

John Andrew Evans

CONTACT INFORMATION Smead Aerospace Engineering Sciences *Phone:* (303) 492-0020
University of Colorado Boulder *Fax:* (303) 492-7881
3775 Discovery Drive, Room 361 *E-mail:* john.a.evans@colorado.edu
Boulder, CO 80303 USA *Web:* colorado.edu/isogeometric

RESEARCH INTERESTS Computational Fluid Dynamics · Computational Structural Mechanics · Computational Fluid-Structure Interaction · Turbulence Modeling and Simulation · Finite Element Methods · Isogeometric Analysis · Structure-Preserving Discretizations · Multiscale and Stabilized Methods · Immersed Methods · Computer Aided Geometric Design · Mesh Generation · Design Space Exploration and Optimization

EDUCATION **Ph.D., Computational and Applied Mathematics**, December 2011
The University of Texas at Austin, Austin, Texas, USA
M.S., Computational and Applied Mathematics, December 2008
The University of Texas at Austin, Austin, Texas, USA
M.S., Applied Mathematics, August 2006
Rensselaer Polytechnic Institute, Troy, New York, USA
B.S., Mathematics, *Summa cum laude*, May 2006
Rensselaer Polytechnic Institute, Troy, New York, USA

PROFESSIONAL EXPERIENCE **University of Colorado Boulder**, Boulder, Colorado, USA
Ann and H.J. Smead Department of Aerospace Engineering Sciences
Associate Chair for Undergraduate Curriculum **July 2023 to Present**
Associate Professor **August 2022 to Present**
Jack Rominger Faculty Fellow **July 2017 to Present**
Assistant Professor **August 2013 to August 2022**
Visiting Assistant Professor **June 2013 to August 2013**
Department of Applied Mathematics
Affiliated Faculty **September 2015 to Present**
Integrative Quantitative Biology Program
Affiliated Faculty **September 2013 to Present**
The University of Texas at Austin, Austin, Texas, USA
Institute for Computational Engineering and Sciences
Postdoctoral Researcher **January 2012 to August 2013**

CONSULTING ACTIVITIES **Coreform LLC**, Orem, Utah, USA, July 2023 to Present
Walt Disney Animation Studios, Burbank, California, USA, July 2018 to June 2023

HONORS, AWARDS, AND PRIZES *2024 - 2025:* Excellence in Leadership Program Fellowship
University of Colorado Boulder
2021: AIAA Rocky Mountain Section Educator of the Year (College/University)
American Institute for Aeronautics and Astronautics
Rocky Mountain Section
2021: Gallagher Young Investigator Medal
United States Association for Computational Mechanics

2020: Outstanding Junior Faculty Award
Department of Aerospace Engineering Sciences
University of Colorado Boulder

2019: Clarivate Analytics Highly Cited Researcher
(Among Top 1% Worldwide in Computer Science Citations)

2019: Outstanding Graduate Teaching and Mentoring Award
Department of Aerospace Engineering Sciences
University of Colorado Boulder

2019: Simons Visiting Professor
Oberwolfach Research Institute

2018: Clarivate Analytics Highly Cited Researcher
(Among Top 1% Worldwide in Computer Science Citations)

2017: Top Teaching Performer in College of Engineering and Applied Science
University of Colorado Boulder

2017: Clarivate Analytics Highly Cited Researcher
(Among Top 1% Worldwide in Computer Science Citations)

2017 - Present: Jack Rominger Faculty Fellowship
College of Engineering and Applied Science
University of Colorado Boulder

2016: Thomson Reuters Highly Cited Researcher
(Among Top 1% Worldwide in Computer Science Citations)

2016: United States Junior Oberwolfach Fellow
Oberwolfach Research Institute

2015: Senior Member of American Institute for Aeronautics and Astronautics

2012 - 2013: Computational Engineering and Sciences Postdoctoral Fellowship
The University of Texas at Austin

2007 - 2010: Computational and Applied Mathematics Supplemental Fellowship
The University of Texas at Austin

2006 - 2010: Department of Energy Computational Science Graduate Fellowship

2006 - 2007: David Bruton Jr. Fellowship
The University of Texas at Austin

CITATION METRICS Number of Citations: 7931 (Google Scholar), 4622 (Web of Science)
h-index: 35 (Google Scholar), 28 (Web of Science)
i10-index: 65 (Google Scholar), 44 (Web of Science)

REFEREED JOURNAL ARTICLES (STUDENTS AND POSTDOCTORAL RESEARCHERS UNDERLINED)

74. M.R. Schmidt*, L. Noel, N. Wunsch, K. Doble, J.A. Evans, and K. Maute, “Adaptive immersed level-set topology optimization.” *Structural and Multidisciplinary Optimization*, 68:9, 2025.

73. J.E. Fromm, N. Wunsch, K. Maute, J.A. Evans, and J.S. Chen*, “Interpolation-based immersogeometric analysis methods for multi-material and multi-physics problems.” *Computational Mechanics*, 75:301-325, 2025.

72. R.M. Aronson* and J.A. Evans, “Stabilized isogeometric collocation methods for hyperbolic conservation laws.” *Engineering with Computers*, 40:3451-3475, 2024.

71. J.A. Evans, A. Korobenko, M.-C. Hsu, “Editorial: Special issue on isogeometric analysis.” *Engineering with Computers*, 40:3449-3450, 2024.

70. J. Benzaken*, J.A. Evans, and R. Tamstorf, “Constructing Nitsche’s method for variational problems.” *Archives of Computational Methods in Engineering*, 31:1867-1896, 2024.

69. [A. Prakash*](#), R. Balin, J.A. Evans, and K.E. Jansen, “A streamline coordinate analysis of a turbulent boundary layer subject to pressure gradients and curvature on the windward side of a bump.” *Journal of Fluid Mechanics*, 984:A23, 2024.
68. [A. Prakash*](#), K.E. Jansen, and J.A. Evans, “Invariant data-driven subgrid stress modeling on anisotropic grids for large eddy simulation.” *Computer Methods in Applied Mechanics and Engineering*, 422: 116807, 2024.
67. [R.M. Aronson](#), [C. Wetterer-Nelson](#), and J.A. Evans*, “Stabilized isogeometric collocation methods for scalar transport and incompressible fluid flow.” *Computer Methods in Applied Mechanics and Engineering*, 417 B: 116283, 2023.
66. [M. Schmidt*](#), [L. Noel](#), K. Doble, J.A. Evans, and K. Maute, “Extended isogeometric analysis of multi-material and multi-physics problems using hierarchical B-splines.” *Computational Mechanics*, 71:1179-1203, 2023.
65. [R.M. Aronson*](#) and J.A. Evans, “Divergence-conforming isogeometric collocation methods for the incompressible Navier-Stokes equations.” *Computer Methods in Applied Mechanics and Engineering*, 410:115990, 2023.
64. J. Zhang, J.A. Evans, H. Gomez, and K. van der Zee, “An editorial perspective: Recent updates of EWCO and submission guidelines.” *Engineering with Computers*, 39:1-2, 2023.
63. J.E. Fromm, [N. Wunsch](#), R. Xiang, H. Zhao, K. Maute, J.A. Evans, and D. Kamensky*, “Interpolation-based immersed finite element and isogeometric analysis.” *Computer Methods in Applied Mechanics and Engineering*, 405:115890, 2023.
62. [A. Prakash*](#), K.E. Jansen, and J.A. Evans, “Optimal clipping of structural subgrid stress closures for large eddy simulation.” *AIAA Journal*, 60:6897-6909, 2022.
61. [L. Noel*](#), [M. Schmidt](#), K. Doble, J.A. Evans, and K. Maute, “XIGA: An eXtended IsoGeometric Analysis approach for multi-material problems.” *Computational Mechanics*, 70:1281-1308, 2022.
60. F. Newberry, [C. Wetterer-Nelson](#), J.A. Evans, A. Doostan, and K.E. Jansen*, “Software tools to enable immersive simulation.” *Engineering with Computers*, 38:4697-4713, 2022.
59. [E.S. Barroso*](#), J.A. Evans, J.B. Cavalcante Neto, C.A. Vidal, E. Parente Jr., “An efficient automatic mesh generation algorithm for planar isogeometric analysis using high-order rational Bézier triangles.” *Engineering with Computers*, *Engineering with Computers*, 38:4387-4408, 2022.
58. [G.G. Tong*](#), D. Kamensky, and J.A. Evans, “Skeleton-stabilized divergence-conforming B-spline discretizations for incompressible flow problems of high Reynolds number.” *Computers and Fluids*, 248:105667, 2022.
57. [A. Prakash*](#), K.E. Jansen, and J.A. Evans, “Invariant data-driven subgrid stress modeling in the strain-rate eigenframe for large eddy simulation.” *Computer Methods in Applied Mechanics and Engineering*, 399:115457, 2022.
56. J. Zhang*, J. Evans, H. Gomez, K. van der Zee, “An editorial perspective: New team, aims and scope and advances of EWCO.” *Engineering with Computers*, 38:1, 2022.
55. [E.L. Peters](#), R. Balin, K.E. Jansen, A. Doostan, and J.A. Evans*, “S-frame discrepancy correction models for data-informed Reynolds stress closure.” *Journal for Computational Physics*, 448:110717, 2022.

54. S. Morganti*, F. Fahrendorf, L. De Lorenzis, J.A. Evans, T.J.R. Hughes, and A. Reali, "Isogeometric collocation: A mixed displacement-pressure method for nearly incompressible elasticity." *Computer Modeling in Engineering and Science*, 129:1125-1150, 2021.
53. D. Gunderman*, K. Weiss, and J.A. Evans, "High-accuracy mesh-free quadrature for trimmed parametric surfaces and volumes." *Computer-Aided Design*, 141:103093, 2021.
52. J. Benzaken*, J.A. Evans, S. McCormick, and R. Tamstorf, "Nitsche's method for variational constrained minimization problems with application to membranes, plates, and shells." *Computer Methods in Applied Mechanics and Engineering*, 374:113544, 2021.
51. D. Gunderman*, K. Weiss, and J.A. Evans, "Spectral mesh-free quadrature for planar regions bounded by rational parametric curves." *Computer-Aided Design*, 130:102944, 2021.
50. L. Noel*, M. Schmidt, C. Messe, J.A. Evans, and K. Maute, "Adaptive level set topology optimization using hierarchical B-splines." *Structural and Multidisciplinary Optimization*, *Structural and Multidisciplinary Optimization*, 62:1669-1699, 2020.
49. J.A. Evans*, D. Kamensky, and Y. Bazilevs, "Variational multiscale modeling with discretely divergence-free subscales." *Computers and Mathematics with Applications*, 80:2517-2637, 2020.
48. L. Engvall and J.A. Evans*, "Mesh quality metrics for isogeometric Bernstein-Bézier discretizations." *Computer Methods in Applied Mechanics and Engineering*, 371:113305, 2020.
47. F. de Prenter*, C.V. Verhoosel, E.H. van Brummelen, J.A. Evans, C. Messe, J. Benzaken, and K. Maute, "Multigrid solvers for immersed finite element methods and immersed isogeometric analysis." *Computational Mechanics*, 65:807-838, 2020.
46. J.A. Evans, M.A. Scott, K. Shepherd, D. Thomas, and R. Vazquez*, "Hierarchical B-spline complexes of discrete differential forms." *IMA Journal of Numerical Analysis*, 40:422-473, 2020.
45. E.L. Peters* and J.A. Evans, "A divergence-conforming hybridized discontinuous Galerkin method for the incompressible Reynolds Averaged Navier-Stokes equations." *International Journal for Numerical Methods in Fluids*, 91:112-133, 2019.
44. R.W. Skinner, A. Doostan, E.L. Peters, J.A. Evans, and K.E. Jansen, "A reduced-basis multi-fidelity approach for an efficient parametric study of NACA airfoils." *AIAA Journal*, 57:1481-1491, 2019.
43. E.P. Kightley, A. Pearson, J.A. Evans, and D.M. Bortz, "Fragmentation of biofilm-seeded bacterial aggregates in shear flow." *European Journal of Applied Mathematics*, 29:1062-1078, 2018.
42. X. Wei, Y. Zhang*, D. Toshniwal, H. Speleers, X. Li, C. Manni, J.A. Evans, and T.J.R. Hughes, "Blended B-spline construction on unstructured quadrilateral and hexahedral meshes with optimal convergence rates in isogeometric analysis." *Computer Methods in Applied Mechanics and Engineering*, 341:609-639, 2018.

