Juan Alonso

List of Publications by Year
in descending order

144 papers	5,013 citations	257450 24 h-index	197818 49 g-index
146 all docs	146 docs citations	146 times ranked	1970 citing authors

#	Article	IF	Citations
1	Forecasting the Operational Lifetime of Battery-Powered Electric Aircraft. Journal of Aircraft, 2023, 60, 47-55.	2.4	3
2	Comparing Multi-Element Airfoil Flow Solutions Using Multiple Solvers with Output-Based Adapted Meshes. AIAA Journal, 2022, 60, 2629-2643.	2.6	7
3	Sensitivity Analysis of Gas-Surface Modeling in Nonequilibrium Flows. , 2022, , .		2
4	Aeroelastic Wing Design Sensitivity Analysis with SU2-Nastran Coupling in OpenMDAO. , 2022, , .		2
5	A universal velocity profile for turbulent wall flows including adverse pressure gradient boundary layers. Journal of Fluid Mechanics, 2022, 933, .	3.4	20
6	Aero-Structural Discrete Adjoint Sensitivities in SU2 using Algorithmic Differentiation. , 2022, , .		0
7	A Toolset For Creation of Multi-Fidelity Probabilistic Aerodynamic Databases. , 2021, , .		2
8	Towards a Scalable Hierarchical High-order CFD Solver. , 2021, , .		1
9	CPU Parallelization and GPU Acceleration of SUAVE: Advancements in Sampling and Optimization. , 2021, , .		1
10	Comparisons of HPCMP CREATETM-AV Kestrel-COFFE, SU2, and MIT SANS RANS Solutions using Output-Based Adapted Meshes for a Multi-Element Airfoil. , 2021, , .		2
11	A Universal Velocity Profile for Near-Wall Flows. , 2021, , .		4
12	Efficient Airframe Noise Reduction Framework via Adjoint-Based Shape Optimization. AIAA Journal, 2021, 59, 580-595.	2.6	5
13	Shock interactions in inviscid air and $\hbox{CO}_2$–$\hbox{N}_2$ flows in thermochemical non-equilibrium. Shock Waves, 2021, 31, 239-253.	1.9	10
14	Evaluating the Performance and Acoustic Footprint of Aircraft for Regional and Urban Air Mobility. , 2021, , .		1
15	SU2-NEMO: An Open-Source Framework for High-Mach Nonequilibrium Multi-Species Flows. Aerospace, 2021, 8, 193.	2.2	21
16	A comparison of jet acoustic analysis methods. , 2021, , .		2
17	Lithium–Ion Battery Modeling for Aerospace Applications. Journal of Aircraft, 2021, 58, 1323-1335.	2.4	9
18	Parametric Study of Nonequilibrium Shock Interference Patterns over a Fuselage-and-Wing Conceptual Vehicle. AIAA Journal, 2021, 59, 4905-4916.	2.6	3

