I. de Zarzà.

IEEE Member. ACM & SIGGRAPH Member. SIAM Member. IEEE Computer Society.
IEEE Robotics and Automation Society. IEEE Aerospace and Electronic Systems Society.
IEEE Information Theory Society. IEEE Signal Processing Society. IEEE Communications Society.
SIAM Activity Group on Discrete Mathematics. SIAM Activity Group on Imaging Science.
SIAM Activity Group on Computational Science and Engineering.
SIAM Activity Group on Data Mining and Analytics.
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General information

Legal Name: DE ZARZÀ I CUBERO Irene.
E-mail: z@dezarza.be
Webpage: www.dezarza.tw
Phone: +852 9329 3034

Career (Selected)

CIMDA. City University of Hong Kong. HK Science Park. Hong Kong.
CIMDA Researcher. September 2021 (grant conferred); January 2022 - .
Joint center with the Mathematical Institute at the University of Oxford.
Funded under the Research Talent Hub for ITF projects: highly prestigious research support initiative by the HK Special Administrative Region.

CUHK. Hong Kong.
Researcher. October 2017 - February 2018.
Department of Computer Science and Engineering.

Carnegie Mellon. Pittsburgh.
Researcher. June 2017 - July 2017.
School of Computer Science. Robotics.

City University of Hong Kong. Hong Kong.
Senior Research Assistant. January 2017 - May 2017.
Department of Electrical Engineering.

ETH Zürich. Zürich.
Graduate Research Assistant. April 2015 - September 2016.
Laboratory of Computer Vision.

City University of Hong Kong. Hong Kong.
Research Associate. July 2015 - August 2015.
Department of Computer Science.

Carnegie Mellon. Pittsburgh.
Research Associate I. June 2014 - August 2014.
School of Computer Science. Robotics.

Education (Selected)

Universitat Politècnica de València (UPV). València.

Doctor in Computer Science. September 2021 - .

Research Group on Unmanned Aerial Vehicles.

Regarded as the best technical university in the country, it has recently joined the ENHANCE Alliance (TU Berlin, Politecnico di Milano, Chalmers, NTNU, RWTH Aachen and Warsaw) to establish the top university of technology in continental Europe.

Universitat Oberta de Catalunya (UOC). Barcelona.

Master of Science. September 2021 - .
Studies of Computer Science, Multimedia and Telecommunications.

Academic Distinctions:

- Awarded first class honors and honorary scholarship (worth 6 ECTS towards next matriculation) at the subject 'Tipology and life cycle of data' covering a wide range of topics in data science and statistics during first semester 21/22 corresponding to 9.8/10 A (Honors. Matrícula d'Honor (MH)).

ETH Zürich. Zürich.

Doctor of Science. April 2015 - March 2017
Laboratory of Computer Vision.
Department of Information Technology and Electrical Engineering.

Thesis: A Unifying Theory of Learning: DL Meets Kernel Methods.

Academic Distinctions:

- Awarded full scholarship from D-ITET to pursue doctoral studies.

Carnegie Mellon. Pittsburgh.

Master of Science (exchange). May 2014 - February 2015.
School of Computer Science. Robotics and ML Department.

Thesis: A Library for Fast Kernel Expansions with Applications to Computer Vision and Deep Learning.

City University of Hong Kong. Hong Kong.

Master of Science. September 2013 - February 2015.
Department of Electrical Engineering.
GPA: 3.86 (0-4 scale).
Classification of Award: Distinction (4/+100).
Specialization in Signal Processing, Detection and Estimation in Communications and Embedded Systems. College of Engineering.

Academic Distinctions:

- MS Internship Sponsorship 2014.
  Award for top performing students. Robotics. Carnegie Mellon. Pittsburgh.

Universitat Autònoma de Barcelona (UAB). Cerdanyola del Vallès (Barcelona).

Degree in Mathematics. 2011 - 2013.
Specialization in Pure Mathematics.
Department of Mathematics. Faculty of Sciences.

Interdisciplinary thesis of research completed in collaboration with the School of Engineering (Dept. of Telecommunications and Systems Engineering).

Thesis: Physical-layer Network Coding: Design of Constellations over Rings.
Grade: Excellent. First Class with Distinction.

Academic Distinctions:

- Awarded first class honors and honorary scholarship (worth 6 ECTS towards next matriculation) at the subject 'Current trends in Mathematics' during year 11/12 corresponding to 10/10 (Honors. Matrícula d'Honor (MH)).

Universitat de Barcelona (UB). Barcelona.

Mathematics, Licentiate. First Cycle. 2007 - 2011.
Department of Mathematics and Computer Science.

Coursework in real and complex analysis, probability, advanced algebra, projective geometry, differential geometry of curves and surfaces, topology, statistics, logic, numerical methods.

Academic Distinctions:

- Top performance during the selection stage, a first year very selective curricula where the majority of the candidates drop the studies.

- Awarded first class honors and honorary scholarship (worth 7.5 credits towards next matriculation) at the subject 'Introduction to probability' during year 07/08 corresponding to 10/10 (Honors. Matrícula d'Honor (MH)).

University Entrance Examination.
Average Grade: 8.93/10. First Class with Distinction.

