

List of publications of Prof. Antonio J. Gil, ICCP, CAS, PhD, SFHEA

I. Books.

3. J. Bonet, **A.J. Gil** and R.D. Wood, “Nonlinear Solid Mechanics for Finite Element Analysis – Dynamics”, Cambridge University Press, January 2021, [ISBN: 9781316336083](#).
2. J. Bonet, **A.J. Gil** and R.D. Wood, “Nonlinear Solid Mechanics for Finite Element Analysis – Statics”, Cambridge University Press, June 2016, [ISBN: 9781107115798](#).
1. J. Bonet, **A.J. Gil** and R.D. Wood, “Worked examples in Nonlinear Continuum Mechanics for Finite Element Analysis”, Cambridge University Press, October 2012, [ISBN: 9781107603615](#).

II. Invited contribution to books.

4. J. Bonet and **A.J. Gil**, “Numerical simulation of thin sheet superplastic forming processes by the finite element method”, in “*Superplastic forming of advanced metallic materials: methods and applications*”, Woodhead Publishing Limited, Cambridge. Ed. G. Giuliano, July 2011, [ISBN: 9781845697532](#).
3. R.V. Curtis and **A.J. Gil**, “Superplastic Forming of Dental and Maxillofacial Prostheses”, in “*Dental biomaterials: Imaging, testing and modelling*”, Woodhead Publishing Limited, Cambridge. Eds. R V Curtis and T F Watson, March 2008, [ISBN: 9781845692964](#).
2. **A.J. Gil**, “F.E.M. for Prestressed Saint Venant-Kirchhoff Hyperelastic Membranes”. In “*Textile Composites and Inflatable Structures*”, ed. by E. Oñate and B. Kroplin, Springer, 2005, [ISBN: 978-1-4020-3316-2](#).
1. **A.J. Gil**, “Métodos numéricos para el diseño de estructuras traccionadas: membranas y redes de cables”, ed. by University of Granada, 2001, [ISBN: 84-699-6831-9](#).

III. Editorial books and journals.

3. **A.J. Gil** and R. Sevilla, “Proceedings of the 23rd Conference on Computational Mechanics ACME-UK 2015”, Swansea University, [ISBN: 978-0-9567462-4-5](#).
2. **A.J. Gil** and R. Sevilla, “Proceedings of the Institution of Civil Engineers - Engineering and Computational Mechanics”, Volume 169, Issue 3, 2016, [ISSN: 1755-0777](#).
1. **A.J. Gil**, R. Sevilla and B.H.V. Topping, “Proceedings of the 23rd Conference on Computational Mechanics ACME-UK 2015”, Computers and Structures, Special Issue, Volume 181, 2017, [ISSN: 0045-7949](#).

IV. Full papers in refereed journals.

Under review

86. N. Ellmer, R. Ortigosa, J. Martínez-Frutos and **A.J. Gil**, “Gradient enhanced Gaussian process regression for constitutive modelling in finite strain hyperelasticity”, *Computer Methods in Applied Mechanics and Engineering*.

85. A. Khayyer, Y. Shimizu, C.H. Lee, **A. J. Gil**, H. Gotoh, J. Bonet, “Step-by-step improvement of Updated Lagrangian SPH structure model for accurate and robust structural analysis”, *Computational Particle Mechanics*.
84. N. Nama, M. Aguirre, R. Ortigosa, **A.J. Gil**, J.D Humprey, C.A. Figueroa, “A Systematic Comparison between Membrane, Shell, and 3D Solid Formulations for Non-linear Vascular Biomechanics”, [arXiv](#).