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19	A System for Measurement and Analysis of Aircraft Noise Impacts. , 2021, 13, .		2
20	One Shot Optimization with Generalized Constraints. , 2020, , .		0
21	Numerical Study of Shock Interference Patterns for Gas Flows with Thermal Nonequilibrium and Finite-Rate Chemistry. , 2020, , .		3
22	Design exploration and optimization under uncertainty. Physics of Fluids, 2020, 32, .	4.0	23
23	Goal-Oriented Mesh Adaptation for Flows in Thermochemical Nonequilibrium. , 2020, , .		6
24	Investigating Performance Losses in High-Level Synthesis for Stencil Computations. , 2020, , .		3
25	Prediction of the Operational Envelope of Electric Aircraft Through Robust Battery Cycle-Life Modeling. , 2020, , .		0
26	An analysis of inviscid transonic flows over three-dimensional wings using the discontinuous Galerkin solver in SU2. , 2020, , .		0
27	MULTI-FIDELITY MODELING OF PROBABILISTIC AERODYNAMIC DATABASES FOR USE IN AEROSPACE ENGINEERING. , 2020, 10, 425-447.		11
28	A Simple and Robust Shock-Capturing Approach for Discontinuous Galerkin Discretizations. Energies, 2019, 12, 2651.	3.1	1
29	Current Capabilities and Challenges of NDARC and SUAVE for eVTOL Aircraft Design and Analysis. , 2019, , .		27
30	Uncertainty Estimation Module for Turbulence Model Predictions in SU2. AIAA Journal, 2019, 57, 1066-1077.	2.6	38
31	Sequential Reliability-Based Design Optimization via Anchored Decomposition. , 2019, , .		2
32	Primary Weight Estimation for eVTOLs via Explicit Analysis and Surrogate Regression. , 2019, , .		7
33	Transonic flow analysis with discontinuous Galerkin method in SU2 DG-FEM solver. , 2019, , .		4
34	Shock-Induced Separation Suppression Using CFD-Based Active Flow Control Optimization. , 2019, , .		0
35	Flow and Noise Predictions Around Tandem Cylinders using DDES approach with SU2. , 2019, , .		8
36	Simple shock detector for discontinuous Galerkin method. , 2019, , .		2

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37	Strategies for Posing a Well-Defined Problem for Urban Air Mobility Vehicles. , 2019, , .		17
38	Polynomial chaos to efficiently compute the annual energy production in wind farm layout optimization. Wind Energy Science, 2019, 4, 211-231.	3.3	15
39	Comparison of the Finite Volume and Discontinuous Galerkin schemes for the Double Vortex Pairing Problem using the SU2 Software Suite. , 2018, , .		0
40	Low-cost unsteady discrete adjoints for aeroacoustic optimization using temporal and spatial coarsening techniques. , 2018, , .		11
41	Coupled adjoint€based sensitivities in large€displacement fluid€structure interaction using algorithmic differentiation. International Journal for Numerical Methods in Engineering, 2018, 113, 1081-1107.	2.8	31
42	Connecting Flow over Complex Terrain to Hydrodynamic Roughness on a Coral Reef. Journal of Physical Oceanography, 2018, 48, 1567-1587.	1.7	41
43	A Discrete Adjoint Approach for Jet-Flap Interaction Noise Reduction. , 2017, , .		8
44	Design and Optimization of Unconventional Aircraft Configurations with Aeroelastic Constraints. , 2017, , .		8
45	SUAVE: An Open-Source Environment Enabling Unconventional Vehicle Designs through Higher Fidelity. , 2017, , .		14
46	Optimal Actuation of Dielectric Membrane Wings using High-Fidelity Fluid-Structure Modelling. , 2017, , .		3
47	Hybrid RANS/LES Calculations in SU2. , 2017, , .		18
48	Conceptual Design and Optimization of Small Transitioning UAVs using SUAVE. , 2017, , .		3
49	A Discrete Adjoint Framework for Low-Boom Supersonic Aircraft Shape Optimization. , 2017, , .		1
50	Adjoint of Generalized Outflow-Based Functionals Applied to Hypersonic Inlet Design. AIAA Journal, 2017, 55, 3903-3915.	2.6	7
51	Reliable Multidisciplinary Design of a Supersonic Nozzle Using Multifidelity Surrogates. , 2017, , .		11
52	Adjoint Formulation Investigations of Benchmark Aerodynamic Design Cases in SU2. , 2017, , .		12
53	Reduction of Airframe Noise Components Using a Discrete Adjoint Approach. , 2017, , .		22
54	Polynomial chaos for the computation of annual energy production in wind farm layout optimization. Journal of Physics: Conference Series, 2016, 753, 032021.	0.4	4