Academic Distinctions:

- First year scholarship for university studies. Ministry of Education.
  This award is given to the top nationwide first year university students and covers the full amount of tuition during the first year of university at the given university of choice (10/10; in my case at Universitat de Barcelona (UB); Licentiate in Mathematics).
- First year scholarship for university studies. Caixa Manresa.
  This award was given to the top university entrance examination average grades in the region of Catalunya (in my case 8.93/10) and provided a proper amount to cover part of tuition and living expenses during first year of university studies.

Technological Baccalaureate. 2005 - 2007.
Average Grade: 10/10. First Class Degree and Honorary Scholarship.

Academic Distinctions:

- Outstanding Thesis of Research: Squaring the Circle. Study of the different mathematical approaches to solve the ancient problem of the quadrature of the circle.
- Outstanding Curriculum.

Publications (Selected)

De Curtò y DíAz, **De Zarzà i Cubero**, Hong Yan and Carlos T. Calafate. Signature and Log-signature for the Study of Empirical Distributions Generated with GANs. 2022. doi.org/10.36227/techrxiv.19930712

De Curtò y DíAz, **De Zarzà i Cubero**, Hong Yan and Carlos T. Calafate. Learning with Signatures. 2022. arxiv.org/abs/2204.07953

De Curtò y DíAz, **De Zarzà i Cubero**, Hong Yan and Carlos T. Calafate. On the applicability of the Hadamard as an input modulator for problems of classification. Software Impacts. 2022. doi.org/10.1016/j.simpa.2022.100325
Code: doi.org/10.24433/CO.3851581.v1 Repository: github.com/curto2/mckernel

Dissertations

Doctor of Science.
A Unifying Theory of Learning: DL Meets Kernel Methods.
Supervisor: Luc van Gool.
ETH Zürich. Zürich. 2021.
https://hal.archives-ouvertes.fr/tel-03227039

Master of Science.
A Library for Fast Kernel Expansions with Applications to Computer Vision and Deep Learning.
Supervisors: Alex Smola, Fernando de la Torre and Chong-Wah Ngo.
Carnegie Mellon. Pittsburgh. 2014.
https://www.dezarza.tw/z/dezarza.pdf
https://www.dezarza.tw/z/slides_dezarza.pdf

Degree in Mathematics.
Physical-layer Network Coding: Design of Constellations over Rings.
Supervisor: María Ángeles Vázquez.
Universitat Autònoma de Barcelona. Cerdanyola del Vallès (Barcelona). 2013.
https://www.dezarza.tw/z/pfc_dezarza.pdf
https://www.dezarza.tw/z/slides_pfc_dezarza.pdf

Books

De Zarzà. A Unifying Theory of Learning: DL Meets Kernel Methods. LAP Academic Publishing. 2021. ISBN: 978-620-3-92495-4

De Zarzà. Fast Kernel Expansions with Applications to CV and DL. Part 1b. LAP Academic Publishing. 2021. ISBN: 978-620-3-92539-5

De Zarzà. Physical-layer Network Coding: Design of Constellations over Rings. LAP Academic Publishing. 2021. ISBN: 978-620-3-92502-9

Languages

English -

TOEFL Internet Based test. 11-12-2016. **Score 102/120**.

Services

ICML 2020. Virtual Conference. Formerly in Vienna. 12/07 - 18/07. 2020.

Attendee.

Robotics: Science and Systems. Virtual Conference. Formerly in Corvallis. 12/07 - 16/07. 2020.

Attendee.

SIAM Conference on Imaging Science. Virtual Conference. Formerly in Toronto. 06/07 - 17/07. 2020.

Attendee.

IEEE International Symposium on Information Theory. Virtual Symposium. Formerly in Los Angeles. 21/06 - 26/06. 2020.

Attendee.

IEEE Conference on Computer Vision and Pattern Recognition. Virtual Conference. Formerly in Seattle. 14/06 - 19/06. 2020.

Attendee.

IEEE International Conference on Communications. Virtual Conference. Formerly in Dublin. 07/06 - 11/06. 2020.

Attendee.

IEEE International Conference on Robotics and Automation. Virtual Conference. Formerly in Paris. 31/05 - 04/06. 2020.

Attendee.

SIAM Conference on Mathematics of Data Science. Virtual Conference. Formerly in Cincinnati. 04/05 - 30/06. 2020.

Attendee.

IEEE International Conference on Acoustics, Speech, and Signal Processing. Virtual Conference. Formerly in Barcelona. 04/05 - 08/05. 2020.

Attendee.

ICLR 2020. Virtual Conference. Formerly in Addis Ababa. 26/04 - 01/05. 2020.

Attendee.

Written presentation at the Social Virtual Event on Open source tools and practices in state-of-the-art DL research.

Slides with Q&A annotations: www.decurto.tw/c/iclr2020_DeCurto.pdf

First European Training School in Network Coding: Random Network Coding and Designs over $GF(q)$. IEEE Information Theory Society. Universitat Autònoma de Barcelona. Cerdanyola del Vallès (Barcelona). 04/02 - 08/02. 2013.

From designs over $GF(q)$ to applications of networking: a cross-road for mathematics, computer science and engineering.

Attendee and Volunteer.

Programming

C, C++, Java, Python, MATLAB and Prolog.

Software

LaTeX, R, Maple, Mathematica and EViews.