41. D. Bommers, J.A. Evans, and L. Liu, "Special Issue on the 12th International Conference on Geometric Modeling and Processing (GMP 2018)." *Computer Aided Geometric Design*, 62:1-2, 2018.
40. J.A. Evans*, R.R. Hiemstra, T.J.R. Hughes, and A. Reali, "Explicit higher-order accurate isogeometric collocation methods for structural dynamics." *Computer Methods in Applied Mechanics and Engineering*, 338:208-240, 2018.
39. C. Coley*, J. Benzaken, and J.A. Evans, "A geometric multigrid method for isogeometric compatible discretizations of the generalized Stokes and Oseen problems." *Numerical Linear Algebra with Applications*, 25:e2145, 2018.
38. C. Coley and J.A. Evans*, "Variational multiscale modeling with discontinuous subscales: Analysis and application to scalar transport." *Meccanica*, 53:1241-1269, 2018.
37. R. Simpson*, Z. Liu, R. Vazquez, and J.A. Evans, "An isogeometric boundary element method for electromagnetic scattering with compatible B-spline discretizations." *Journal of Computational Physics*, 362:264-289, 2018.
36. J. Chan* and J.A. Evans, "Multi-patch discontinuous Galerkin isogeometric analysis for wave propagation: Explicit time-stepping and efficient mass matrix inversion." *Computer Methods in Applied Mechanics and Engineering*, 333:22-54, 2018.
35. D. Kamensky*, J.A. Evans, M.-C. Hsu, and Y. Bazilevs, "Projection-based stabilization of interface Lagrange multipliers in immersogeometric fluid-thin structure interaction analysis, with application to heart valve modeling." *Computers and Mathematics with Applications*, 74:2068-2088, 2017.
34. L. Engvall* and J.A. Evans, "Isogeometric unstructured tetrahedral and mixed-element Bernstein-Bézier discretizations." *Computer Methods in Applied Mechanics and Engineering*, 319:83-123, 2017.
33. J. Benzaken*, A. Herrema, M.C. Hsu, and J.A. Evans, "A rapid and efficient isogeometric design space exploration framework with application to structural mechanics." *Computer Methods in Applied Mechanics and Engineering*, 316:1215-1256, 2017.
32. T.M. van Opstal, J. Yan, C. Coley, J.A. Evans, T. Kvamsdal, and Y. Bazilevs*, "Isogeometric divergence-conforming variational multiscale formulation of incompressible turbulent flows." *Computer Methods in Applied Mechanics and Engineering*, 316:859-879, 2017.
31. D. Kamensky*, M.C. Hsu, Y. Yu, J.A. Evans, M.S. Sacks, and T.J.R. Hughes, "Immersogeometric cardiovascular fluid-structure interaction analysis with divergence-conforming B-splines." *Computer Methods in Applied Mechanics and Engineering*, 314:408-472, 2017.
30. C. Michoski*, J. Chan, L. Engvall, and J.A. Evans, "Foundations of the blended isogeometric discontinuous Galerkin (BIDG) method." *Computer Methods in Applied Mechanics and Engineering*, 305:658-681, 2016.
29. L. Engvall* and J.A. Evans, "Isogeometric triangular Bernstein-Bezier discretizations: Automatic mesh generation and geometrically exact finite element analysis." *Computer Methods in Applied Mechanics and Engineering*, 304:378-407, 2016.

28. D. Kamensky*, J.A. Evans, and M.-C. Hsu, “Stability and conservation properties of collocated constraints in immersogeometric fluid-thin structure interaction analysis.” *Communications in Computational Physics*, 18:1147-1180, 2015.
27. D. Schillinger*, J.A. Evans, F. Frischmann, R.R. Hiemstra, M.-C. Hsu, and T.J.R. Hughes, “A collocated C^0 finite element method: Reduced quadrature perspective, cost comparison with standard finite elements, and explicit structural dynamics.” *International Journal for Numerical Methods in Engineering*, 102:576-631, 2015. *Recipient of Oleg Zienkiwicz Best Paper Award from the Institution of Civil Engineers.*
26. D. Kamensky, M.-C. Hsu*, D. Schillinger, J.A. Evans, A. Aggarwal, Y. Bazilevs, M.S. Sacks, and T.J.R. Hughes, “An immersogeometric variational framework for fluid-structure interaction: Application to bioprosthetic heart valves.” *Computer Methods in Applied Mechanics and Engineering*, 284:1005-1053, 2015. *Web of Science Highly Cited Paper in Computer Science.*
25. D. Thomas*, M.A. Scott, J.A. Evans, K. Tew, and E.J. Evans, “Bézier projection: A unified approach for local projection and quadrature-free refinement and coarsening of NURBS and T-splines with particular application to isogeometric design and analysis.” *Computer Methods in Applied Mechanics and Engineering*, 284:55-105, 2015.
24. L. De Lorenzis*, J.A. Evans, T.J.R. Hughes, and A. Reali, “Isogeometric collocation: Neumann boundary conditions and contact.” *Computer Methods in Applied Mechanics and Engineering*, 284:21-54, 2015.
23. J. Chan*, J.A. Evans, and W. Qiu, “A dual Petrov-Galerkin finite element method for the convection-diffusion equation.” *Computers and Mathematics with Applications*, 68:1513-1529, 2014.
22. C. Michoski*, J.A. Evans, and P.G. Schmitz, “Discontinuous Galerkin hp -adaptive methods for multiscale chemical reactors: Quiescent reactors.” *Computer Methods in Applied Mechanics and Engineering*, 279:163-197, 2014.
21. T.J.R. Hughes, J.A. Evans*, and A. Reali, “Finite element and NURBS approximations of eigenvalue, boundary-value, and initial-value problems.” *Computer Methods in Applied Mechanics and Engineering*, 272:290-320, 2014.
20. D. Schillinger*, J.A. Evans, A. Reali, M.A. Scott, and T.J.R. Hughes, “Isogeometric collocation: Cost comparison with Galerkin methods and extension to hierarchical NURBS discretizations.” *Computer Methods in Applied Mechanics and Engineering*, 267:170-232, 2013. *Web of Science Highly Cited Paper in Computer Science.*
19. J. Liu*, H. Gomez, J.A. Evans, T.J.R. Hughes, and C.M. Landis, “Functional entropy variables: A new methodology for deriving thermodynamically consistent algorithms for complex fluids, with particular reference to the isothermal Navier-Stokes-Korteweg equations.” *Journal of Computational Physics*, 248:47-86, 2013.
18. J. Liu*, L. Dedé, J.A. Evans, M.J. Borden, and T.J.R. Hughes, “Isogeometric analysis of the advective Cahn-Hilliard equation: Spinodal decomposition under shear flow.” *Journal of Computational Physics*, 242:321-350, 2013.
17. J.A. Evans* and T.J.R. Hughes, “Isogeometric divergence-conforming B-splines for the unsteady Navier-Stokes equations.” *Journal of Computational Physics*, 241:141-167, 2013.

16. M.A. Scott*, R.N. Simpson, J.A. Evans, S. Lipton, S.P.A. Bordas, T.J.R. Hughes, and T.W. Sederberg, "Isogeometric boundary element analysis using unstructured T-splines." *Computer Methods in Applied Mechanics and Engineering*, 254:197-221, 2013. *Web of Science Highly Cited Paper in Computer Science*.
15. J.A. Evans* and T.J.R. Hughes, "Isogeometric divergence-conforming B-splines for the steady Navier-Stokes equations." *Mathematical Models and Methods in Applied Sciences*, 23:1421-1478, 2013. *Web of Science Highly Cited Paper in Mathematics*.
14. J.A. Evans* and T.J.R. Hughes, "Isogeometric divergence-conforming B-splines for the Darcy-Stokes-Brinkman equations." *Mathematical Models and Methods in Applied Sciences*, 23:671-741, 2013.
13. J.A. Evans* and T.J.R. Hughes, "Explicit trace inequalities for isogeometric analysis and parametric hexahedral finite elements." *Numerische Mathematik*, 123:259-290, 2013.
12. J.A. Evans* and T.J.R. Hughes, "Discrete spectrum analyses for various mixed discretizations of the Stokes eigenproblem." *Computational Mechanics*, 50:667-674, 2012.
11. D. Schillinger*, L. Dedé, M.A. Scott, J.A. Evans, M.J. Borden, E. Rank, and T.J.R. Hughes, "An isogeometric design-through-analysis methodology based on adaptive hierarchical refinement of NURBS, immersed boundary methods, and T-spline CAD surfaces." *Computer Methods in Applied Mechanics and Engineering*, 249-252:116-150, 2012. *Web of Science Highly Cited Paper in Computer Science and Recipient of John Argyris Best Paper Award from the International Association for Computational Mechanics*.
10. H.A.F.A. Santos*, J.A. Evans, and T.J.R. Hughes, "Generalization of the twist-Kirchhoff theory of plate elements to arbitrary quadrilaterals and assessment of convergence." *Computer Methods in Applied Mechanics and Engineering*, 209-212:101-114, 2012.
9. F. Brezzi, J.A. Evans*, T.J.R. Hughes, and L.D. Marini, "New rectangular plate elements based on twist-Kirchhoff theory." *Computer Methods in Applied Mechanics and Engineering*, 200:2547-2561, 2011.
8. M.J. Borden*, M.A. Scott, J.A. Evans, and T.J.R. Hughes, "Isogeometric finite element data structures based on Bézier extraction of NURBS." *International Journal for Numerical Methods in Engineering*, 87:15-47, 2011. *Web of Science Highly Cited Paper in Engineering*.
7. C. Michoski*, J.A. Evans, P.G. Schmitz, and A. Vasseur, "A discontinuous Galerkin method for viscous compressible multifluids." *Journal of Computational Physics*, 229:2249-2266, 2010.
6. S. Lipton*, J.A. Evans, Y. Bazilevs, T. Elguedj, and T.J.R. Hughes, "Robustness of isogeometric structural discretizations under severe mesh distortion." *Computer Methods in Applied Mechanics and Engineering*, 199:356-373, 2010. *Web of Science Highly Cited Paper in Computer Science*.
5. Y. Bazilevs, V. Calo, J.A. Cottrell, J.A. Evans*, T.J.R. Hughes, S. Lipton, M.A. Scott, and T. Sederberg, "Isogeometric analysis using T-splines." *Computer Methods in Applied Mechanics and Engineering*, 199:229-263, 2010. *Web of Science Highly Cited Paper in Computer Science*.

4. J.A. Evans*, T.J.R. Hughes, and G. Sangalli, “Enforcement of constraints and maximum principles in the variational multiscale method.” *Computer Methods in Applied Mechanics and Engineering*, 199:61-76, 2009.
3. C. Michoski*, J.A. Evans, P.G. Schmitz, and A. Vasseur, “Quantum hydrodynamics with trajectories: The nonlinear conservation form mixed/discontinuous Galerkin method with applications in chemistry.” *Journal of Computational Physics*, 228:8589-8608, 2009.
2. J.A. Evans*, Y. Bazilevs, I. Babuška, and T.J.R. Hughes, “ n -Widths, sup-infs, and comparison ratios for the k -version of the isogeometric finite element method.” *Computer Methods in Applied Mechanics and Engineering*, 198:1726-1741, 2009. *Web of Science Highly Cited Paper in Computer Science*.
1. J.A. Evans and M. Reyhan, “A quasi-sequential cellular automaton approach to traffic modeling.” *COMAP UMAP Journal*, 26.3:331-344, 2005.

BOOK CHAPTERS

5. J.A. Evans* and D.S. Gilchrist, “A note on the conservation properties of the generalized- α method.” In *Frontiers in Computational Fluid-Structure Interaction and Flow Simulation: Research from Lead Investigators under 40*, edited by T. Tezduyar, 59-77. Cham: Birkhäuser/Springer, 2023.
4. J.A. Evans*, “Spline-based methods for turbulence.” In *Numerical Methods in Turbulence Simulation*, edited by R. Moser, 139-187. Academic Press/Springer, 2023.
3. J.A. Evans*, C. Coley, R.M. Aronson, C.L. Wetterer-Nelson, and Y. Bazilevs, “Residual based large eddy simulation with isogeometric divergence-conforming discretizations.” In *Frontiers in Computational Fluid-Structure Interaction and Flow Simulation: Research from Lead Investigators under 40*, edited by T. Tezduyar, 91-130. Cham: Birkhäuser/Springer, 2018.
2. J.A. Evans* and T.J.R. Hughes, “Isogeometric compatible discretizations for viscous incompressible flow.” In *Isogeometric Analysis: A New Paradigm in the Numerical Approximation of PDEs*, edited by A. Buffa. G. Sangalli, 155-193. Switzerland: Springer International Publishing, 2016.
1. Y. Bazilevs, V.M. Calo, J.A. Cottrell, J.A. Evans, T.J.R. Hughes, S. Lipton, M.A. Scott, and T.W. Sederberg, “Isogeometric analysis: Toward unification of CAD and FEA.” In *Trends in Engineering Computational Technology*, edited by M. Papadrakakis, B.H.V. Topping, 1-16. Stirling, UK: Saxe-Coburg Publications, 2008.

CONFERENCE PROCEEDINGS

22. B. Parmar, K.E. Jansen, and J.A. Evans, “Data-Driven RANS closure with model derived turbulence variables.” *Proceedings of the AIAA SciTech Forum 2023*, National Harbor, MD, 2023.
21. A. Prakash, K.E. Jansen, and J.A. Evans, “Extension of the Smagorinsky subgrid stress model to anisotropic filters.” *Proceedings of the AIAA SciTech Forum 2023*, National Harbor, MD, 2023.
20. T.E. Kava, J.A. Evans, and I.D. Boyd, “Three-dimensional numerical analysis of plasma fueled engines..” *Proceedings of the AIAA AVIATION Forum 2022*, Chicago, IL, 2022.
19. A. Prakash, R. Balin, J.A. Evans, and K.E. Jansen, “Wall-modeled large eddy simulations of a turbulent boundary layer over the Boeing speed bump at $Re_L = 2$ million.” *Proceedings of the AIAA SciTech Forum 2022*, San Diego, CA, 2022.