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55	An Efficient Unsteady Aerodynamic and Aeroacoustic Design Framework Using Discrete Adjoint. , 2016, , .		15
56	Unstructured Grid Adaptation: Status, Potential Impacts, and Recommended Investments Towards CFD 2030. , 2016, , .		38
57	Robust uniform time sampling approach for the harmonic balance method. , 2016, , .		7
58	SUAVE: An Open-Source Environment for Conceptual Vehicle Design and Optimization. , 2016, , .		30
59	Mulit-Objective Optimization of a Hypersonic Inlet Using Generalized Outflow Boundary Conditions in the Continuous Adjoint Method. , 2016, , .		4
60	Design and Optimization of Short-Range Aluminum-Air Powered Aircraft. , 2016, , .		5
61	Performance optimizations for scalable implicit RANS calculations with SU2. Computers and Fluids, 2016, 129, 146-158.	2.5	29
62	SU2: An Open-Source Suite for Multiphysics Simulation and Design. AIAA Journal, 2016, 54, 828-846.	2.6	567
63	Towards High-Performance Optimizations of the Unstructured Open-Source SU2 Suite. , 2015, , .		18
64	SUAVE: An Open-Source Environment for Multi-Fidelity Conceptual Vehicle Design. , 2015, , .		89
65	Large-scale aircraft design using SU2. , 2015, , .		35
66	Unsteady Continuous Adjoint Approach for Aerodynamic Design on Dynamic Meshes. AIAA Journal, 2015, 53, 2437-2453.	2.6	36
67	Extension of the SU2 open source CFD code to the simulation of turbulent flows of fuids modelled with complex thermophysical laws. , 2015, , .		31
68	Adjoint-Based Optimization of a Hypersonic Inlet. , 2015, , .		5
69	A Discrete Adjoint Framework for Unsteady Aerodynamic and Aeroacoustic Optimization. , 2015, , .		29
70	A Machine Learning Strategy to Assist Turbulence Model Development. , 2015, , .		130
71	Stanford University Unstructured (SU2): Analysis and Design Technology for Turbulent Flows. , 2014, , .		106
72	Helicopter Rotor Design Using a Time-Spectral and Adjoint-Based Method. Journal of Aircraft, 2014, 51, 412-423.	2.4	45

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73	An Unsteady Continuous Adjoint Approach for Aerodynamic Design on Dynamic Meshes. , 2014, , .		10
74	Adjoint-Based Aerothermodynamic Shape Design of Hypersonic Vehicles in Non-Equilibrium Flows. , 2014, , .		4
75	PDE-constrained optimization with error estimation and control. Journal of Computational Physics, 2014, 263, 136-150.	3.8	10
76	Enabling the environmentally clean air transportation of the future: a vision of computational fluid dynamics in 2030. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130317.	3.4	13
77	Using Supervised Learning to Improve MonteÂCarlo Integral Estimation. AIAA Journal, 2013, 51, 2015-2023.	2.6	12
78	Design of free-surface interfaces using RANS equations. , 2013, , .		2
79	Stanford University Unstructured (SU<sup>2</sup>): An open-source integrated computational environment for multi-physics simulation and design. , 2013, , .		264
80	Adjoint-Based Goal-Oriented Mesh Adaptation for Nonequilibrium Hypersonic Flows. , 2013, , .		8
81	Dynamic Adaptive Sampling Based on Kriging Surrogate Models for Efficient Uncertainty Quantification. , 2013, , .		17
82	Unsteady Aerodynamic Design on Unstructured Meshes with Sliding Interfaces. , 2013, , .		15
83	A hybrid adjoint approach applied to turbulent flow simulations. , 2013, , .		5
84	A Viscous Continuous Adjoint Approach for the Design of Rotating Engineering Applications. , 2013, , .		21
85	Managing Gradient Inaccuracies while Enhancing Optimal Shape Design Methods. , 2013, , .		6
86	A Coupled-Adjoint Method for Aerodynamic and Aeroacoustic Optimization. , 2012, , .		15
87	Optimal Shape Design for Open Rotor Blades. , 2012, , .		14
88	An Adjoint-Based Multidisciplinary Optimization Framework for Rotorcraft Systems. , 2012, , .		3
89	Shape Sensitivity of Free-Surface Interfaces Using a Level Set Methodology. , 2012, , .		6
90	Towards a Hybrid Adjoint Approach for Arbitrarily Complex Partial Differential Equations. , 2012, , .		2

