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	The complex-step derivative approximation. ACM Transactions on Mathematical Software, 2003, 29, 245-262.	2.9	575
2	SU2: An Open-Source Suite for Multiphysics Simulation and Design. AIAA Journal, 2016, 54, 828-846.	2.6	567
3	Stanford University Unstructured (SU²): An open-source integrated computational environment for multi-physics simulation and design. , 2013, , .		264
4	Constrained Multipoint Aerodynamic Shape Optimization Using an Adjoint Formulation and Parallel Computers, Part 1. Journal of Aircraft, 1999, 36, 51-60.	2.4	230
5	High-Fidelity Aerostructural Design Optimization of a Supersonic Business Jet. Journal of Aircraft, 2004, 41, 523-530.	2.4	211
6	A Coupled-Adjoint Sensitivity Analysis Method for High-Fidelity Aero-Structural Design. Optimization and Engineering, 2005, 6, 33-62.	2.4	208
7	ADjoint: An Approach for the Rapid Development of Discrete Adjoint Solvers. AIAA Journal, 2008, 46, 863-873.	2.6	167
8	Constrained Multipoint Aerodynamic Shape Optimization Using an Adjoint Formulation and Parallel Computers, Part 2. Journal of Aircraft, 1999, 36, 61-74.	2.4	136
9	A Machine Learning Strategy to Assist Turbulence Model Development. , 2015, , .		130
10	Stanford University Unstructured (SU2): Analysis and Design Technology for Turbulent Flows. , 2014, , .		106
11	Demonstration of Nonlinear Frequency Domain Methods. AIAA Journal, 2006, 44, 1428-1435.	2.6	94
12	SUAVE: An Open-Source Environment for Multi-Fidelity Conceptual Vehicle Design. , 2015, , .		89
13	Multifidelity Design Optimization of Low-Boom Supersonic Jets. Journal of Aircraft, 2008, 45, 106-118.	2.4	83
14	Unsteady Turbomachinery Computations Using Massively Parallel Platforms. , 2006, , .		68
15	Two-Level Multifidelity Design Optimization Studies for Supersonic Jets. Journal of Aircraft, 2009, 46, 776-790.	2.4	68
16	Multi-Element High-Lift Configuration Design Optimization Using Viscous Continuous Adjoint Method. Journal of Aircraft, 2004, 41, 1082-1097.	2.4	66
17	The connection between the complex-step derivative approximation and algorithmic differentiation. , 2001, , .		58
18	Multidisciplinary Optimization with Applications to Sonic-Boom Minimization. Annual Review of Fluid Mechanics, 2012, 44, 505-526.	25.0	58

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19	Mutiobjective Optimization Using Approximation Model-Based Genetic Algorithms. , 2004, , .		57
20	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
21	Aircraft design optimization. Mathematics and Computers in Simulation, 2009, 79, 1948-1958.	4.4	52
22	Design of a Low-Boom Supersonic Business Jet Using Cokriging Approximation Models. , 2002, , .		45
23	Three-Dimensional Unsteady Multi-stage Turbomachinery Simulations Using the Harmonic Balance Technique. , 2007, , .		45
24	Helicopter Rotor Design Using a Time-Spectral and Adjoint-Based Method. Journal of Aircraft, 2014, 51, 412-423.	2.4	45
25	Fluid/Structure Coupled Aeroelastic Computations for Transonic Flows in Turbomachinery. , 2002, , 787.		41
26	Connecting Flow over Complex Terrain to Hydrodynamic Roughness on a Coral Reef. Journal of Physical Oceanography, 2018, 48, 1567-1587.	1.7	41
27	Helicopter Rotor Design Using a Time-Spectral and Adjoint-Based Method. , 2008, , .		39
28	Unstructured Grid Adaptation: Status, Potential Impacts, and Recommended Investments Towards CFD 2030. , 2016, , .		38
29	Uncertainty Estimation Module for Turbulence Model Predictions in SU2. AIAA Journal, 2019, 57, 1066-1077.	2.6	38
30	High-Fidelity Aero-Structural Design Using a Parametric CAD-Based Model. , 2003, , .		37
31	Development and Validation of a Massively Parallel Flow Solver for Turbomachinery Flows. Journal of Propulsion and Power, 2001, 17, 659-668.	2.2	36
32	Unsteady Continuous Adjoint Approach for Aerodynamic Design on Dynamic Meshes. AIAA Journal, 2015, 53, 2437-2453.	2.6	36
33	Large-scale aircraft design using SU2. , 2015, , .		35
34	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
35	Complete Configuration Aero-Structural Optimization Using a Coupled Sensitivity Analysis Method. , 2002, , .		31
36	Multi-fidelity Design Optimization of Low-boom Supersonic Business Jets. , 2004, , .		31