18. T.E. Kava, J.A. Evans, and I.D. Boyd, “Numerical simulation of electron-beam powered plasma fuel engines.” Proceedings of the AIAA Propulsion and Energy Forum 2021, Virtual Event, 2021.
17. J. Wright, R. Balin, J.A. Evans, and K.E. Jansen, “Unstructured LES_{DNS} of a turbulent boundary layer over a Gaussian bump.” Proceedings of the AIAA SciTech Forum 2021, Virtual Event, 2021.
16. A. Prakash, K.E. Jansen, and J.A. Evans, “Optimal clipping of the gradient model for subgrid stress closure.” Proceedings of the AIAA SciTech Forum 2021, Virtual Event, 2021.
15. B. Parmar, E.L. Peters, K.E. Jansen, A. Doostan, and J.A. Evans, “Generalized non-linear eddy viscosity models for data-assisted Reynolds stress closure.” Proceedings of the AIAA SciTech Forum 2020, Orlando, FL, 2020.
14. R. Balin, J.R. Wright, J.W. Patterson, J.A. Farnsworth, J.A. Evans, R. Lakhani, P.R. Spalart, and K.E. Jansen, “Hybrid turbulence model computations of the NASA juncture flow model using PHASTA.” Proceedings of the AIAA SciTech Forum 2020, Orlando, FL, 2020.
13. E.S. Barroso, J.A. Evans, J.B.C. Neto, C.A. Vidal, and E.P. Junior, “An algorithm for automatic discretization of isogeometric plane models.” Proceedings of the Ibero-Latin American Congress on Computational Methods in Engineering, Natal, Brazil, 2019.
12. J.A. Evans, K. Maute, C. Messe, L. Noel, and F. de Prenter, “Adaptive topology optimization with hierarchical B-splines.” Oberwolfach Reports, Report No. 33/2019, Pg. 13-15, 2019.
11. J.A. Evans, B. Jüttler, and G. Sangalli, “Isogeometric splines: Theory and applications.” BIRS Reports, Report No. 19w5196, 2019.
10. L. Engvall and J.A. Evans, “Element quality metrics for higher-order Bernstein-Bézier elements.” Proceedings of the 27th International Meshing Roundtable, Albuquerque, NM, 2018.
9. R.W. Skinner, A. Doostan, E.L. Peters, J.A. Evans, and K.E. Jansen, “An evaluation of bi-fidelity modeling efficiency on a general family of NACA airfoils.” Proceedings of the 35th Applied Aerodynamics Conference, Denver, CO, 2017.
8. L. Engvall and J.A. Evans, “Towards geometrically exact higher-order unstructured mesh generation.” Proceedings of the 25th International Meshing Roundtable, Washington DC, 2016.
7. J.A. Evans, I. Babuška, Y. Bazilevs, J. Benzaken, J. Chan, and T.J.R. Hughes, “Optimality and approximation: A quantitative assessment of the approximation properties of spline, polynomial, and Fourier bases.” Oberwolfach Reports, Report No. 8/2016, Pg. 352-354, 2016.
6. D. Schillinger, L. Dedé, M.A. Scott, J.A. Evans, M.J. Borden, E. Rank, and T.J.R. Hughes, “Isogeometric analysis and the finite cell method.” Proceedings of the European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), Vienna, Austria, 2012.
5. T.J.R. Hughes and J.A. Evans, “Isogeometric analysis.” Proceedings of the International Congress of Mathematicians, Volume 1, Hyderabad, India, 2010.

4. J.A. Evans, K.E. Jansen, M.S. Shepherd, and A.C. Bauer, "A multiscale stabilization of the streamfunction form of the steady state Navier-Stokes equations." *Journal of Physics: Conference Series*, 46:463-467, 2006.
3. M. Oghbaei, K.S. Anderson, and J.A. Evans, "A state-time formulation for multi-body systems dynamics simulation, Part II: Parallel implementation." *Proceedings of the 2005 ASME International Design Engineering Technical Conference and Computers and Information in Engineering Conference*, Long Beach, California, 2005.
2. J.A. Evans, M. Oghbaei, and K.S. Anderson, "Modeling and simulation of a laser-powered lightcraft using advanced simulation tools." *Proceedings of the 2005 ASME International Design Engineering Technical Conference and Computers and Information in Engineering Conference*, Long Beach, California, 2005.
1. J.A. Evans, M. Oghbaei, and K.S. Anderson, "Incorporation of aerodynamic considerations in the dynamic simulation of a Type-200 lightcraft." *Proceedings of the the 2005 International Conference on Advances in Computational Multibody Dynamics*, Madrid, Spain, 2005.

TECHNICAL
REPORTS

3. S.L. Calfy, J.A. Evans, and D. Kamensky*, "Variational multiscale modeling with discretely divergence-free subscales: Non-divergence-conforming discretizations." *arXiv preprint arXiv:2112.09823*, 2021.
2. J.A. Evans* and T.J.R. Hughes, "Variational multiscale analysis: A new link between flux correction, total variation, and constrained optimization." *ICES Report 2010-35*, The University of Texas at Austin, 2010.
1. J.A. Evans*, M. Oghbaei, and K.S. Anderson, "Modeling and simulation of a laser-powered lightcraft using impulse state-time equations." *SCOREC Report 2006-27*, Rensselaer Polytechnic Institute, 2006.

PREPRINTS

4. N. Wunsch*, K. Doble, M.R. Schmidt, L. Noel, J.A. Evans, and K. Maute, "Enriched immersed finite element and isogeometric analysis: Algorithms and data structures." Available at:
<https://arxiv.org/pdf/2501.17853.pdf>
3. T.A. Gleason*, E.L. Peters, and J.A. Evans, "A divergence-conforming hybridized discontinuous Galerkin method for the incompressible magnetohydrodynamics equations." Available at:
<https://arxiv.org/pdf/2201.01906.pdf>
2. C. Wetterer-Nelson*, K.E. Jansen, and J.A. Evans, "Interactive geometry modification of high performance finite element simulations." Available at:
<https://arxiv.org/pdf/2005.00202.pdf>
1. J. Benzaken, A. Doostan, and J.A. Evans*, "Physics-informed tolerance allocation: A surrogate-based framework for the control of geometric variation on system performance." Available at:
<https://arxiv.org/pdf/1904.06559.pdf>

DISSERTATION AND
THESES

2. J.A. Evans, "Divergence-free B-spline Discretizations for Viscous Incompressible Flows." PhD Dissertation, The University of Texas at Austin, 2011.
1. J.A. Evans, "Multiscale and Stabilized Methods for Fourth-Order Problems in Fluid Mechanics'." MS Thesis, Rensselaer Polytechnic Institute, 2006.

SELECTED ORAL
PRESENTATIONS

92. (Invited Talk) J.A. Evans, A. Christopherson, and K. Maute, “A locking-free displacement-only immersogeometric analysis methodology for nearly incompressible elasticity”, 12th *International Conference on Isogeometric Analysis*, Saint Augustine, Florida, October 27-30, 2024.
91. (Invited Seminar) J.A. Evans, “Adaptive immersed isogeometric level set topology optimization”, *Institute of Lightweight Design and Structural Biomechanics Seminar Series*, Vienna University of Technology, July 11, 2024.
90. (Invited Seminar) J.A. Evans, “Adaptive immersed isogeometric level set topology optimization”, *School for Simulation and Data Science Seminar Series*, RWTH Aachen University, July 8, 2024.
89. (Invited Seminar) J.A. Evans, “Data-driven turbulence modeling and simulation”, *Richard and Carol Pletcher Seminar Series*, Iowa State University, January 23, 2024.
88. (Invited Seminar) J.A. Evans, “Structure preservation in immersed finite element methods for incompressible fluid flow”, *Scalable, Efficient and Accelerated Causal Reasoning Operators, Graphs and Spikes for Earth and Embedded Systems (SEA-CROGS) Webinar Series*, January 2, 2024.
87. (Invited Talk) J.A. Evans, “Isogeometric divergence-free B-splines: Advanced topics”, *International Workshop on Multiphase Flows: Analysis, Modelling and Numerics*, Tokyo, Japan, December 4-6, 2023.
86. (Invited Talk) J.A. Evans, “Isogeometric divergence-free B-splines: An introduction”, *International Workshop on Multiphase Flows: Analysis, Modelling and Numerics*, Tokyo, Japan, December 4-6, 2023.
85. (Invited Seminar) J.A. Evans, “Immersed finite element analysis: Opportunities, challenges, and recent advances”, *MIT Distinguished Seminar Series on Computational Science and Engineering*, Massachusetts Institute of Technology, November 16, 2023.
84. (Invited Talk) J.A. Evans, “Data-driven subgrid stress closure for large eddy simulation”, *Advances in Computational Mechanics*, Austin, Texas, October 22-25, 2023.
83. (Plenary Lecture) J.A. Evans, “Interpolation-based immersed finite element and isogeometric analysis”, 17th *U.S. National Congress on Computational Mechanics*, Albuquerque, New Mexico, July 23-27, 2023.
82. (Invited Talk) J.A. Evans, A. Christopherson, and K. Maute, “A locking-free displacement-only isogeometric analysis methodology for nearly incompressible elasticity”, 11th *International Conference on Isogeometric Analysis*, Lyon, France, June 18-21, 2023.
81. (Keynote Lecture) J.A. Evans, N. Wunsch, K. Maute, J. Fromm, R. Xiang, H. Zhao, and D. Kamensky, “Interpolation-based immersed finite element and isogeometric analysis with application to thermoelasticity”, 10th *Coupled Problems Conference*, Chania, Crete, Greece, June 5-7, 2023.
80. (Invited Talk) J.A. Evans, N. Wunsch, K. Maute, J. Fromm, R. Xiang, H. Zhao, and D. Kamensky, “Interpolation-based immersed finite element and isogeometric analysis of incompressible flow”, 22nd *Computational Fluids Conference*, Cannes, France, April 25-28, 2023.

79. (Invited Seminar) J.A. Evans, “Computational methods and software for improving the accessibility of immersed finite element analysis”, *Smead Aerospace Engineering Sciences Fluid-Structures-Materials Seminar Series*, University of Colorado Boulder, March 1, 2023.
78. (Invited Seminar) J.A. Evans, “The EXHUME project for democratization of immersed finite element analysis”, *Oden Institute Seminar Series*, The University of Texas at Austin, February 14, 2023.
77. (Invited Seminar) J.A. Evans, “Isogeometric analysis: Fundamentals, challenges, and current research thrusts”, *Applied and Computational Mathematics Seminar Series*, National Institute of Standards and Technology, February 7, 2023.
76. (Invited Seminar) J.A. Evans, “An adaptive immersed isogeometric analysis framework for multi-material, multi-physics problems”, *Structural Engineering Seminar Series*, University of Illinois at Urbana-Champaign, January 30, 2023.
75. (Invited Seminar) J.A. Evans, J. Benzaken, and R. Tamstorf, “Nitsche’s method for nonlinear problems with application to the Euler-Bernoulli beam”, *10th International Conference on Isogeometric Analysis*, Banff, Canada, November 6-9, 2022.
74. (Keynote Lecture) J.A. Evans, N. Wunsch, K. Maute, J. Fromm, R. Xiang, H. Zhao, and D. Kamensky, “Immersed finite element and isogeometric analysis using approximate Lagrange extraction,” *15th World Congress on Computational Mechanics*, Yokohama, Japan, July 31 - August 5, 2022. *Conference Held Remotely Due to COVID-19 Pandemic.*
73. (Contributed Talk) J.A. Evans, B. Parmar, A. Prakash, R. Balin, E.L. Peters, and K.E. Jansen, “Data-driven construction of iterative algebraic Reynolds stress models using model-derived turbulence variables”, *Symposium on Turbulence Modeling: Roadblocks, and the Potential for Machine Learning*, Suffolk, Virginia, July 27-29, 2022.
72. (Invited Seminar) J.A. Evans, “Data-driven turbulence modeling and simulation”, *Aerospace Seminar*, University of Colorado Boulder, October 4, 2021. *Seminar Held Remotely Due to COVID-19 Pandemic.*
71. (Plenary Talk) J.A. Evans, “Adaptive level set topology optimization with hierarchical B-splines”, *VIGA 2021: Virtual International Conference on Isogeometric Analysis*, Lyon, France, September 26-29, 2021. *Conference Held Remotely Due to COVID-19 Pandemic.*
70. (Contributed Talk) J.A. Evans, “Interactive geometric modification of massively parallel CFD simulations”, *16th U.S. National Congress on Computational Mechanics*, Chicago, Illinois, July 25-29, 2021. *Conference Held Remotely Due to COVID-19 Pandemic.*
69. (Invited Seminar) J.A. Evans, “Invariant data-driven subgrid stress closure for large eddy simulation”, *Aerospace Computational Design Laboratory Seminar Series*, Massachusetts Institute of Technology, October 23, 2020. *Seminar Held Remotely Due to COVID-19 Pandemic.*
68. (Invited Talk) J.A. Evans, “Isogeometric analysis of Kirchhoff-Love shells: Weakly enforced essential boundary conditions and residual-based stabilization”, *14th World Congress on Computational Mechanics*, Paris, France, July 19-24, 2020. *Conference Canceled Due to COVID-19 Pandemic.*