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91	Robust Grid Adaptation for Efficient Uncertainty Quantification. AIAA Journal, 2012, 50, 1538-1546.	2.6	13
92	Adjoint-based method for supersonic aircraft design using equivalent area distribution. , 2012, , .		29
93	Multidisciplinary Optimization with Applications to Sonic-Boom Minimization. Annual Review of Fluid Mechanics, 2012, 44, 505-526.	25.0	58
94	Risk Assessment of Scramjet Unstart Using Adjoint-Based Sampling Methods. AIAA Journal, 2012, 50, 581-592.	2.6	31
95	Response Surface Methodologies for Low-Boom Supersonic Aircraft Design Using Equivalent Area Distributions. , 2012, , .		13
96	Design and Optimization of Future Aircraft for Assessing the Fuel Burn Trends of Commercial Aviation. , 2011, , .		8
97	Prediction of Helicopter Rotor Loads Using Time-Spectral Computational Fluid Dynamics and an Exact Fluidâ€"Structure Interface. Journal of the American Helicopter Society, 2011, 56, 1-15.	0.8	11
98	Design of Adjoint-Based Laws for Wing Flutter Control. Journal of Aircraft, 2011, 48, 331-335.	2.4	9
99	Sonic Boom Minimization Revisited: The Robustness of Optimal Low-Boom Designs. , 2010, , .		4
100	Toward optimally seeded airflow on hypersonic vehicles using control theory. Computers and Fluids, 2010, 39, 1562-1574.	2.5	6
101	Error Estimation for High Speed Flows Using Continuous and Discrete Adjoints. , 2010, , .		6
102	Numerical and Mesh Resolution Requirements for Accurate Sonic Boom Prediction. Journal of Aircraft, 2009, 46, 1126-1139.	2.4	18
103	Aircraft design optimization. Mathematics and Computers in Simulation, 2009, 79, 1948-1958.	4.4	52
104	Two-Level Multifidelity Design Optimization Studies for Supersonic Jets. Journal of Aircraft, 2009, 46, 776-790.	2.4	68
105	ADjoint: An Approach for the Rapid Development of Discrete Adjoint Solvers. AIAA Journal, 2008, 46, 863-873.	2.6	167
106	Helicopter Rotor Design Using a Time-Spectral and Adjoint-Based Method. , 2008, , .		39
107	Multifidelity Design Optimization of Low-Boom Supersonic Jets. Journal of Aircraft, 2008, 45, 106-118.	2.4	83
108	Integrated Computations of an Entire Jet Engine. , 2007, , 1841.		6