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83. K. Lakshmanan, F. Tessicini, **A.J. Gil** and F. Auricchio, “A fault diagnosis strategy for an external gear pump using Machine Learning algorithms and synthetic data generation methods”, *Applied Mathematical Modelling*, Volume 123, 348-372, 2023, [doi:10.1016/j.apm.2023.07.001](#).
82. S. Miah, Y. Sooriyakanthan, P.D. Ledger, **A.J. Gil** and M. Mallett, “Reduced order modelling using Neural Networks for predictive modelling of 3D-magneto-mechanical problems with application to magnetic resonance imaging scanners”, *Engineering with Computers*, 2023, [doi:10.1007/s00366-023-01870-3](#).
81. R. Poya, R. Ortigosa and **A.J. Gil**, “Variational schemes and mixed finite elements for large strain isotropic elasticity in principal stretches: closed-form tangent eigensystems, convexity conditions and stabilised elasticity”, *International Journal for Numerical methods in Engineering*, 2023, Volume 124, pages 3436–3493 [doi: 10.1002/nme.7254](#).
80. C.H. Lee, P. Refachinho de Campos, **A.J. Gil**, M. Giacomini and J. Bonet, “A variationally consistent Updated Reference Lagrangian Smooth Particle Hydrodynamics algorithm for thermo-elasticity and thermo-visco-plasticity”, *Computational Particle Mechanics*, 2023, [doi:10.1007/s40571-023-00564-3](#).
79. R. Ortigosa, J. Martínez-Frutos and **A.J. Gil**, “Programming shape-morphing electroactive polymers through multi-material topology optimisation”, *Applied Mathematical Modelling*, Volume 118, 346-369, 2023, [doi: 10.1016/j.apm.2023.01.041](#).
78. M. Franke, F. Zähringer, M. Hille, R. Ortigosa, P. Betsch and **A.J. Gil**, “A novel mixed and energy-momentum consistent framework for coupled nonlinear thermo-electro-elastodynamics”, *International Journal for Numerical methods in Engineering*, 1-36, 2023, [doi:10.1002/nme.7209](#).
77. M. Horak, **A.J. Gil**, R. Ortigosa, M. Kruzik, “A polyconvex transversely-isotropic invariant-based formulation for electro-mechanics: stability, minimisers and computational implementation”, *Computer Methods in Applied Mechanics and Engineering*, Volume 403, Part A, 115695, 2023, [doi:10.1016/j.cma.2022.115695](#).

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76. R. Ortigosa, J. Martínez-Frutos and **A.J. Gil**, “A computational framework for topology optimisation of flexoelectricity at finite strains considering a multi-field micromorphic approach”, *Computer Methods in Applied Mechanics and Engineering*, Volume 401, 115604, 2022, [doi:10.1016/j.cma.2022.115604](#).
75. C. Runcie, C.H. Lee, J. Haider, **A.J. Gil** and J. Bonet, “An acoustic Riemann solver for large strain computational contact dynamics”, *International Journal for Numerical Methods in Engineering*, 2022, 1-49, [doi:10.1002/nme.7085](#).

74. P. Refachinho de Campos, **A.J. Gil**, C.H. Lee, M. Giacomini and J. Bonet, “A New Updated Reference Lagrangian Smooth Particle Hydrodynamics algorithm for isothermal elasticity and elastoplasticity”, *Computer Methods in Applied Mechanics and Engineering*, Volume 392, 114680, 2022, doi:[10.1016/j.cma.2022.114680](https://doi.org/10.1016/j.cma.2022.114680).
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72. M. Franke, R. Ortigosa, J. Martínez-Frutos, **A.J. Gil**, and P. Betsch, “A thermodynamically consistent time integration scheme for non-linear thermo-electro-mechanics”, *Computer Methods in Applied Mechanics and Engineering*, Volume 389, 114298, 2022, doi: [10.1016/j.cma.2021.114298](https://doi.org/10.1016/j.cma.2021.114298).