67. (Invited Seminar) J.A. Evans, “Data-driven turbulence modeling and simulation: From RANS to LES”, *United States Association for Computational Mechanics Summer Seminar Series*, June 25, 2020. *Seminar Held Remotely Due to COVID-19 Pandemic.*
66. (Plenary Talk) J.A. Evans, “Adaptive level set topology optimization with hierarchical B-splines”, *IGAA 2020 - Conference on Isogeometric Analysis and Applications*, Strobl, Austria, March 30 - April 3, 2020. *Conference Canceled Due to COVID-19 Pandemic.*
65. (Invited Seminar) J.A. Evans, “Isogeometric structure-preserving discretizations: Fundamentals, current research thrusts, and future directions”, *University of Colorado Boulder*, Boulder, Colorado, February 5, 2020.
64. (Invited Seminar) J.A. Evans, “Hierarchical B-spline complexes of discrete differential forms”, *University of Pittsburgh*, Pittsburgh, Pennsylvania, December 3, 2019.
63. (Invited Talk) J.A. Evans, D. Kamensky, and Y. Bazilevs, “Variational multiscale modeling with weakly divergence-free subscales”, *56th Society of Engineering Sciences Annual Technical Meeting*, St. Louis, Missouri, October 13-15, 2019.
62. (Invited Talk) J.A. Evans and D. Kamensky, “A pressure-robust residual-based stabilized method for the incompressible Navier-Stokes equations”, *15th U.S. National Congress on Computational Mechanics*, Austin, Texas, July 28 - August 1, 2019.
61. (Invited Seminar) J.A. Evans, “Level set topology optimization using hierarchical B-splines,” *Johannes Kepler University Linz*, Linz, Austria, July 25, 2019.
60. (Invited Seminar) J.A. Evans, “Isogeometric structure-preserving discretizations using hierarchical B-splines,” *Johannes Kepler University Linz*, Linz, Austria, July 24, 2019.
59. (Invited Talk) J.A. Evans, C. Messe, F. de Prenter, and K. Maute, “Adaptive topology optimization with hierarchical B-splines,” *Mini-Workshop: Mathematical Foundations of Isogeometric Analysis*, Oberwolfach, Germany, July 15-19, 2019.
58. (Invited Talk) J.A. Evans, “Simulation of turbulent incompressible fluid flow with isogeometric structure-preserving discretizations,” *Structure Preserving Discretizations: Finite Elements, Splines, and IGA*, Pittsburgh, Pennsylvania, May 31 - June 1, 2019.
57. (Plenary Talk) J.A. Evans, “Geometry, parameterization, and high-order spline approximation,” *16th International Conference on Approximation Theory*, Nashville, Tennessee, May 19-22, 2019.
56. (Invited Seminar) J.A. Evans, “Isogeometric structure-preserving discretizations: Fundamentals, current research thrusts, and future directions,” *Sandia National Laboratories*, Albuquerque, New Mexico, May 15, 2019.
55. (Invited Talk) J.A. Evans and L. Engvall, “The impact of parameterization on numerical approximation for isogeometric finite elements,” *Isogeometric Splines: Theory and Applications*, Banff, Canada, February 25 - March 1, 2019.
54. (Invited Talk) J.A. Evans, C. Messe, T. Gleim, F. de Prenter, and K. Maute, “Adaptive level set XFEM topology optimization with hierarchical B-splines,” *IGA2018: Integrating Design and Analysis*, Austin, Texas, October 10-12, 2018.

53. (Invited Talk) J.A. Evans and L. Engvall, “Easily computable metrics for assessing the quality of high-order finite element and isogeometric meshes,” *13th World Congress on Computational Mechanics*, New York City, New York, July 22-27, 2018.
52. (Invited Talk) J.A. Evans, “Mesh generation, parameterization, and optimization for high-order finite element and isogeometric analysis,” Programme on *Numerical Analysis of Complex PDE Models in the Sciences*, Workshop on *Interplay of Geometric Processing, Modelling, and Adaptivity in Galerkin Methods*, Erwin Schrödinger Institute, Vienna, Austria, July 16-20, 2018.
51. (Invited Talk) J.A. Evans and L. Engvall, “Isogeometric unstructured tetrahedral and mixed-element Bernstein-Bézier discretizations,” *Solid and Physical Modeling 2018*, Bilbao, Spain, June 11-13, 2018.
50. (Invited Talk) J.A. Evans, “Recent advances in isogeometric divergence-conforming discretizations,” *Advances in Computational Fluid-Structure Interaction and Flow Simulation*, Banff, Canada, May 2-4, 2018.
49. (Contributed Talk) J.A. Evans, C. Coley, R. Aronson, and C. Nelson, “Structure-preserving variational multiscale modeling of turbulent incompressible flow with subgrid vortices,” *Seventieth Annual Meeting of the American Physical Society Division of Fluid Dynamics*, Denver, Colorado, November 19-21, 2017.
48. (Plenary Lecture) J.A. Evans, “Isogeometric compatible discretizations: Fundamentals, current research thrusts, and future directions,” *Second Conference on Subdivision, Geometric and Algebraic Methods, Isogeometric Analysis, and Refinability in Italy*, Gaeta, Italy, September 17-21, 2017.
47. (Invited Talk) J.A. Evans and E. Peters, “A critical comparison of coupling schemes for non-matching isogeometric/finite element discretizations,” *14th U.S. National Congress on Computational Mechanics*, Montreal, Canada, July 17-20, 2017.
46. (Invited Talk) J.A. Evans and C. Nelson, “Stabilized and multiscale isogeometric collocation methods for transport and incompressible turbulent flow,” *19th International Conference on Finite Elements in Flow Problems*, Rome, Italy, April 5-7, 2017.
45. (Invited Seminar) J.A. Evans, “Isogeometric structure-preserving discretizations: Fundamentals, current research thrusts, and future directions,” *Rice University Computational and Applied Mathematics Colloquium*, Houston, Texas, January 30, 2017.
44. (Invited Talk) J.A. Evans and C. Nelson, “Stabilized isogeometric collocation methods for transport and incompressible flow,” *Isogeometric Analysis and Mesh-free Methods*, San Diego, California, October 10-12, 2016.
43. (Keynote Lecture) J.A. Evans, C. Coley, and J. Benzaken, “Multigrid methods for isogeometric structure-preserving discretizations,” *2016 European Congress on Computational Methods in Applied Sciences and Engineering*, Crete Island, Greece, June 5-10, 2016.
42. (Invited Seminar) J.A. Evans, “Isogeometric structure-preserving discretizations: Fundamentals, current research thrusts, and future directions,” *Delft University of Technology Applied Mathematics Seminar*, Delft, The Netherlands, May 30, 2016.

41. (Invited Talk) J.A. Evans, "Adaptive isogeometric approximation of vector fields using hierarchical B-splines," *15th International Conference on Approximation Theory*, San Antonio, Texas, May 22-25, 2016.
40. (Invited Seminar) J.A. Evans, "An isogeometric framework for automated generation of geometrically exact, feature-preserving unstructured finite element meshes," *University of Notre Dame Environmental Fluid Dynamics Seminar*, Notre Dame, Indiana, March 1, 2016.
39. (Invited Talk) J.A. Evans, I. Babuska, Y. Bazilevs, J. Benzaken, J. Chan, and T.J.R. Hughes, "Optimality and approximation: A quantitative assessment of the approximation properties of spline, polynomial, and Fourier bases," *Mini-Workshop: Mathematical Foundations of Isogeometric Analysis*, Oberwolfach, Germany, February 7-13, 2016.
38. (Invited Talk) J.A. Evans and C. Michoski, "Isogeometric structure-preserving methods for magnetohydrodynamics and fluid-structure interaction," *13th U.S. National Congress on Computational Mechanics*, San Diego, California, July 26-30, 2015.
37. (Invited Talk) J.A. Evans, M.A. Scott, K. Shepherd, D. Thomas, and R. Vazquez, "Adaptive isogeometric vector field approximations with application to viscous incompressible fluid flow." *Isogeometric Analysis 2015*, Trondheim, Norway, June 1-3, 2015.
36. (Keynote Lecture) J.A. Evans, "Isogeometric structure-preserving methods for computational fluid dynamics." *18th International Conference on Finite Elements in Flow Problems*, Taipei, Taiwan, March 16-18, 2015.
35. (Invited Seminar) J.A. Evans, "Conservation of geometry in numerical simulation: A primer on isogeometric methods." *University of Colorado Boulder Applied Mathematics Colloquium*, Boulder, Colorado, January 30, 2015.
34. (Invited Seminar) J.A. Evans, "Conservation of geometry and physics in computational fluid dynamics." *University of Minnesota Warren Lecture Series*, Minneapolis, Minnesota, November 7, 2014.
33. (Invited Talk) J.A. Evans, "Structure-preserving isogeometric discretizations for incompressible magnetohydrodynamics." *11th World Congress on Computational Mechanics*, Barcelona, Spain, July 20-25, 2014.
32. (Invited Talk) J.A. Evans, "Isogeometric structure-preserving discretizations for complex fluid flows." *Higher-Order Finite Element and Isogeometric Methods 2014*, Frauenchiemsee Island, Germany, July 15-18, 2014.
31. (Invited Talk) J.A. Evans, "High-order and structure-preserving isogeometric methods for the incompressible Navier-Stokes and magnetohydrodynamics equations." *International Conference on Spectral and High Order Methods 2014*, Salt Lake City, Utah, June 23-27, 2014.
30. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Conservation of geometry and physics in numerical simulation of incompressible flow." *Advances in Computational Fluid-Structure Interaction and Flow Simulation*, Tokyo, Japan, March 19-21, 2014.
29. (Invited Seminar) J.A. Evans, "Conservation of geometry and physics in computational modeling." *BYU Physics and Astronomy Colloquium*, Provo, Utah, February 19, 2014.

28. (Invited Talk) J.A. Evans, R. Hiemstra, and D. Toshniwal, "Local conservation and isogeometric analysis." *Isogeometric Analysis 2014*, Austin, Texas, January 8-10, 2014.
27. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Conservation of geometry and physics in numerical modeling of incompressible flow." *2013 SIAM Conference on Geometric and Physical Modeling*, Denver, Colorado, November 11-14, 2013.
26. (Invited Seminar) J.A. Evans, "Isogeometric analysis: Fundamentals, applications, and future challenges." *University of Colorado Boulder Mechanical Engineering Graduate Seminar*, Boulder, Colorado, October 24, 2013.
25. (Invited Seminar) J.A. Evans, "Conservation of geometry and physics in numerical modeling of incompressible flow." *Boulder Fluid Dynamics Seminar Series*, Boulder, Colorado, October 15, 2013.
24. (Invited Talk) J.A. Evans, D. Schillinger, R. Hiemstra, and T.J.R. Hughes, "Isogeometric divergence-conforming collocation methods for incompressible fluid flow," *12th U.S. National Congress on Computational Mechanics*, Raleigh, North Carolina, July 22-25, 2013.
23. (Invited Talk) J.A. Evans, D. Schillinger, R. Hiemstra, and T.J.R. Hughes, "Mixed isogeometric collocation methods for the Stokes equations," *MAFELAP 2013*, London, United Kingdom, June 11-14, 2013.
22. (Invited Talk) J.A. Evans, D. Schillinger, A. Reali, M.A. Scott, and T.J.R. Hughes, "Isogeometric collocation: Cost comparison with Galerkin methods and extension to hierarchical NURBS discretizations," *14th International Conference on Approximation Theory*, San Antonio, Texas, April 7-10, 2013.
21. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Structure-preserving B-spline methods for the incompressible Navier-Stokes Equations," *Numerical Methods for Partial Differential Equations Seminar, Massachusetts Institute of Technology*, Boston, Massachusetts, March 20, 2013.
20. (Invited Talk) J.A. Evans and T.J.R. Hughes, "The method of subgrid vortices: A paradigm for structure-preserving variational multiscale analysis," *Advances in Computational Mechanics*, San Diego, California, February 25-27, 2013.
19. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Isogeometric discrete differential forms with application to viscous fluid flow," *Joint Mathematics Meetings*, San Diego, California, January 10, 2013.
18. (Invited Seminar) J.A. Evans, "Divergence-conforming B-spline discretizations for viscous incompressible flows," *Scientific Computing Seminar, University of Houston*, Houston, Texas, October 4, 2012.
17. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Divergence-conforming B-spline discretizations of viscous incompressible flows," *10th World Congress on Computational Mechanics*, São Paulo, Brazil, July 8-13, 2012.
16. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Divergence-free B-spline discretizations for incompressible fluid flows," *Numerical Methods for Incompressible Fluid Flow*, Vancouver, Canada, July 14-16, 2011.
15. (Invited Talk) J.A. Evans, Y. Bazilevs, I. Babüska, and T.J.R. Hughes, "On the effectiveness of multi-dimensional and compatible splines in numerical approximation," *Higher-Order Finite Element and Isogeometric Methods 2011*, Krakow, Poland, June 27-29, 2011.