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37	Risk Assessment of Scramjet Unstart Using Adjoint-Based Sampling Methods. AIAA Journal, 2012, 50, 581-592.	2.6	31
38	Extension of the SU2 open source CFD code to the simulation of turbulent flows of fuids modelled with complex thermophysical laws. , 2015, , .		31
39	Coupled adjointâ€based sensitivities in largeâ€displacement fluidâ€structure interaction using algorithmic differentiation. International Journal for Numerical Methods in Engineering, 2018, 113, 1081-1107.	2.8	31
40	A gradient accuracy study for the adjoint-based Navier-Stokes design method. , 1999, , .		30
41	Massively Parallel Simulation of the Unsteady Flow in an Axial Turbine Stage. Journal of Propulsion and Power, 2002, 18, 465-471.	2.2	30
42	SUAVE: An Open-Source Environment for Conceptual Vehicle Design and Optimization. , 2016, , .		30
43	Adjoint-based method for supersonic aircraft design using equivalent area distribution. , 2012, , .		29
44	A Discrete Adjoint Framework for Unsteady Aerodynamic and Aeroacoustic Optimization. , 2015, , .		29
45	Performance optimizations for scalable implicit RANS calculations with SU2. Computers and Fluids, 2016, 129, 146-158.	2.5	29
46	pyMDO: A Framework for High-Fidelity Multi-Disciplinary Optimization. , 2004, , .		28
47	Current Capabilities and Challenges of NDARC and SUAVE for eVTOL Aircraft Design and Analysis. , 2019, , .		27
48	Design exploration and optimization under uncertainty. Physics of Fluids, 2020, 32, .	4.0	23
49	Supersonic Business Jet Design Using Knowledge-Based Genetic Algorithm with Adaptive, Unstructured Grid Methodology. , 2003, , .		22
50	Reduction of Airframe Noise Components Using a Discrete Adjoint Approach. , 2017, , .		22
51	A Viscous Continuous Adjoint Approach for the Design of Rotating Engineering Applications. , 2013, , .		21
52	SU2-NEMO: An Open-Source Framework for High-Mach Nonequilibrium Multi-Species Flows. Aerospace, 2021, 8, 193.	2.2	21
53	Unsteady Interaction Between a Transonic Turbine Stage and Downstream Components. , 2002, , .		20
54	A universal velocity profile for turbulent wall flows including adverse pressure gradient boundary layers. Journal of Fluid Mechanics, 2022, 933, .	3.4	20

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55	Development and validation of a massively parallel flow solver for turbomachinery flows. , 2000, , .		18
56	Numerical and Mesh Resolution Requirements for Accurate Sonic Boom Prediction. Journal of Aircraft, 2009, 46, 1126-1139.	2.4	18
57	Towards High-Performance Optimizations of the Unstructured Open-Source SU2 Suite. , 2015, , .		18
58	Hybrid RANS/LES Calculations in SU2. , 2017, , .		18
59	Dynamic Adaptive Sampling Based on Kriging Surrogate Models for Efficient Uncertainty Quantification. , 2013, , .		17
60	Strategies for Posing a Well-Defined Problem for Urban Air Mobility Vehicles. , 2019, , .		17
61	A Coupled-Adjoint Method for Aerodynamic and Aeroacoustic Optimization. , 2012, , .		15
62	Unsteady Aerodynamic Design on Unstructured Meshes with Sliding Interfaces. , 2013, , .		15
63	An Efficient Unsteady Aerodynamic and Aeroacoustic Design Framework Using Discrete Adjoint. , 2016, , .		15
64	Polynomial chaos to efficiently compute the annual energy production in wind farm layout optimization. Wind Energy Science, 2019, 4, 211-231.	3.3	15
65	Integrated RANS/LES Computations of an Entire Gas Turbine Jet Engine. , 2007, , .		14
66	Optimal Shape Design for Open Rotor Blades. , 2012, , .		14
67	SUAVE: An Open-Source Environment Enabling Unconventional Vehicle Designs through Higher Fidelity. , 2017, , .		14
68	Validation Study of Aerodynamic Analysis Tools for Design Optimization of Helicopter Rotors. , 2007, , .		13
69	Robust Grid Adaptation for Efficient Uncertainty Quantification. AIAA Journal, 2012, 50, 1538-1546.	2.6	13
70	Response Surface Methodologies for Low-Boom Supersonic Aircraft Design Using Equivalent Area Distributions. , 2012, , .		13
71	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
72	Using Supervised Learning to Improve MonteÂCarlo Integral Estimation. AIAA Journal, 2013, 51, 2015-2023.	2.6	12