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71. J. Martínez-Frutos, R. Ortigosa and **A.J. Gil**, “In-silico design of electrode meso-architecture for shape morphing dielectric elastomers”, *Journal of the Mechanics and Physics of Solids*, 2021, doi: [10.1016/j.jmps.2021.104594](https://doi.org/10.1016/j.jmps.2021.104594).
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69. A. Ghavamian, **A.J. Gil**, C.H. Lee, J. Bonet, T. Heuzé and L. Stainier, “An entropy stable Smooth Particle Hydrodynamics algorithm for large strain thermo-elasticity”, *Computer Methods in Applied Mechanics and Engineering*, Volume 379, 2021, pages 11376 doi:[10.1016/j.cma.2021.113736](https://doi.org/10.1016/j.cma.2021.113736).
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67. F. Marín, J. Martínez-Frutos, R. Ortigosa and **A.J. Gil**, “Convex Multi-Variable based Computational Framework for Multilayered Electro-Active Polymers”, *Computer Methods in Applied Mechanics and Engineering*, Volume 374, 2021, pages 113567, doi: [10.1016/j.cma.2020.113567](https://doi.org/10.1016/j.cma.2020.113567).
66. J. Bonet, C. H. Lee, **A.J. Gil**, A. Ghavamian, “A first order hyperbolic framework for large strain computational solid dynamics. Part III: Thermo-elasticity”, *Computer Methods in Applied Mechanics and Engineering*, , Volume 373, 2021, pages 113505, doi: [10.1016/j.cma.2020.113505](https://doi.org/10.1016/j.cma.2020.113505).

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64. G. Barroso, M. Seoane, **A. J. Gil**, P. D. Ledger, A. Huerta, M. Mallett, “A staggered high-dimensional Proper Generalised Decomposition for coupled magneto-mechanical problems with application to MRI scanners”, *Computer Methods in Applied Mechanics and Engineering*, Volume 370, 2020, doi: [10.1016/j.cma.2020.113271](https://doi.org/10.1016/j.cma.2020.113271)
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156. **A.J. Gil**, C. H. Lee and J. Bonet “A novel Arbitrary Lagrangian Eulerian system of conservation laws for fast solid dynamics”. In proceedings of the XVII International Conference on Computational Plasticity. Fundamentals and Applications. September, Barcelona, Spain, 2023.
155. C. H. Lee, **A.J. Gil**, K.W.Q. Low and J. Bonet, “A Novel Arbitrary Lagrangian Eulerian SPH Algorithm For Large Strain Explicit Solid Dynamics”. SPHERIC workshop, Rhodes, Greece, June, 2023.
154. M. Hille, M. Franke, F. Zähringer, R. Ortigosa, P. Betsch and **A.J. Gil**, “A Polyconvexity-Inspired Mixed Formulation and Structure-Preserving Discretization for Coupled Nonlinear Electro-Thermo-Elastodynamics”. In proceedings of the X International Conference on Computational Methods for Coupled Problems in Science and Engineering, June, Crete, Spain, 2023.
153. D. Segura-Galeana, **A.J. Gil**, A. Dubas and M.G. Edwards “Computational heat transfer optimisation in nuclear fusion reactors using physics enhanced Machine Learning”, In proceedings of the UK-ACM Conference, Warwick, April 19-21, 2023.
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146. D. Segura-Galeana, **A.J. Gil**, A. Dubas and M.G. Edwards “Data-driven modelling for computational heat transfer optimisation with varying surface roughness”. FuseNet PhD Eevent 2022, Padova, Italy, 4-6 July 2022.
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118. **A.J. Gil**, R. Ortigosa, E. Garcia-Blanco and J. Bonet, “On the use of mixed formulations for computational polyconvexity and multi-variable convexity”, Modern Finite Element Technologies, Germany, 1-3 July 2019.
117. M. Seoane, P.D. Ledger, **A.J. Gil** and M. Mallett, “A hp-Finite Element Formulation for the Simulation of 3D Magneto-Mechanical Problems with Application to MRI Scanners”. In Proceedings of 22nd International Conference on the Computation of Electromagnetic Fields, Paris, France, July 15-19 2019.
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