14. (Invited Talk) J.A. Evans, A. Buffa, T.J.R. Hughes, and G. Sangalli, "Divergence-free B-spline discretizations for the steady Navier-Stokes equations," *Isogeometric Analysis 2011*, Austin, Texas, January 13-15, 2011.
13. (Invited Talk) J.A. Evans, A. Buffa, T.J.R. Hughes, and G. Sangalli, "Divergence-free B-spline discretizations for the Stokes equations," *Non-Standard Numerical Methods for PDE's*, Pavia, Italy, June 29 - July 2, 2010.
12. (Invited Talk) J.A. Evans, Y. Bazilevs, I. Babuška, and T.J.R. Hughes, "Assessment of the effectiveness of multidimensional splines in numerical approximation and isogeometric analysis," *13th International Conference on Approximation Theory*, San Antonio, Texas, March 7-10, 2010.
11. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Isogeometric analysis of hydrodynamic noise generation," *10th U.S. National Congress on Computational Mechanics*, Columbus, Ohio, July 16-19, 2009.
10. (Invited Talk) J.A. Evans, Y. Bazilevs, I. Babuška, and T.J.R. Hughes, "Approximation properties of k -refined NURBS in isogeometric analysis," *MAFELAP 2009*, London, United Kingdom, June 9-12, 2009.
9. (Invited Talk) J.A. Evans, T.J.R. Hughes, and G. Sangalli, "Enforcement of constraints in variational multiscale analysis of convection-dominated transport," *MAFELAP 2009*, London, United Kingdom, June 9-12, 2009.
8. (Invited Talk) J.A. Evans and T.J.R. Hughes, "Toward accurate simulation of hydrodynamic noise generation: Exact variational multiscale analysis of the Helmholtz problem," *15th International Conference on Finite Elements in Flow Problems*, Tokyo, Japan, April 1-3, 2009.
7. (Invited Talk) J.A. Evans and T.J.R. Hughes, "The variational multiscale method in computational fluid dynamics," *Summer Workshop on Multiscale Modeling and Analysis*, Austin, Texas, August 4-8, 2008.
6. (Invited Talk) J.A. Evans, T.J.R. Hughes, and G. Sangalli, "Discontinuity capturing and the variational multiscale method," *8th World Congress on Computational Mechanics*, Venice, Italy, June 30-July 4, 2008.
5. (Contributed Talk) J.A. Evans, Y. Bazilevs, I. Babuška, and T.J.R. Hughes, "A variational framework for computational approximation theory," *Texas SIAM Student Conference 2008*, Houston, Texas, April 11-12, 2008.
4. (Contributed Talk) J.A. Evans, Y. Bazilevs, I. Babuška, and T.J.R. Hughes, "Numerical computation of approximation properties of p - and k -methods," *Finite Element Circus and Rodeo Spring 2008*, Baton Rouge, Louisiana, March 7-8, 2008.
3. (Invited Talk) M.A. Scott, J.A. Evans, S. Lipton, T.J.R. Hughes, Y. Bazilevs, V.M. Calo, and T.W. Sederberg, "T-splines and isogeometric analysis," *9th U.S. National Congress on Computational Mechanics*, San Francisco, California, July 22-26, 2007. (Three-Part Presentation)
2. (Contributed Talk) J.A. Evans, M. Oghbaei, and K.S. Anderson, "Modeling and simulation of a laser-powered lightcraft using an impulsive finite element in time formulation," *7th World Congress on Computational Mechanics*, Los Angeles, California, July 16-22, 2006.
1. (Contributed Talk) J.A. Evans, K.E. Jansen, E. Bohr, and M.S. Shepherd, "An explicit C^1 finite element for fluid dynamics applications," *7th World Congress on Computational Mechanics*, Los Angeles, California, July 16-22, 2006.

RESEARCH
GRANTS AND
GIFTS RECEIVED

18. “DS4MEMS: Decision Support for Machine Learning Enabled Multi-fidelity Simulations,” Department of Energy, \$1,050,000.00 (Evans Share: \$525,000.00); 10/01/2024 – 09/30/2027. (PI: K. Jansen, Co-PI: J. Evans)
17. “Linear and Non-linear Dimensionality Reduction Methods for Unstructured PDE Data Compression,” Department of Energy, \$1,200,000.00 (Evans Share: \$300,000.00); 10/01/2024 – 09/30/2027. (PI: A. Doostan, Co-PIs: S. Becker, J. Evans, K. Jansen)
16. “Designing for Nonlinearity: Reducing Resource Consumption Through a Paradigm Shift in Engineering Design,” University of Colorado Boulder Research and Innovation Seed Grant Program, \$74,267.00 (Evans Share: \$37,133.50); 07/01/2024 – 06/30/2025. (PI: K. Maute, Co-PI: J. Evans)
15. “Machine Learned Flux Limiters for Hypersonic Flows,” Los Alamos National Laboratory, \$179,025.00 (Evans Share: \$89,512.50); 07/25/2023 – 09/30/2024. (PI: J. Evans, Co-PIs: I. Boyd, K. Maute)
14. “Scalable Data Reduction Techniques for Extreme-Scale Unstructured PDE Simulations,” Department of Energy, \$880,969.00 (Evans Share: \$220,242.25); 10/01/2021 – 09/30/2024. (PI: A. Doostan, Co-PIs: S. Becker, J. Evans, K. Jansen)
13. “Collaborative Research: Elements: EXHUME: Extraction for High-Order Unfitted Finite Element Methods,” National Science Foundation, \$316,331.00 including \$16,000 REU Supplement (Evans Share: \$158,165.50); 06/01/2021 – 05/31/2025. (PI: J. Evans, Co-PI: K. Maute)
12. “Data-Driven Reynolds Stress Models for Hypersonic Flow Simulation,” University of Colorado Hypersonic Vehicles Interdisciplinary Research Theme, \$12,374.00 (Evans Share: \$6,187.00); 06/01/2021 – 12/31/2022. (PI: J. Evans, Co-PI: K. Jansen)
11. “Immersed Finite Element Methods for Simulation and Optimization of Hypersonic Vehicles,” University of Colorado Hypersonic Vehicles Interdisciplinary Research Theme, \$12,374.00 (Evans Share: \$6,187.00); 06/01/2021 – 12/31/2022. (PI: J. Evans, Co-PI: K. Maute)
10. “Automating U-spline Fluid-Structure Model Development for Mobility Applications,” Army Research Laboratory, \$66,600.00 (Evans Share: \$66,600.00); 12/13/2019 – 06/12/2020. (PI: J. Evans, Subcontract from Coreform LLC)
9. “Improving the Accuracy and Efficiency of Scale Resolving Simulations for Favorable and Adverse Pressure Gradient Flows,” National Aeronautics and Space Administration, \$576,010.00 (Evans Share: \$288,005.00); 01/01/2019 – 12/31/2023. (PI: K. Jansen, Co-PI: J. Evans)
8. “Fast and Robust Cloth Simulation,” Disney Research, \$25,000.00 (Evans Share: \$25,000.00); Fall 2018. (Unrestricted Gift to J. Evans)
7. “Automated Storm Surge Modeling from Geospatial Data Sources,” University of Colorado Boulder Research and Innovation Seed Grant Program, \$49,893.00 (Evans Share: \$49,893.00); 07/01/2018 – 12/31/2019. (PI: J. Evans, Co-PI: C. Farmer)
6. “Collaborative Research: NISC SI2-S2I2 Conceptualization of CFDSI: Model, Data, and Analysis Integration for End-to-End Support of Fluid Dynamics Discovery and Innovation,” National Science Foundation, \$321,838.00 (Evans Share: \$53,639.45); 03/01/2018 – 08/31/2024. (PI: K. Jansen, Co-PIs: J. Brown, A. Doostan, J. Evans, J. Farnsworth)

5. “Fast and Robust Cloth Simulation,” Disney Research, \$25,000.00 (Evans Share: \$25,000.00); Fall 2017. (Unrestricted Gift to J. Evans)
4. “SI2-SSE: Software Elements to Enable Immersive Simulation,” National Science Foundation, \$499,997.00 (Evans Share: \$166,665.50); 09/01/2017 – 08/31/2021. (PI: K. Jansen, Co-PIs: A. Doostan, J. Evans, K. Maute)
3. “A Data-Centric Approach to Turbulence Simulation,” National Science Foundation, \$549,990.00 (Evans Share: \$274,995.00); 09/01/2017 – 08/31/2020. (PI: K. Jansen, Co-PIs: J. Evans, P. Spalart)
2. “Adaptive Multi-Resolution Level-Set Topology Optimization Framework,” Defense Advanced Research Projects Agency, \$2,466,365.00 (Evans Share: \$493,273.00); 01/01/2017 – 05/31/2021. (PI: K. Maute, Co-PIs: A. Doostan, J. Evans)
1. “An Integrated Isogeometric Approach to the Engineering Design and Optimization of Aircraft Structures,” Air Force Office of Scientific Research, \$187,126.00 (Evans Share: \$187,126.00); 06/15/2014 – 06/14/2017. (PI: J. Evans, Subcontract from Brigham Young University)

SUPERCOMPUTING
GRANTS RECEIVED

7. “Online Machine Learning for Large Scale Turbulent Simulations,” Program: Innovative and Novel Computational Impact on Theory and Experiment, Funding Agency: Department of Energy, CPU-Hours Granted: 375,000 Aurora node-hours; 01/2024-12/2024 (PI: K. Jansen, Co-PIs: S. Becker, J. Brown, A. Doostan, J.A. Evans)
6. “Online Machine Learning for Large Scale Turbulent Simulations,” Program: Innovative and Novel Computational Impact on Theory and Experiment, Funding Agency: Department of Energy, CPU-Hours Granted: 110.72 Million; 01/2022-12/2022 (PI: K. Jansen, Co-PIs: S. Becker, J. Brown, A. Doostan, J.A. Evans, S. Partee)
5. “Adaptive Detached Eddy Simulation of a Vertical Tail/Rudder Assembly with Active Flow Control,” Program: Innovative and Novel Computational Impact on Theory and Experiment, Funding Agency: Department of Energy, CPU-Hours Granted: 64 Million; 01/2021-12/2021 (PI: K. Jansen, Co-PIs: M. Amitay, J. Brown, C. Carothers, J.A. Evans, J.A. Farnsworth, M. Rasquin, O. Sahni, M.S. Shephard, C. Smith, P. Spalart, E. Whalen)
4. “Data Analytics and Machine Learning for Exascale Computational Fluid Dynamics,” Program: Aurora Early Science Project, Funding Agency: Department of Energy, Personnel Support: One Post-Doctoral Researcher, CPU-Hours Granted: 1.5 Billion; 12/2018-12/2023 (PI: K. Jansen, Co-PIs: R. Balakrishnan, S. Becker, J. Brown, A. Doostan, J. Evans, J. Farnsworth, M. Shephard C. Smith, P. Spalart)
3. “Adaptive Detached Eddy Simulation of a Vertical Tail/Rudder Assembly with Active Flow Control,” Program: Innovative and Novel Computational Impact on Theory and Experiment, Funding Agency: Department of Energy, CPU-Hours Granted: 90 Million; 01/2017-12/2017 (PI: K. Jansen, Co-PIs: J. Brown, J. Evans, M. Rasquin, O. Sahni, M.S. Shephard)
2. “Extreme Scale Unstructured Adaptive Computational Fluid Dynamics,” Program: Aurora Early Science Project, Funding Agency: Department of Energy, Personnel Support: One Post-Doctoral Researcher, CPU-Hours Granted: 600 Million; 12/2016-12/2023 (PI: K. Jansen, Co-PIs: M. Amitay, I. Bolotnov, J. Brown, C. Carothers, J. Evans, J. Farnsworth, O. Sahni, C. Smith, P. Saalart, M. Rasquin, E. Whalen)

1. “Extreme Scale Unstructured Adaptive Computational Fluid Dynamics: From Multiphase Flow to Aerodynamic Flow Control,” Program: Tier 2 Early Science Project, Funding Agency: Department of Energy; 08/2016-12/2017 (PI: K. Jansen, Co-PIs: K. Jansen, Co-PIs: I. Bolotnov, J. Brown, C. Carothers, J. Evans, C. Smith, M. Rasquin)

TEACHING
GRANTS RECEIVED

1. “Graduate Assistance in Areas of National Need,” Department of Education, \$1,189,470 (Evans Share: \$99,122.50); 10/01/2018 – 09/30/2021 (PI: P. Axelrad, Co-PIs: Several Including J. Evans)

TEACHING
EXPERIENCE

University of Colorado Boulder, Boulder, Colorado, USA
Ann and H.J. Smead Department of Aerospace Engineering Sciences

