Founding Scientific Director, BCAM, Bilbao, Spain, (17M€)
- 2001-2005 Manager of the Mathematics Program, Spanish National Research Plan

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Commissions of Trust

- 2024 Member of the Visiting Committee, College of Science, Nanyang University Technological University, Singapore
- 2022-2024 Scientific Council of the INSMI-CNRS
- 2006-2024 Scientific Council of CERFACS, Toulouse, France
- 2010, 2022 Member of the "Control and Optimization" Panel of ICM2010, Hyderabad, India and ICM 2022, Russia
- 2018 Member of the Synergy Grants Panel, ERC, European Research Council
- 2009-2016 Chairman of the Scientific Committee of CIMPA, Nice, France
- 2008, 2010, 2012 Chairman of the Advanced Grants Panel for Mathematics, European Research Council
- 2011 Chairman of the "Control and Applications" Panel of ICIAM2011, Beijing, China
- 2006 Member of the International Program Committee, ICM 2006, Madrid, Spain

Reviewing Activities

CNRS (France), NSF (USA), AFOSR (USA), AERES (France), ANR (France), IUF (France), Paris Region (France); DFG (Germany); ERC (Brussels); Irish Research Council, Kuwait Foundation for the Advancement of Sciences (KFAS), FRS/FNRS (Belgium), NSC (Poland), CONYCIT (Chile), etc.

Membership to Scientific Societies

SIAM (Society for Industrial and Applied Mathematics)

Major Collaborations

E. Zuazua has collaborated with a rich network of scientists all around the world (180 co-authors according to MathSciNet). Many of his former PhD students and postdocs develop brilliant academic and industrial careers like, for instance: Francisco Palacios, PhD student in optimal shape design in aeronautics, group leader at "The Boeing Company", Long Beach, CA. Luz de Teresa (UNAM, Mexico), former PhD student, was the President of the Mathematical Society of Mexico and is now member of the Governing Board of UNAM. Borjan Geshkovski, former PhD student, is now an INRIA Researcher in Sorbonne Univ., after a postdoc at MIT. Minh-Binh Tran, former postdoc, CAREER awardee, Associate Professor at TAMU in Texas. Xu Zhang and Qi Lü, former postdocs, now Professors in Sichuan University, Chengdu, China, were invited speakers in the "Control and Optimisation" section of ICM. Karine Beauchard and Thomas Duyckerts, former postdocs, joined the prestigious Institut Universitaire de France (IUF).

Visiting positions (>1 month)

Courant Institute, NYU; IMA, Minneapolis; Rice Univ., Houston; UPMC, Paris; Univ. de Nice; Univ. Paris-Sud, Orsay; Univ. Orléans; Univ. Versailles; Univ. Toulouse; E. Polytechnique; Isaac Newton Institute, Cambridge; UFRJ, Brazil; LNCC, Brazil; CMM, Chile, Sichuan Univ., China.

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Contracts with Industry

- 2021- Senior Associate Advisor, Sherpa.ai, Bilbao, Spain, (mathematical methods in artificial intelligence), <https://sherpa.ai/>
- 2018-2019 Advisor on Science and Technology, Eibar Municipal Council
- 2015-2016 Numerics for water management, Consorcio de Aguas Bilbao Bizkaia [Water Board], <https://www.consorciodeauas.eus>

Present Funding

- 2024-2029 ERC Advanced Grant CoDeFeL-Control for Deep and Federated Learning, (2.5M€)
- 2019-2026 Alexander von Humboldt Professorship, (3.5M€)
- 2023-2026 DFG TRR 154, SFB Transregio 154 - Mathematical Modelling, Simulation and Optimization Using the Example of Gas Networks, One PhD Grant
- 2022-2026 ModConFlex, Marie Curie Action, HORIZON-MSCA-2021-DN-01, one PhD Grant
- 2024-2025 "Control and numerical analysis of complex systems" project. DAAD, Deutscher Akademischer Austauschdienst (German Academic Exchange Service)
- 2024-2025 Germany-Korea DFG bilateral exchange project "Control of multi-particle systems, mean-field limits, and applications to deep learning", (25K€)
- 2023-2025 DFG Mobility program FAU-Fudan, Shanghai, China, Control, inversion and numerics for Partial Differential, (200 K€.)
- 2023-2024 DASEL- Data Science and Electrical Networks, Spain, Energy Strategy, (223 K€)
- 2022-2024 Henriette-Herz Scout Program, Alexander von Humboldt Foundation, 3 postdoc positions, (2 years each)
- 2021-2024 BaCaTeC cooperation Grant FAU-UCSD, San Diego, USA, (4 K€/year)
- 2021-2024 Kinetic equations and learning control, Spanish Ministry of Science, (37 k€, one PhD grant)

