Alexandre Cortiella

Boulder, CO, USA 80302 • (+1) 720-755-1584
alexandre.cortiella@gmail.com • es.linkedin.com/in/alexandrecortiella • www.alexcortiella.com
Authorized to work in the United States.

SUMMARY

Curious aerospace engineer passionate about science and technology. I aspire to become an expert and make useful contributions to the aerospace sector. I am experienced in computational mechanics, data-driven modeling and machine learning.

EDUCATION

Ph.D. Aerospace Engineering *Spring 2021*
University of Colorado Boulder, Boulder, CO
Ph.D. Thesis: Data-driven model development and identification of dynamical systems.

M.S. Aerospace Engineering *Spring 2018*
University of Colorado Boulder, Boulder, CO

B.S. Aerospace Engineering *Spring 2014*
Technical University of Catalonia, Barcelona, Spain
B.S. Thesis: Study of numerical techniques for structural optimization in aeronautics.

EXPERIENCE

Postdoctoral Associate, PSAAP-III Center at Stanford Boulder, CO / Stanford, CA *March 2022 - Present*

- Currently doing research on data-driven modeling and uncertainty quantification of exascale Multiphysics simulation ensembles.
- Researcher in the Predictive Science Academic Alliance Program at Stanford University working on the Integrated Simulations using Exascale Multiphysics Ensembles (INSIEME project).

Research Associate, Aerospace Mechanics Research Center Boulder, CO *January 2017 – March 2022*

- Developed dual state and parameter estimation algorithms based on Bayesian Inference methods.
- Devised novel algorithms for data-driven dynamical model identification from noisy data using sparse regularization and machine learning techniques.
- Developed partitioned finite element thermal-structure and fluid-structure interaction algorithms.
- Presented research at various workshops and conferences including SIAM Computational Science and Engineering 2021.
- Served as a teaching assistant for Structures and Materials course, mentored students, and prepared lectures.

Research Scientist, Laboratory for Atmospheric and Space Physics Boulder, CO *June 2018 - August 2018*

- Analyzed data from Juno spacecraft to identify plasma and radiation particles of Jupiter's radiation belts.
- Performed Monte Carlo simulations and sensitivity analyses using ESA's Multi-Layered Shielding Simulation Software.
- Developed mathematical models for Jupiter radiation high-energy particle environment.
- Collaborated with and reported results to NASA Jet Propulsion Laboratory.

GNC Engineer, UPC Nanosat Lab Barcelona, Spain *May 2015 - August 2016*

- Designed and implemented attitude determination and control algorithms for a Earth Observation nanosatellite.
- Programmed a spacecraft flight dynamics simulator for Low Earth Orbit nanosatellite missions.
- Planned, executed, evaluated, and supervised all phases of spacecraft flight dynamics, estimation, and control operations.
- Collaborated and scheduled critical review meetings with industry partners from Elecnor Deimos.

SKILLS

Communication

- Languages: Spanish (Native), Catalan (Native), English (Professional), French (Basic).
- Presented my research at conferences and published articles in prestigious journals.
- Mentored and taught undergraduate and graduate engineering students.

Leadership

- President of the CU Catalan Club - Managed and organized events to promote Catalan culture.
- Founding member of CU Graduate Colloquium Seminars - Organized and coordinated talks and workshops.
- Captain of a Federated Handball team – Handball player for 17 years in three different teams.

Technical

- MATLAB & Simulink, Python, C++, HTML-CSS.
- Solid Works, CATIA, ANSYS, TensorFlow, PyTorch.
- System identification, Machine learning, State Estimation, Numerical simulation, Spacecraft dynamics, GNC.

HONORS AND AWARDS

- Awarded a SIAM Student Travel Award CSE 2021 Conference (2021).
- Awarded a Graduate International Travel Grant by University of Colorado (2019).
- Awarded a Conference Travel Grant by University of Washington (2019).
- Ph.D. research funded by National Science Foundation (NSF) Grant: CMMI-1454601 (2018).
- Winner of the Space Station Design Challenge at the Institute of Space Systems, Germany (2016).
- Recipient of a Balsells Fellowship for graduate studies at University of Colorado Boulder (2016).
- Recipient of a Research Fellowship by Institut d'Estudis Espacials de Catalunya (IEEC) (2015).
- Distinguished B.S. Thesis Award for being among the top 5% (2014).