- Spring 2025: Introduction to Finite Element Methods (ASEN 5007)
In Progress
- Spring 2024: Introduction to Finite Element Methods (ASEN 5007)
Enrollment: 24 Students, Instructor Rating: 4.8/5.0 (Average of 8 Ratings)
- Fall 2022: Aerodynamics (ASEN 3111 - Lab Only)
Enrollment: 159 Students, Instructor Rating: 4.6/5.0 (Average of 8 Ratings)
- Fall 2022: Introduction to Finite Element Methods (ASEN 5007)
Enrollment: 32 Students, Instructor Rating: 4.9/5.0 (Average of 8 Ratings)
- Spring 2022: Aerodynamics (ASEN 3111 - Lecture Only)
Enrollment: 119 Students, Instructor Rating: 4.5/5.0 (Average of 8 Ratings)
- Spring 2022: Turbulent Flows (ASEN 6037 / MCEN 7221)
Enrollment: 26 Students, Instructor Rating: 4.8/5.0 (Average of 8 Ratings)
- Fall 2021: Introduction to Finite Element Methods (ASEN 5007)
Enrollment: 33 Students, Instructor Rating: 4.7/5.0 (Average of 8 Ratings)
- Spring 2021: Aerodynamics (ASEN 3111 - Lecture Only)
Enrollment: 104 Students, Instructor Rating: 4.8/5.0 (Average of 8 Ratings)
- Fall 2020: Aerodynamics (ASEN 3111 - Lab Only)
Enrollment: 122 Students, Instructor Rating: 4.7/5.0 (Average of 8 Ratings)
- Fall 2020: Introduction to Finite Element Methods (ASEN 5007)
Enrollment: 39 Students, Instructor Rating: 4.9/5.0 (Average of 8 Ratings)
- Spring 2020: Isogeometric Methods (ASEN 6519)
Enrollment: 5 Students, No Ratings - Covid-19 Pandemic
- Spring 2020: Turbulent Flows (ASEN 6037 / MCEN 7221)
Enrollment: 23 Students, No Ratings - Covid-19 Pandemic
- Fall 2019: Aerodynamics (ASEN 3111 - Lecture Only)
Enrollment: 125 Students, Instructor Rating: 5.4/6.0
- Fall 2018: Mathematical Foundations of FEA (ASEN 6519)
Enrollment: 12 Students, Instructor Rating: 6.0/6.0
- Fall 2018: Fluid Mechanics (ASEN 5051)
Enrollment: 38 Students, Instructor Rating: 6.0/6.0
- Spring 2018: Turbulent Flows (ASEN 5037 / MCEN 7221)
Enrollment: 19 Students, Instructor Rating: 5.8/6.0
- Fall 2017: Aerodynamics (ASEN 3111 - Lecture and Lab)
Enrollment: 146 Students, Instructor Rating: 6.0/6.0
- Spring 2017: Aerospace Software (ASEN 4057)
Enrollment: 45 Students, Instructor Rating: 6.0/6.0

- Fall 2016: Aerodynamics (ASEN 3111 - Lecture and Lab)
Enrollment: 138 Students, Instructor Rating: 5.8/6.0
- Spring 2016: Turbulent Flows (ASEN 5037 / MCEN 7221)
Enrollment: 10 Students, Instructor Rating: 5.7/6.0
- Spring 2016: Aerospace Software (ASEN 4519)
Enrollment: 32 Students, Instructor Rating: 5.9/6.0
- Fall 2015: Aerodynamics (ASEN 3111 - Lecture and Lab)
Enrollment: 94 Students, Instructor Rating: 5.7/6.0
- Spring 2015: Aerospace Software (ASEN 4519)
Enrollment: 18 Students, Instructor Rating: 5.4/6.0
- Fall 2014: Stabilized and Multiscale Methods in CFD (ASEN 6009)
Enrollment: 8 Students, Instructor Rating: 6.0/6.0
- Fall 2014: Isogeometric Methods (ASEN 6519)
Enrollment: 12 Students, Instructor Rating: 6.0/6.0
- Spring 2014: Turbulent Flows (ASEN 6037 / MCEN 7221)
Enrollment: 10 Students, Instructor Rating: 5.8/6.0
- Fall 2013: Fluid Mechanics (ASEN 5051 / MCEN 5021)
Enrollment: 63 Students, Instructor Rating: 4.5/6.0

Delft University of Technology, Delft, The Netherlands
Department of Applied Mathematics

- May 2016: Intensive Course on Isogeometric Analysis

The University of Texas at Austin, Austin, Texas USA
Department of Aerospace Engineering and Engineering Mechanics

- Spring 2013: Stabilized and Multiscale Methods in CFD
- Fall 2012: Introduction to Computer Programming

POSTDOCTORAL
ADVISEES

Lise Noel, Research Associate, December 2018 to December 2020
Project: *Adaptive Level Set Topology Optimization*
Primary Advisor: Professor Kurt Maute
Next Position: Assistant Professor, Delft University of Technology

Christian Messe, Research Associate, February 2018 to December 2018
Project: *Adaptive Level Set Topology Optimization*
Primary Advisor: Professor Kurt Maute
Next Position: Research Engineer, German Aerospace Center

Tobias Gleim, Research Associate, January 2017 to April 2018
Project: *Adaptive Level Set Topology Optimization*
Primary Advisor: Professor Kurt Maute
Next Position: Research Scientist, University of Kassel

Craig Michoski, Research Associate, November 2014 to August 2015
Project: *Blended Isogeometric Discontinuous Galerkin Methodologies*
Next Position: Research Scientist, The University of Texas at Austin

PH.D. ADVISEES

Sarah Kinney, Aerospace Engineering Sciences, Expected Graduation Date: 08/28
Thesis: *To Be Determined*
Primary Advisor: Professor Iain Boyd

Samantha Friess, Aerospace Engineering Sciences, Expected Graduation Date: 08/25
Thesis: *To Be Determined*

Jeffrey Hadley, Aerospace Engineering Sciences, Expected Graduation Date: 05/25
Thesis: *To Be Determined*
Primary Advisor: Professor Kenneth Jansen

Adam Christopherson, Aerospace Engineering Sciences, Expected Graduation Date: 12/24
Thesis: *Locking-Free Isogeometric Discretizations for Nearly Incompressible Elasticity*
Primary Advisor: Professor Kurt Maute

James Wright, Aerospace Engineering Sciences, Expected Graduation Date: 12/24
Dissertation: *Improving Performance and Efficiency of Scale-Resolving Simulation Using High-Order Continuous-Galerkin Finite Elements*
Primary Advisor: Professor Kenneth Jansen

Nils Wunsch, Aerospace Engineering Sciences, Expected Graduation Date: 12/24
Thesis: *Toward an Accessible and Efficient Immersometric Framework for Multi-Material Problems Utilizing Locally Refined Meshes*
Primary Advisor: Professor Kurt Maute

Thomas Kava, Aerospace Engineering Sciences, Graduation Date: 12/23
Thesis: *High Performance Simulation of Wall-Bounded Hypersonic Flows*
Secondary Advisor: Professor Iain Boyd
Next Position: Computational Plasma Physicist, Lockheed Martin

Basu Parmar, Aerospace Engineering Sciences, Graduation Date: 12/23
Dissertation: *Data-Driven Reynolds Stress Closure for Separating Flows*
Next Position: Research Engineer, Convergent Science

Aviral Prakash, Aerospace Engineering Sciences, Graduation Date: 08/23
Dissertation: *Data-Driven Subgrid Scale Stress Closure for Separating Flows*
Secondary Advisor: Professor Kenneth Jansen
Next Position: Postdoctoral Researcher, Carnegie Mellon University

DeAnna Gilchrist, Aerospace Engineering Sciences, Graduation Date: 08/23
Dissertation: *Conservative and Free Stream Preserving Stabilized Finite Element Methods for Compressible Flow on Deforming Domains*
Next Position: Thermal Hydraulics Analyst, TerraPower

Mathias Schmidt, Aerospace Engineering Sciences, Graduation Date: 05/22
Thesis: *An Adaptive Isogeometric Approach to Immersed Finite Element Analysis with Application to Level-Set Topology Optimization*
Primary Advisor: Professor Kurt Maute
Next Position: Postdoctoral Researcher, Lawrence Livermore National Laboratory

David Gunderman, Applied Mathematics, Graduation Date: 05/21
Dissertation: *High-Order Spatial Discretization and Numerical Integration Schemes for Curved Geometries*
Secondary Advisor: Bengt Fornberg
Next Position: Lillian Gilbreth Postdoctoral Fellow, Purdue University

Corey Wetterer-Nelson, Mechanical Engineering, Graduation Date: 05/21
Dissertation: *Interactive Geometric Domain Iteration of Massively Parallel CFD Simulations*
Next Position: Research and Development Engineer, Kitware, Inc.

Eric Peters, Aerospace Engineering Sciences, Graduation Date: 08/19
Dissertation: *Advanced Discretizations and Data-Driven Modeling for Turbulent Flows*
Next Position: Systems Engineer, Ball Aerospace

Joseph Benzaken, Applied Mathematics, Graduation Date: 08/18
Dissertation: *Propagation and Control of Geometric Variation in Engineering Structural Design and Analysis*
Next Position: Research Scientist, Walt Disney Animation Studios

Luke Engvall, Mechanical Engineering, Graduation Date: 05/18
Dissertation: *Geometrically Exact and Analysis Suitable Mesh Generation using Rational Bernstein-Bézier Elements*
Next Position: Software Engineer, Coreform LLC

Christopher Coley, Aerospace Engineering Sciences, Graduation Date: 08/17
Dissertation: *Residual-Based Large Eddy Simulation of Turbulent Flows using Divergence-Conforming Discretizations*
Next Position: Aeronautical Engineer, United States Air Force

M.S. ADVISEES

Ryan Caputo, Aerospace Engineering Sciences, Expected Graduation Date: 05/25
Thesis: *To Be Determined*

Nathan Lin, Aerospace Engineering Sciences, Graduation Date: 08/24
Thesis: *Data-Driven Construction of Slope Limiters for Hypersonic Flow Computations*

Sumedh Soman, Aerospace Engineering Sciences, Graduation Date: 05/24
Thesis: *Volume Reconstruction from Sparse Cross-Sectional Measurements*
Next Position: Ph.D. Student, University of Colorado Boulder

Aviral Prakash, Applied Mathematics, Graduation Date: 05/23
Thesis: *Data-Driven Isogeometric Design Space Exploration*
Next Position: Ph.D. Student, University of Colorado Boulder

Andrew Komitor, Aerospace Engineering Sciences, Graduation Date: 05/23
Thesis: *Comparing Finite Volume and Discontinuous Galerkin Methods for Magneto-hydrodynamic Flows*
Next Position: Rocket Engine System Performance and Trades Analyst, Blue Origin

Guoxiang Tong, Mechanical Engineering, Graduation Date: 05/20
Thesis: *Skeleton-Stabilized Divergence-Conforming B-spline Discretizations for Viscous Incompressible Fluid Flow*
Next Position: Ph.D. Student, University of Notre Dame

Daniel Lee, Aerospace Engineering Sciences, Graduation Date: 05/20
Thesis: *Physics-Informed Statistical Tolerance Allocation*
Next Position: Mechanical Engineer, Sandia National Laboratories

Arvind Dudi Raghunath, Aerospace Engineering Sciences, Graduation Date: 08/19
Thesis: *Fast System Formation and Assembly for Isogeometric Analysis*
Next Position: Mechanical Design Engineer, Honeywell Aerospace

Ansel Rothstein-Dowden, Aerospace Engineering Sciences, Graduation Date: 05/18
Thesis: *Isogeometric Analysis of Subsonic Aerodynamic Flows with Application to Shape Optimization*
Next Position: Software Systems Engineer, NASA Jet Propulsion Laboratory

UNDERGRADUATE
RESEARCH
ADVISEES

Ryan Caputo, Aerospace Engineering Sciences, June 2023 to April 2024
Project: *Interpolation-Based Isogeometric Finite Element Analysis*
Next Position: M.S. Student, University of Colorado Boulder

Derrick Choi, Aerospace Engineering Sciences, September 2021 to April 2022
Project: *Data-Driven LES Modeling for Low-Speed Turbulent Flows*
Next Position: M.S. Student, University of Colorado Boulder

Andrew Komitor, Aerospace Engineering Sciences, September 2021 to April 2022
Project: *Data-Driven Turbulence Closure for Hypersonic Flows*
Next Position: M.S. Student, University of Colorado Boulder

Grant Norman, Aerospace Engineering Sciences, September 2020 to April 2021
Project: *Data-Driven Large Eddy Simulation of Turbulent Flows*
Next Position: Ph.D. Student, University of Colorado Boulder

Emily Jordan, Mechanical Engineering, November 2019 to April 2020
Project: *Surrogate Modeling with Isogeometric Deep Neural Networks*
Next Position: Ph.D. Student, University of Edinburgh

Lucas Calvert, Aerospace Engineering Sciences, May 2018 to April 2019
Project: *An Interactive Graphical User Interface for Design Space Exploration*
Next Position: M.S. Student, University of Colorado Boulder

