

Yongjie Jessica Zhang, Ph.D.

Professor of Mechanical Engineering
Courtesy Appointment in Biomedical Engineering
Carnegie Mellon University
Tel: (412) 268-5332 (o), Fax: (412) 268-3348
318 Scaife Hall, 5000 Forbes Avenue, Pittsburgh, PA 15213
Email: jessicaz@andrew.cmu.edu
URL: <http://www.andrew.cmu.edu/~jessicaz>

TEXTBOOK:

Yongjie Jessica Zhang. **Geometric Modeling and Mesh Generation from Scanned Images**. Chapman & Hall/CRC Mathematical and Computational Imaging Sciences Series. CRC Press, Taylor & Francis Group. 2016. ISBN10: 1482227762, ISBN13: 978-1482227765.

EDITED BOOKS:

1. **Computational Modeling of Objects Presented in Images: Fundamentals, Methods, and Applications**. 4th International Conference, CompIMAGE 2014, Pittsburgh, PA, USA, September 3-5, 2014. Lecture Notes in Computer Science, Volume 8641. Springer Publisher. Editor: Yongjie Jessica Zhang and João Manuel R. S. Tavares. ISBN: 978-3-319-09993-4 (Print), 978-3-319-09994-1 (Online).
2. **Image-Based Geometric Modeling and Mesh Generation**. Lecture Notes in Computational Vision and Biomechanics, Volume 3. Springer Publisher. Editor: Yongjie (Jessica) Zhang. ISBN-10: 9400742541, ISBN-13: 978-9400742543. 2013.
3. **Mesh Processing in Medical Image Analysis**. MICCAI 2012 International Workshop, MeshMed 2012, Nice, France, October 2012, Proceedings. Lecture Notes in Computer Science, Volume 7599. Springer Publisher. Editors: Joshua A. Levine, Rasmus R. Paulsen, Yongjie Zhang. ISBN: 978-3-642-33462-7.

BOOK CHAPTERS:

1. Yicong Lai, Lei Liu, Yongjie Jessica Zhang, Joshua Chen, Eugene Fang, Jim Lua. **Rhino 3D to Abaqus: A T-spline Based Isogeometric Analysis Software Platform**. *The edited volume of the Modeling and Simulation in Science, Engineering and Technology Book Series devoted to AFSI 2014 - a birthday celebration conference for Tayfun Tezduyar*. Springer Publisher. Editors: Yuri Bazilevs and Kenji Takizawa. Part IV:271-281, 2016.
2. Yongjie Zhang. **Challenges and Advances in Image-Based Geometric Modeling and Mesh Generation**. *Image-Based Geometric Modeling and Mesh Generation*. Springer Publisher. Editor: Yongjie (Jessica) Zhang, 2013. (Review Article)
3. Juelin Leng, Guoliang Xu, Yongjie Zhang, Jin Qian. **Quality Improvement of Segmented Hexahedral Meshes using Geometric Flows**. *Image-Based Geometric Modeling and Mesh Generation*. Springer Publisher. Editor: Yongjie (Jessica) Zhang, 2013.
4. Shaolie S. Hossain, Yongjie Zhang. **Application of Isogeometric Analysis to Simulate Local Nanoparticulate Drug Delivery in Patient-Specific Coronary Arteries**. *Multiscale Simulations and Mechanics of Biological Materials: Wing Liu's 60 Anniversary Volume*. John Wiley & Sons Lt. Publisher. Editors: Shaofan Li and Dong Qian. 2012.
5. Shaolie S. Hossain, Adrian M. Kopacz, Yongjie Zhang, Sei-Young Lee, Tae-Rin Lee, Mauro Ferrari, Thomas J.R. Hughes, Wing Kam Liu, Paolo Decuzzi. **Multiscale Modeling for the Vascular Transport of Nanoparticles**. *Nano and Cell Mechanics*. Wiley Series in Micro and Nano Technologies. Editors: Gang Bao and Horacio Espinosa, 2012 (Review Article)

JOURNAL PUBLICATIONS:

1. Yue Jia, Cosmin Anitescu, Yongjie Jessica Zhang, Timon Rabczuk. **An Adaptive Isogeometric Analysis Collocation Method with A Recovery-Based Error Estimator**. *Computer Methods in Applied Mechanics and Engineering*, 345:52-74, 2019.