Past Funding

- 2018-2021 ConFlex, Marie Curie Training Network, <https://www.confex.org>
- 2008-2012 Attraction of up to 17M€, including the establishment of the permanent headquarters of the centre, as Founding Scientific Director of the BCAM
- 2008-2011 Member of the Steering Committee of the ESF Research Networking Programme "Optimization with PDE Constraint", (500K€)
- 2006-2008 Founding PI of the CONSOLIDER-Ingenio Research Project, networking most mathematics teams in Spain for applied and multidisciplinary research, (7.5M€/5 years)
- 1990- PI in the Mathematics Program of the Spanish National Plan

International Conferences

2nd ECM, Budapest, 1996; Congress de Mathématiques Appliquées à la mémoire de Jacques-Louis Lions, 2002, Paris; AMAM2003, Nice; ECCOMAS 2004, Jyväskylä; FoCM2005, Santander;

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ENUMATH2005, Santiago de Compostela; ICM2006; EQUADIFF 2007, Vienna; New Directions in Computational PDEs, Warwick, 2009; SIMAI 2010, Cagliari; Aachen Conference on Computational Engineering Science, 2011; SIAM Conf. Control & Appl., MD, USA, 2011; 14th International Conference on Hyperbolic Problems, Padova, Italy, 2012; CMN2013, Bilbao, Spain, 2013; CMA2014, Kuwait, 2014; 86th GAMM Annual Meeting, Salento, Italy, 2015; SIAM Conference on Control & Appl., Paris, France, 2015; IFAC-CPDE16, Bertinoro, Italy, 2016; XI Congreso Colombiano de Métodos Numéricos, Bucaramanga, Colombia, 2017; DEA 2019, Krakow, Poland, 2019; ADENA2020, India, HAIS 2021, Bilbao; FBP 2021, Berlin; SIAM Annual Meeting, Pittsburgh, 2022; Mathematical Opportunities in Digital Twins, George Mason University, Washington DC, 2023.

■ Honorary Lectures

"The Lezioni Guido Castelnuovo", Rome, 2002; "Edinburgh Mathematical Society", 2005; "Le modèle et l'algorithme", INRIA, 2008; "The von Mises Lecture", Humboldt Univ., 2008; Giornata INDAM, Torino, 2009; "Celebrating Sciences", Nonlinear Physics Laboratory, UK, 2011; "Science et Société", Nancy, France, 2014; Grandes Conférences Publiques du CRM, Montreal, 2016; Perspectivas Matemáticas, IM-UNAM, México, 2016, University of Pittsburgh Michalik Distinguished Lecture Series, 2019; Natural Sciences Distinguished Lecture, Institute of Natural Sciences, Shanghai Jiao Tong University, 2020; Distinguished for HKSIAM and Hong Kong Universities, 2021; Lumer Lecture, 2022; Jilin University, Changchung, China, 2023.

■ Monographic Lectures and Advanced Courses

Monographic research lectures at several institutions in various countries such as Algeria, Brazil, Chile, China, Egypt, Finland, France, India, Italy, Japan, Morocco, Mexico, Poland, Portugal, Spain, Turkey and Venezuela.

■ Outreach Activities

Intensive outreach activity gathered in the "enzuazua": <https://cmc.deusto.eus/enzuazua/>

■ Impact Factor

(WoS/GS/ MathSciNet): Articles: 327 /- / 395. Citations: 10,183 / 23,980 / 9.794. h-index: 50 /80/-

■ Languages

Basque	Mothertongue
Spanish	Mothertongue
English	Advanced
French	Advanced
German	Advanced

■ Links

FAU	https://dcn.nat.fau.eu/zuazua/
FAU MoD	https://mod.fau.eu/enrique-zuazua/
Deusto	https://cmc.deusto.eus/enrique-zuazua/

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