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73	Adjoint Formulation Investigations of Benchmark Aerodynamic Design Cases in SU2. , 2017, , .		12
74	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
75	Reliable Multidisciplinary Design of a Supersonic Nozzle Using Multifidelity Surrogates. , 2017, , .		11
76	Low-cost unsteady discrete adjoints for aeroacoustic optimization using temporal and spatial coarsening techniques. , 2018, , .		11
77	MULTI-FIDELITY MODELING OF PROBABILISTIC AERODYNAMIC DATABASES FOR USE IN AEROSPACE ENGINEERING. , 2020, 10, 425-447.		11
78	An Unsteady Continuous Adjoint Approach for Aerodynamic Design on Dynamic Meshes. , 2014, , .		10
79	PDE-constrained optimization with error estimation and control. Journal of Computational Physics, 2014, 263, 136-150.	3.8	10
80	Shock interactions in inviscid air and $$hbox {CO}_2$$â€“$$hbox {N}_2$$ flows in thermochemical non-equilibrium. Shock Waves, 2021, 31, 239-253.	1.9	10
81	Coupled RANS-LES Computation of a Compressor and Combustor in a Gas Turbine Engine. , 2004, , .		9
82	Design of Adjoint-Based Laws for Wing Flutter Control. Journal of Aircraft, 2011, 48, 331-335.	2.4	9
83	Lithiumâ€“Ion Battery Modeling for Aerospace Applications. Journal of Aircraft, 2021, 58, 1323-1335.	2.4	9
84	Sonic Boom Reduction Using an Adjoint Method for Supersonic Transport Aircraft Configurations. Fluid Mechanics and Its Applications, 2003, , 355-362.	0.2	9
85	Towards Multi-Component Analysis of Gas Turbines by CFD: Integration of RANS and LES Flow Solvers. , 2003, , 101.		8
86	Design and Optimization of Future Aircraft for Assessing the Fuel Burn Trends of Commercial Aviation. , 2011, , .		8
87	Adjoint-Based Goal-Oriented Mesh Adaptation for Nonequilibrium Hypersonic Flows. , 2013, , .		8
88	A Discrete Adjoint Approach for Jet-Flap Interaction Noise Reduction. , 2017, , .		8
89	Design and Optimization of Unconventional Aircraft Configurations with Aeroelastic Constraints. , 2017, , .		8
90	Flow and Noise Predictions Around Tandem Cylinders using DDES approach with SU2. , 2019, , .		8

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91	Robust uniform time sampling approach for the harmonic balance method. , 2016, , .		7
92	Adjoint of Generalized Outflow-Based Functionals Applied to Hypersonic Inlet Design. AIAA Journal, 2017, 55, 3903-3915.	2.6	7
93	Primary Weight Estimation for eVTOLs via Explicit Analysis and Surrogate Regression. , 2019, , .		7
94	Comparing Multi-Element Airfoil Flow Solutions Using Multiple Solvers with Output-Based Adapted Meshes. AIAA Journal, 2022, 60, 2629-2643.	2.6	7
95	Integrated RANS-LES Computations in Gas Turbines: Compressor-Diffusor Coupling. , 2004, , .		6
96	Integrated Computations of an Entire Jet Engine. , 2007, , 1841.		6
97	Toward optimally seeded airflow on hypersonic vehicles using control theory. Computers and Fluids, 2010, 39, 1562-1574.	2.5	6
98	Error Estimation for High Speed Flows Using Continuous and Discrete Adjoints. , 2010, , .		6
99	Shape Sensitivity of Free-Surface Interfaces Using a Level Set Methodology. , 2012, , .		6
100	Managing Gradient Inaccuracies while Enhancing Optimal Shape Design Methods. , 2013, , .		6
101	Goal-Oriented Mesh Adaptation for Flows in Thermochemical Nonequilibrium. , 2020, , .		6
102	Integrated LES-RANS of an Entire High-Spool of a Gas Turbine. , 2006, , .		5
103	A hybrid adjoint approach applied to turbulent flow simulations. , 2013, , .		5
104	Adjoint-Based Optimization of a Hypersonic Inlet. , 2015, , .		5
105	Design and Optimization of Short-Range Aluminum-Air Powered Aircraft. , 2016, , .		5
106	Efficient Airframe Noise Reduction Framework via Adjoint-Based Shape Optimization. AIAA Journal, 2021, 59, 580-595.	2.6	5
107	Prediction of Main/Secondary-Air System Flow Interaction in a High-Pressure Turbine. , 2003, , .		4
108	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