Thad Gleason, Aerospace Engineering Sciences, May 2018 to April 2019
Project: *Hybridized Discontinuous Galerkin Methods for Magneto-hydrodynamics*
Next Position: Aeronautical Engineer, United States Navy

Nicholas Moore, Aerospace Engineering Sciences, May 2017 to April 2018
Project: *Geometrically Exact Mesh Generation for Finite Element Analysis*
Next Position: Avionics Software Engineer, Ball Aerospace

Ryan Aronson, Aerospace Engineering Sciences, May 2017 to April 2018
Project: *Developing Improved Turbulence Models for Complex Flow Problems*
Next Position: Ph.D. Student, Stanford University

Matthew Hurst, Aerospace Engineering Sciences, May 2016 to April 2017
Project: *Multi-Fidelity Modeling for Turbulent Incompressible Flows*
Primary Advisor: Professor Alireza Doostan
Next Position: Marshall Scholar, UCL/Cambridge University

Ansel Rothstein-Dowden, Aerospace Engineering Sciences, May 2016 to April 2017
Project: *Optimal Design of Airfoils for Aerodynamic Performance*
Next Position: M.S. Student, University of Colorado Boulder

Bryan Doyle, Applied Mathematics, May 2015 to August 2015
Project: *An Interactive Software Platform for Curvilinear Mesh Generation*
Next Position: Ph.D. Student, Rice University

VISITING STUDENT
ADVISEES

Maria Roberta Belardo, April 2024 to Present
Ph.D. Student, Mathematics, Università degli Studi di Napoli Federico II

Project: *Isogeometric Collocation Methods for Viscous Incompressible Fluid Flow*

Mario Gayete, February 2021 to July 2021

M.S. Student, Aerospace Engineering, Universitat Politècnica de Catalunya

Project: *Pressure-Robust Stabilization of Divergence-Conforming B-spline Discretizations of Viscous Incompressible Fluid Flow*

Elias Barroso, September 2018 to August 2019

Ph.D. Student, Computer Science, Federal University of Ceará

Project: *Generation of Isogeometric Surface Meshes*

Frits de Prenter, November 2017 to March 2018

Ph.D. Student, Mechanical Engineering, Eindhoven University of Technology

Project: *Multigrid Methods for Immersed Finite Element Discretizations*

STUDENT AWARDS
AND PRIZES

Sarah Kinney - NDSEG Fellowship - 2024

Samantha Friess - NDSEG Fellowship - 2022

Adam Christopherson - NDSEG Fellowship - 2021

David Gunderman - Purdue Lillian Gilbreth Postdoctoral Fellowship - 2021

David Gunderman - CU Boulder GPTI Appreciation Award - 2020

Frits de Prenter - ECCOMAS PhD Award - 2020

David Gunderman - LLNL High Energy Density Physics Fellowship - 2019

Ryan Aronson - NSF Graduate Research Fellowship - 2018

Matthew Hurst - Marshall Scholarship - 2017

Matthew Hurst - Astronaut Scholarship - 2016

Luke Engvall - NSF Graduate Research Fellowship - 2014

PH.D.
COMMITTEE
MEMBERSHIPS

53. **Jennifer Miklaszewski**, Mechanical Engineering, University of Colorado
Advisor: Professor Peter Hamlington, Defense: 01/07/25

52. **Karen Stengel**, Computer Science, University of Colorado
Advisor: Professor Jed Brown, Proposal: 12/04/24

51. **Mohammad MMK**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 08/23/24

50. **João Carneiro**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Hanspeter Schaub, Proposal: 08/09/24

49. **Chayut Teeraratkul**, Mechanical Engineering, University of Colorado
Advisor: Professor Debanjan Mukherjee, Defense: 07/22/24

48. **Kevin Doherty**, Applied Mathematics, University of Colorado
Advisor: Professor Stephen Becker, Defense: 07/08/24

47. **Charles Lipscomb**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Iain Boyd, Proposal: 05/21/24

46. **Connor Morency**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kenneth Jansen, Proposal: 03/11/24

45. **Ryan Aronson**, Computational/Mathematical Engineering, Stanford University
Advisor: Professor Hamdi Tchelepi, Defense: 01/18/24

44. **Samantha Sheppard**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Proposal: 11/29/23

43. **Amin Taziny**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Iain Boyd, Proposal: 12/05/22
42. **Pawel Sawicki**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Iain Boyd, Defense: 11/03/22
41. **Angran Li**, Mechanical Engineering, Carnegie Mellon University
Advisor: Professor Jessica Zhang, Defense: 07/20/22
40. **Michael Meehan**, Mechanical Engineering, University of Colorado
Advisor: Professor Peter Hamlington, Defense: 05/04/22
39. **Joseph Pointer**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Brian Argrow, Defense: 03/02/22
38. **Carmen Ursachi**, Aero/Astro, Massachusetts Institute of Technology
Advisor: Professor David Darmofal, Proposal: 02/15/22
37. **Riccardo Puppi**, Mathematics, École Polytechnique Fédérale de Lausanne
Advisor: Professor Annalisa Buffa, Defense: 01/18/22
36. **Samuel Whitman**, Mechanical Engineering, University of Colorado
Advisor: Professor Peter Hamlington, Defense: 01/07/22
35. **Keenan Doble**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 12/17/21
34. **Joseph Straccia**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 5/28/21
33. **Felix Newberry**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Alireza Doostan, Defense: 04/02/21
32. **Riccardo Balin**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Ken Jansen, Defense: 11/12/20
31. **Ryan Darragh**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Peter Hamlington, Defense: 08/20/20
30. **Ryan Skinner**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kenneth Jansen, Defense: 07/13/20
29. **Jorge Barrera Cruz**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 06/29/20
28. **Arash Mehraban**, Computer Science, University of Colorado
Advisor: Professor Henry Tufo, Defense: 05/29/20
27. **Alberto Roper Pol**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Axel Brandenburg, Defense: 05/08/20
26. **Paul Diaz**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Alireza Doostan, Defense: 02/25/20
25. **Steven Isaacs**, Mechanical Engineering, University of Colorado
Advisor: Professor Peter Hamlington, Defense: 01/10/20
24. **Zachary Grey**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Paul Constantine, Defense: 10/4/19
23. **Felix Scholz**, Mathematics, Johannes Kepler University Linz
Advisor: Bert Jüttler, Defense: 07/23/19

22. **Katharina Birner**, Mathematics, Johannes Kepler University Linz
Advisor: Bert Jüttler, Defense: 07/23/19
21. **Frits de Prenter**, Mechanical Engineering, Eindhoven University of Technology
Advisor: Harald van Brummelen, Defense: 06/27/19
20. **Benjamin Bercovici**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Jay McMahon, Defense: 04/15/19
19. **Markus Geiss**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 12/14/18
18. **Toshiki Nagai**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 06/21/18
17. **Cody Allard**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Hanspeter Schaub, Defense: 06/19/18
16. **Ethan Culler**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 05/08/18
15. **Scott Wieland**, Mechanical Engineering, University of Colorado
Advisor: Professor Peter Hamlington, Defense: 12/06/17
14. **Xiaodong Wei**, Mechanical Engineering, Carnegie Mellon University
Advisor: Professor Jessica Zhang, Defense: 11/01/17
13. **Ashesh Sharma**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 10/27/17
12. **Romik Khajehtourian**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Mahmoud Hussein, Defense: 05/23/17
11. **Dimitri Krattiger**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Mahmoud Hussein, Defense: 05/09/17
10. **Alan Hsieh**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Sedat Biringen, Defense: 04/12/17
9. **Farhad Shahabi**, Civil Engineering, University of Colorado
Advisor: Professor Richard Regueiro, Defense: 11/14/16
8. **Matthew Lawry**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 08/16/16
7. **Kangkang Hu**, Mechanical Engineering, Carnegie Mellon University
Advisor: Professor Jessica Zhang, Defense: 07/05/16
6. **Eric Brown-Dymkoski**, Mechanical Engineering, University of Colorado
Advisor: Professor Oleg Vasilyev, Defense: 04/05/16
5. **Meredith Purser**, Mechanical Engineering, University of Colorado
Advisor: Professor Kenneth Jansen, Defense: 04/04/16
4. **Nurlybek Kasimov**, Mechanical Engineering, University of Colorado
Advisor: Professor Oleg Vasilyev, Defense: 01/08/16
3. **Peter Coffin**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 08/18/15
2. **Nicholas Jenkins**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 05/06/15

M.S. COMMITTEE
MEMBERSHIPS

1. **James Westfall**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 08/14/13
20. **Dhyey Bhavsar**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 01/10/25
19. **Daniel Eichner**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 04/11/24
18. **Erin McMurchie**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Robert Marshall, Defense: 11/16/22
17. **Aleix Lopez Garulo**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 12/11/20
16. **Caleb Grady**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 11/09/20
15. **Duncan McGough**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Peter Hamlington, Defense: 04/30/20
14. **Hunter Mellema**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Jay McMahan, Defense: 04/14/20
13. **Hunter Ringenberg**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 04/10/20
12. **Matt Knickerbocker**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 04/09/20
11. **Kevin Bieri**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kenneth Jansen, Defense: 11/15/19
10. **Adam Binswanger**, Applied Mathematics, University of Colorado
Advisor: Professor Mark Hoefer, Defense: 07/11/19
9. **Nathanial O'Neill**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kurt Maute, Defense: 04/17/19
8. **Torfinn Jonsrud**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Jeffrey Thayer, Defense: 04/12/19
7. **Lucas Droste**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 04/08/19
6. **Daniel Sinner**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 11/14/18
5. **Daniel Bateman**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 11/14/17
4. **Nishant Agarwal**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor John Farnsworth, Defense: 04/12/17
3. **Navid Shervani-Tabar**, Mechanical Engineering, University of Colorado
Advisor: Professor Oleg Vasilyev, Defense: 12/09/15
2. **David Pope**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Kenneth Jansen, Defense: 07/17/15
1. **Alan Hsieh**, Aerospace Engineering Sciences, University of Colorado
Advisor: Professor Sedat Biringen, Defense: 04/11/14s

CONFERENCES,
SYMPOSIA, AND
WORKSHOPS
ORGANIZED

Program Committee Member, Shape Modeling International 2025 (Hangzhou, China), October 29 - November 2, 2025.

Symposia Organizer, *Design Space Exploration, Optimization and Uncertainty Quantification* within the 2025 International Conference on Isogeometric Analysis (Eindhoven, The Netherlands), September 14-17, 2025.

Symposia Organizer, *Computational Fluid Dynamics (CFD) and Fluid-Structure Interaction (FSI): Method Development and Applications*, 18th United States National Congress on Computational Mechanics (Chicago, Illinois), July 20-24, 2025.

Symposia Organizer, *Immersed-Boundary Variational Methods: Theory, Data Structures, and Applications*, 18th United States National Congress on Computational Mechanics (Chicago, Illinois), July 20-24, 2025.

Scientific Committee Member, 18th United States National Congress on Computational Mechanics (Chicago, Illinois), July 20-24, 2025.

Symposia Organizer, *IGA for Optimization Problems* within the 2024 USACM Thematic Conference on Isogeometric Analysis (Saint Augustine, Florida), October 27-30, 2024.

Steering Committee Member, 2024 USACM Thematic Conference on Isogeometric Analysis (Saint Augustine, Florida), October 27-30, 2024.

Symposia Organizer, *Immersed-Boundary Variational Methods: Theory, Data Structures, and Applications* within the 16th World Congress on Computational Mechanics (Vancouver, Canada), July 21-26, 2024.

Program Committee Member, Geometric Modeling and Processing 2024 (Qingdao, China), July 5-7, 2024.

Workshop Organizer, *Numerical Analysis of Multiphysics Problems* within the Institute for Computational and Experimental Research in Mathematics (ICERM) semester program *Numerical PDEs: Analysis, Algorithms, and Data Challenges* (Providence, Rhode Island), February 12-16, 2024.

Conference Co-Chair, Computational Fluid-Structure Interaction: Frontiers in Methods and Applications (Austin, Texas), October 22-25, 2023.

Symposia Organizer, *Efficient Methods for Isogeometric Analysis* within the 10th International Congress on Industrial and Applied Mathematics (Tokyo, Japan), August 20-25, 2023.

Symposia Organizer, *Fluid-Structure Interaction in Interface and Moving Boundary Problems* within the 17th United States National Congress on Computational Mechanics (Albuquerque, New Mexico), July 23-27, 2023.

Scientific Committee Member, 17th United States National Congress on Computational Mechanics (Albuquerque, New Mexico), July 23-27, 2023.

Program Committee Member, Geometric Modeling and Processing 2023 (Genova, Italy), July 6-7, 2023.

Symposia Organizer, *IGA for Optimization Problems* within the 2023 International Conference on Isogeometric Analysis (Lyon, France), June 18-21, 2023.

Scientific Committee Member, 2023 International Conference on Isogeometric Analysis (Lyon, France), June 18-21, 2023.

Scientific Committee Member, 10th International Conference on Computational Methods for Coupled Problems in Science and Engineering (Chania, Crete, Greece), June 5-7, 2023.