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109	Integrated RANS/LES Computations of an Entire Gas Turbine Jet Engine. , 2007, , .		14
110	Validation Study of Aerodynamic Analysis Tools for Design Optimization of Helicopter Rotors. , 2007, , .		13
111	Three-Dimensional Unsteady Multi-stage Turbomachinery Simulations Using the Harmonic Balance Technique. , 2007, , .		45
112	A methodology for the development of discrete adjoint solvers using automatic differentiation tools. International Journal of Computational Fluid Dynamics, 2007, 21, 307-327.	1.2	34
113	Discrete Adjoint Formulation for the Ideal MHD Equations. , 2006, , .		2
114	Unsteady Turbomachinery Computations Using Massively Parallel Platforms. , 2006, , .		68
115	Integrated LES-RANS of an Entire High-Spool of a Gas Turbine. , 2006, , .		5
116	An adjoint method for the calculation of remote sensitivities in supersonic flow. International Journal of Computational Fluid Dynamics, 2006, 20, 61-74.	1.2	4
117	Demonstration of Nonlinear Frequency Domain Methods. AIAA Journal, 2006, 44, 1428-1435.	2.6	94
118	A Coupled-Adjoint Sensitivity Analysis Method for High-Fidelity Aero-Structural Design. Optimization and Engineering, 2005, 6, 33-62.	2.4	208
119	Prediction of Main/Secondary-Air System Flow Interaction in a High-Pressure Turbine. Journal of Propulsion and Power, 2005, 21, 158-166.	2.2	2
120	A Framework for Coupling Reynolds-Averaged With Large-Eddy Simulations for Gas Turbine Applications. Journal of Fluids Engineering, Transactions of the ASME, 2005, 127, 806-815.	1.5	54
121	Multi-Element High-Lift Configuration Design Optimization Using Viscous Continuous Adjoint Method. Journal of Aircraft, 2004, 41, 1082-1097.	2.4	66
122	High-Fidelity Aerostructural Design Optimization of a Supersonic Business Jet. Journal of Aircraft, 2004, 41, 523-530.	2.4	211
123	Coupled RANS-LES Computation of a Compressor and Combustor in a Gas Turbine Engine. , 2004, , .		9
124	Integrated RANS-LES Computations in Gas Turbines: Compressor-Diffusor Coupling. , 2004, , .		6
125	Mutiobjective Optimization Using Approximation Model-Based Genetic Algorithms. , 2004, , .		57
126	Multi-fidelity Design Optimization of Low-boom Supersonic Business Jets. , 2004, , .		31

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127	pyMDO: A Framework for High-Fidelity Multi-Disciplinary Optimization. , 2004, , .		28
128	High-Fidelity Aero-Structural Design Using a Parametric CAD-Based Model. , 2003, , .		37
129	Supersonic Business Jet Design Using Knowledge-Based Genetic Algorithm with Adaptive, Unstructured Grid Methodology. , 2003, , .		22
130	Prediction of Main/Secondary-Air System Flow Interaction in a High-Pressure Turbine. , 2003, , .		4
131	The complex-step derivative approximation. ACM Transactions on Mathematical Software, 2003, 29, 245-262.	2.9	575
132	Towards Multi-Component Analysis of Gas Turbines by CFD: Integration of RANS and LES Flow Solvers. , 2003, , 101.		8
133	Sonic Boom Reduction Using an Adjoint Method for Supersonic Transport Aircraft Configurations. Fluid Mechanics and Its Applications, 2003, , 355-362.	0.2	9
134	Massively Parallel Simulation of the Unsteady Flow in an Axial Turbine Stage. Journal of Propulsion and Power, 2002, 18, 465-471.	2.2	30
135	Fluid/Structure Coupled Aeroelastic Computations for Transonic Flows in Turbomachinery. , 2002, , 787.		41
136	Complete Configuration Aero-Structural Optimization Using a Coupled Sensitivity Analysis Method. , 2002, , .		31
137	Design of a Low-Boom Supersonic Business Jet Using Cokriging Approximation Models. , 2002, , .		45
138	Unsteady Interaction Between a Transonic Turbine Stage and Downstream Components. , 2002, , .		20
139	Development and Validation of a Massively Parallel Flow Solver for Turbomachinery Flows. Journal of Propulsion and Power, 2001, 17, 659-668.	2.2	36
140	The connection between the complex-step derivative approximation and algorithmic differentiation. , 2001, , .		58
141	Development and validation of a massively parallel flow solver for turbomachinery flows. , 2000, , .		18
142	Constrained Multipoint Aerodynamic Shape Optimization Using an Adjoint Formulation and Parallel Computers, Part 2. Journal of Aircraft, 1999, 36, 61-74.	2.4	136
143	Constrained Multipoint Aerodynamic Shape Optimization Using an Adjoint Formulation and Parallel Computers, Part 1. Journal of Aircraft, 1999, 36, 51-60.	2.4	230
144	A gradient accuracy study for the adjoint-based Navier-Stokes design method. , 1999, , .		30