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109	Sonic Boom Minimization Revisited: The Robustness of Optimal Low-Boom Designs. , 2010, , .		4
110	Adjoint-Based Aerothermodynamic Shape Design of Hypersonic Vehicles in Non-Equilibrium Flows. , 2014, , .		4
111	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
112	Mulit-Objective Optimization of a Hypersonic Inlet Using Generalized Outflow Boundary Conditions in the Continuous Adjoint Method. , 2016, , .		4
113	Transonic flow analysis with discontinuous Galerkin method in SU2 DG-FEM solver. , 2019, , .		4
114	A Universal Velocity Profile for Near-Wall Flows. , 2021, , .		4
115	An Adjoint-Based Multidisciplinary Optimization Framework for Rotorcraft Systems. , 2012, , .		3
116	Optimal Actuation of Dielectric Membrane Wings using High-Fidelity Fluid-Structure Modelling. , 2017, , .		3
117	Conceptual Design and Optimization of Small Transitioning UAVs using SUAVE. , 2017, , .		3
118	Numerical Study of Shock Interference Patterns for Gas Flows with Thermal Nonequilibrium and Finite-Rate Chemistry. , 2020, , .		3
119	Investigating Performance Losses in High-Level Synthesis for Stencil Computations. , 2020, , .		3
120	Parametric Study of Nonequilibrium Shock Interference Patterns over a Fuselage-and-Wing Conceptual Vehicle. AIAA Journal, 2021, 59, 4905-4916.	2.6	3
121	Forecasting the Operational Lifetime of Battery-Powered Electric Aircraft. Journal of Aircraft, 2023, 60, 47-55.	2.4	3
122	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
123	Discrete Adjoint Formulation for the Ideal MHD Equations. , 2006, , .		2
124	Towards a Hybrid Adjoint Approach for Arbitrarily Complex Partial Differential Equations. , 2012, , .		2
125	Design of free-surface interfaces using RANS equations. , 2013, , .		2
126	Sequential Reliability-Based Design Optimization via Anchored Decomposition. , 2019, , .		2

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127	Simple shock detector for discontinuous Galerkin method. , 2019, , .		2
128	A Toolset For Creation of Multi-Fidelity Probabilistic Aerodynamic Databases. , 2021, , .		2
129	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
130	A comparison of jet acoustic analysis methods. , 2021, , .		2
131	Sensitivity Analysis of Gas-Surface Modeling in Nonequilibrium Flows. , 2022, , .		2
132	Aeroelastic Wing Design Sensitivity Analysis with SU2-Nastran Coupling in OpenMDAO. , 2022, , .		2
133	A System for Measurement and Analysis of Aircraft Noise Impacts. , 2021, 13, .		2
134	A Discrete Adjoint Framework for Low-Boom Supersonic Aircraft Shape Optimization. , 2017, , .		1
135	A Simple and Robust Shock-Capturing Approach for Discontinuous Galerkin Discretizations. Energies, 2019, 12, 2651.	3.1	1
136	Towards a Scalable Hierarchical High-order CFD Solver. , 2021, , .		1
137	CPU Parallelization and GPU Acceleration of SUAVE: Advancements in Sampling and Optimization. , 2021, , .		1
138	Evaluating the Performance and Acoustic Footprint of Aircraft for Regional and Urban Air Mobility. , 2021, , .		1
139	Comparison of the Finite Volume and Discontinuous Galerkin schemes for the Double Vortex Pairing Problem using the SU2 Software Suite. , 2018, , .		0
140	Shock-Induced Separation Suppression Using CFD-Based Active Flow Control Optimization. , 2019, , .		0
141	One Shot Optimization with Generalized Constraints. , 2020, , .		0
142	Prediction of the Operational Envelope of Electric Aircraft Through Robust Battery Cycle-Life Modeling. , 2020, , .		0
143	An analysis of inviscid transonic flows over three-dimensional wings using the discontinuous Galerkin solver in SU2. , 2020, , .		0
144	Aero-Structural Discrete Adjoint Sensitivities in SU2 using Algorithmic Differentiation. , 2022, , .		0