Symposia Organizer, *Advances in Immersed/Embedded/Shifted/Unfitted methods for Computational Fluid Dynamics (CFD) and Fluid-Structure Interaction (FSI)* within the 22nd Computational Fluids Conference (Cannes, France), April 25-28, 2023.

Scientific Committee Member, 22nd Computational Fluids Conference (Cannes, France), April 25-28, 2023.

Conference Co-Chair, 2022 USACM Thematic Conference on Isogeometric Analysis (Banff, Canada), November 2-6, 2022.

Program Committee Member, Eurographics Symposium on Geometry Processing 2022 (Prague, Czech Republic), July 4-6, 2022. *Conference Held Virtually Due to COVID-19 Pandemic.*

Program Committee Member, Geometric Modeling and Processing 2022 (Okinawa, Japan), May 11-13, 2022. *Conference Held Virtually Due to COVID-19 Pandemic.*

Symposia Organizer, *Mathematics of IGA* within the 2021 International Conference on Isogeometric Analysis (Lyon, France), September 26-29, 2021. *Conference Held Virtually Due to COVID-19 Pandemic.*

Scientific Committee Member, 2021 International Conference on Isogeometric Analysis (Lyon, France), September 26-29, 2021. *Conference Held Virtually Due to COVID-19 Pandemic.*

Symposia Organizer, *Computational Fluid Dynamics (CFD) and Fluid-Structure Interaction (FSI): Algorithms and Applications* within the 16th United States National Congress on Computational Mechanics (Chicago, Illinois), July 25-29, 2021. *Conference Held Virtually Due to COVID-19 Pandemic.*

Technical Program Committee Member, 16th United States National Congress on Computational Mechanics (Chicago, Illinois), July 25-29, 2021. *Conference Held Virtually Due to COVID-19 Pandemic.*

Program Committee Member, Eurographics Symposium on Geometry Processing 2021 (Toronto, Canada), July 12-14, 2021. *Conference Held Virtually Due to COVID-19 Pandemic.*

Scientific Committee Member, 9th International Conference on Computational Methods for Coupled Problems in Science and Engineering (Chia Laguna, Italy), June 16-21, 2021. *Conference Held Virtually Due to COVID-19 Pandemic.*

Local Organizing Committee Member, 14th World Congress of Structural and Multidisciplinary Optimization (Boulder, Colorado), June 13-18, 2021. *Conference To*

Be Held Virtually Due to COVID-19 Pandemic.

Program Committee Member, Geometric Modeling and Processing 2021 (Pilsen, Czech Republic), May 10-13, 2021. *Conference Held Virtually Due to COVID-19 Pandemic.*

Scientific Committee Member, 14th World Congress on Computational Mechanics (Virtual Event), January 11-15, 2021.

Program Committee Member, Geometric Modeling and Processing 2020 (Okinawa, Japan), September 23-25, 2020. *Conference Held Virtually Due to COVID-19 Pandemic.*

Conference Co-Chair, 2020 USACM Thematic Conference on Isogeometric Analysis (Banff, Canada), October 18-21, 2020. *Conference Canceled Due to COVID-19 Pandemic.*

Primary Organizer, Virtual Symposium on Isogeometric Analysis (Virtual Event), August 11-12, 2020.

Program Committee Member, Eurographics Symposium on Geometry Processing 2020 (Utrecht, The Netherlands), July 6-8, 2020. *Conference Held Virtually Due to COVID-19 Pandemic.*

Scientific Committee Member, 2019 International Conference on Isogeometric Analysis (Munich, Germany), September 18-20, 2019.

Symposia Organizer, *Variational Stabilization, Structure- and Positivity-Preserving Techniques for Complex Flows* within the 15th United States National Congress on Computational Mechanics (Austin, Texas), July 28 - August 1, 2019.

Program Committee Member, Eurographics Symposium on Geometry Processing 2019 (Milan, Italy), July 8-10, 2019.

Program Committee Member, Geometric Modeling and Processing 2019 (Vancouver, Canada), June 19-21, 2019.

Scientific Committee Member, 8th International Conference on Computational Methods for Coupled Problems in Science and Engineering (Sitges, Spain), June 3-5, 2019.

Symposia Organizer, *Variational Stabilization, Structure- and Positivity-Preserving Techniques for Complex Flows* within the 20th International Conference on Finite Elements in Flow Problems (Chicago, Illinois), March 29 - April 4, 2019.

Workshop Organizer, Workshop on Interface Modeling and Formulations, University of Colorado Boulder (Boulder, CO), March 15, 2019.

Workshop Organizer, Workshop on Isogeometric Splines: Theory and Applications, Banff International Research Station (Banff, Canada), February 24 to March 1, 2019.

Topic Organizer, *Multiscale Modeling for CFD and FSI* within the 2018 International Mechanical Engineering Congress and Exposition (Pittsburgh, Pennsylvania), November 9-15, 2018.

Symposia Organizer, *Fluids and Fluid-Structure Interaction* within the 2018 USACM Thematic Conference on Isogeometric Analysis (Austin, Texas), October 10-12, 2018.

Scientific Committee Member, 2018 USACM Thematic Conference on Isogeometric Analysis (Austin, Texas), October 10-12, 2018.

Symposia Organizer, *Immersed Methods for CFD and Fluid-Structure Interaction* within the 13th World Congress on Computational Mechanics (New York City, New York), July 22-27, 2018.

Scientific Committee Member, Isogeometric Analysis and Applications 2018 (Delft, The Netherlands), April 23-27, 2018.

Program Co-Chair, Geometric Modeling and Processing 2018 (Aachen, Germany), April 9-11, 2018.

Local Organizing Committee Member, American Physical Society Division of Fluid Dynamics 70th Annual Meeting (Denver, Colorado), November 19-21, 2017.

Scientific Committee Member, 2017 International Conference on Isogeometric Analysis (Pavia, Italy), September 11-13, 2017.

Symposia Organizer, *Mathematical Aspects of Splines and Isogeometric Methods* within the 2017 International Conference on Isogeometric Analysis (Pavia, Italy), September 11-13, 2017.

Symposia Organizer, *Isogeometric Methods for Complex and Multi-physics Systems* within the 14th United States National Congress on Computational Mechanics (Montreal, Canada), July 17-20, 2017.

Symposia Organizer, *Isogeometric Design and Analysis* within the 2017 Society for Industrial and Applied Mathematics Conference on Industrial and Applied Geometry (Pittsburgh, Pennsylvania), July 10-12, 2017.

Symposia Organizer, *Isogeometric Methods for Coupled Problems on Complex Geometries* within the 7th International Conference on Computational Methods for Coupled Problems in Science and Engineering (Rhodes Island, Greece), June 12-14, 2017.

Symposia Organizer, *Stabilized, Multiscale, and Isogeometric Methods in CFD* within the 19th International Conference on Finite Elements in Flow Problems (Rome, Italy), April 5-7, 2017.

Scientific Committee Member, 2016 USACM Conference on Isogeometric Analysis and Meshfree Methods (San Diego, California), October 10-12, 2016.

Symposia Organizer, *Mathematical Aspects of IGA and Meshfree Methods* within the 2016 USACM Conference on Isogeometric Analysis and Meshfree Methods (San Diego, California), October 10-12, 2016.

Symposia Organizer, *IGA and Meshfree Methods for Fluids, Turbulence, and Transport Phenomena* within the 2016 USACM Conference on Isogeometric Analysis and Meshfree Methods (San Diego, California), October 10-12, 2016.

Symposia Organizer, *Mathematical Advances in Isogeometric Analysis* within the 2016 European Congress on Computational Methods in Applied Sciences and Engineering (Crete Island, Greece), June 5-10, 2016.

Symposia Organizer, *Isogeometric Methods for Complex and Multi-physics Systems* within the 13th United States National Congress on Computational Mechanics (San Diego, California), July 26-30, 2015.

Symposia Organizer, *Stabilized, Multiscale, and Isogeometric Methods in Computational Fluid Dynamics* within the 18th International Conference on Finite Elements in Flow Problems (Taipei, Taiwan), March 16-18, 2015.

Symposia Organizer, *Structure-Preserving and Polyhedral Discretizations* within the 11th World Congress on Computational Mechanics (Barcelona, Spain), July 20-25, 2014.

Symposia Organizer, *Geometric Methods in Computational Mechanics* within the 12th United States National Congress on Computational Mechanics (Raleigh, North Carolina), July 22-25, 2013.

PROFESSIONAL
EDITORIAL
ACTIVITY

Editor, Engineering with Computers, September 2023 to Present.

Editorial Board Member, Computer Methods in Applied Mechanics and Engineering, January 2022 to Present.

Associate Editor, Engineering with Computers, June 2021 to September 2023.

PROFESSIONAL
JOURNAL REFEREE

Computer Methods in Applied Mechanics and Engineering, Journal of Computational Physics, International Journal for Numerical Methods in Engineering, Computational Mechanics, Computers and Mathematics with Applications, Engineering with Computers, Journals of Fluids and Structures, Computer-Aided Design, Journal of Mechanical Design, Structural and Multidisciplinary Optimization, IEEE Transactions on Antennas and Propagation, SIAM Journal on Scientific Computing, Numerische Mathematik, IMA Journal of Numerical Analysis, Modélisation Mathématique et Analyse Numérique, Mathematics of Computation, ESAIM: Mathematical Modelling and Numerical Analysis, Constructive Approximation, Journal of Foundation of Computational Mathematics, Calcolo, Journal of Applied Mathematics and Computing, Applied Mathematical Modeling, Applicable Analysis, Complex Variables and Elliptic Equations, SN Applied Sciences.

GRANT REVIEWER

United States Department of Energy.
United States National Science Foundation.
United States Army Research Office.
United States Corp of Engineers.
European Science Foundation College of Expert Reviewers.
European Research Council Advanced Grants.
European Research Council Starting Grants.
Dutch Research Council.
Austrian Science Fund.
Hong Kong Research Council Grants.

PROFESSIONAL
LEADERSHIP

Member-at-Large, USACM Executive Committee, 2022 to Present.
Chair, USACM Committee on Computational Fluid Dynamics, 2021 to Present.
Member, ASME AMD Committee on Fluid-Structure Interaction (CFSI), 2014 to Present.

Vice Chair, USACM Committee on Computational Fluid Dynamics, 2019 to 2021.
Member, USACM Committee on Isogeometric Analysis, 2015 to 2021.
Member, USACM Committee on Computational Fluid Dynamics, 2015 to 2019.

PROFESSIONAL AFFILIATIONS American Institute of Aeronautics and Astronautics (AIAA); American Physical Society (APS); American Society of Mechanical Engineers (ASME); Society for Industrial and Applied Mathematics (SIAM); United States Association for Computational Mechanics (USACM).

OTHER PROFESSIONAL SERVICE **Mentor**, *USACM Student Chapter*, 2022 to Present.
Mentor, *WCCM-ECCOMAS Young Investigators Career Forum* within the 14th World Congress on Computational Mechanics (Virtual Event), January 11-15, 2021.

UNIVERSITY SERVICE **University of Colorado Boulder**, Boulder, Colorado, USA
Department of Aerospace Engineering Sciences

- Member, AES Grade Appeals Committee, Spring 2024 to Present.
- Associate Chair for Undergraduate Curriculum, July 2023 to Present.
- Fluids Lead, AES Undergraduate Committee for Curriculum, Fall 2019 to Spring 2022.
- Member, AES Computing Committee, Fall 2019 to Spring 2022.
- Member, AES Instructor Search Committee, Fall 2019 to Spring 2021.
- Member, AES Strategic Vision Committees, Fall 2018 to Spring 2020.
- Member, AES Undergraduate Committee, Fall 2014 to Spring 2015, Fall 2018 to Summer 2019.
- Fluids Lead, AES Graduate Committee, Fall 2016 to Summer 2018.
- Member, AES Distinguished Lecture Selection Committee, Fall 2013 to Fall 2017.
- Member, AES Tenure-Track Search Committee, Fall 2015 to Spring 2016.

College of Engineering and Applied Science

- Member, CEAS Math Committee, Spring 2024 to Present.
- Member, CEAS Tenure-Track Search Committee, Fall 2022.
- Member, BOLD Diversity Action Committee, Spring 2022.
- Member, Engineering/Applied Math Partnership, Summer 2017.
- Member, Academic Instruction Fall Planning Team, Summer 2020.
- Mentor, GoldShirt Program, Fall 2016 to Spring 2020.
- Reviewer, Balsells Fellowship, Spring 2018.
- Interviewer, GoldShirt Program, Spring 2014, Spring 2017, and Spring 2018.
- Member, Silver Medal Award Committee, Spring 2014.

University of Colorado Boulder Campus

- Interview Panelist, Fulbright Scholarship, Fall 2024.
- Member, Undergraduate Research Opportunities Program Review Board, Spring 2022.
- Reviewer, Astronaut Scholarship, Spring 2018, Spring 2019, Spring 2020, Spring 2021, Spring 2022, and Spring 2024.
- Reviewer, Innovative Seed Grant Program, Spring 2014 and Spring 2019.