2. Benjamin Urick, Travis M. Sanders, Shaolie S. Hossain, Yongjie J. Zhang, Thomas J.R. Hughes. **Review of Patient-Specific Vascular Modeling: Template-Based Isogeometric Framework and the Case for CAD.** *Archives of Computational Methods in Engineering*, 2017. DOI: 10.1007/s11831-017-9246-z
3. Hugo Casquero, Yongjie Jessica Zhang, Carles Bona-Casas, Lisandro Dalcin, Hector Gomez. **Non-Body-Fitted Fluid-Structure Interaction: Divergence-Conforming B-Splines, Fully-Implicit Dynamics, and Variational Formulation.** *Journal of Computational Physics*, 374:625-653, 2018.
4. Xiaodong Wei, Yongjie Jessica Zhang, Deepesh Toshniwal, Hendrik Speleers, Xin Li, Carla Manni, John Evans, Thomas 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.
5. Yanyang Xiao, Zhonggui Chen, Juan Cao, Yongjie Jessica Zhang, Cheng Wang. **Optimal Power Diagrams via Function Approximation.** *The Special Issue of Solid and Physical Modeling in Computer-Aided Design*, 102:52-60, 2018. **Best Paper Award 1st Place**
6. Zhonggui Chen, Tieyi Zhang, Juan Cao, Yongjie Jessica Zhang, Cheng Wang. **Point Cloud Resampling Using Centroid Voronoi Tessellation Methods.** *The Special Issue of Solid and Physical Modeling in Computer-Aided Design*, 102:12-21, 2018.
7. Zhonggui Chen, Wen Chen, Jianzhi Guo, Juan Cao, Yongjie Jessica Zhang. **Orientation Field Guided Line Abstraction for 3D Printing.** *The Special Issue of Geometric Modeling and Processing in Computer Aided Geometric Design*, 62:253-262, 2018.
8. Yue Jia, Cosmin Anitescu, Yongjie Jessica Zhang, Gang Xu, Chun Li, Timon Rabczuk. **PHT-Spline-Based Enhanced Isogeometric Collocation Method.** *Journal of Computer-Aided Design & Computer Graphics (China)*, 30(4):702-706, 2018.
9. Aishwarya Pawar, Yongjie Jessica Zhang, Cosmin Anitescu, Yue Jia, Timon Rabczuk. **DTHB3D_Reg: Dynamic Truncated Hierarchical B-Spline Based 3D Nonrigid Image Registration.** *Communications in Computational Physics*, 23(3):877-898, 2018.
10. Kangkang Hu, Yongjie Jessica Zhang, Guoliang Xu. **CVT-based 3D Image Segmentation and Quality Improvement of Tetrahedral/Hexahedral Meshes Using Anisotropic Giaquinta-Hildebrandt Operator.** *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, 6(3):331-342, 2018.
11. Xiaodong Wei, Yongjie Jessica Zhang, Thomas J.R. Hughes. **Truncated Hierarchical Tricubic C^0 Spline Construction on Unstructured Hexahedral Meshes for Isogeometric Analysis Applications.** *A Special Issue of Advances in Mathematics of Finite Elements in Honor of Ivo Babuska in Computers and Mathematics with Applications*, 74(9):2203-2220, 2017.
12. Yicong Lai, Yongjie Jessica Zhang, Lei Liu, Xiaodong Wei, Eugene Fang, Jim Lua. **Integrating CAD with Abaqus: A Practical Isogeometric Analysis Software Platform for Industrial Applications.** *A Special Issue of HOFEIM 2016 in Computers and Mathematics with Applications*, 74(7):1648-1660, 2017.
13. Xiaodong Wei, Yongjie Jessica Zhang, Lei Liu, Thomas J.R. Hughes. **Truncated T-splines: Fundamentals and Methods.** *Computer Methods in Applied Mechanics and Engineering Special Issue on Isogeometric Analysis*, 316:349-372, 2017.
14. Kangkang Hu, Yongjie Jessica Zhang, Tao Liao. **Surface Segmentation for Polycube Construction Based on Generalized Centroidal Voronoi Tessellation.** *Computer Methods in Applied Mechanics and Engineering Special Issue on Isogeometric Analysis*, 316:280-296, 2017.
15. Chiu Ling Chan, Cosmin Anitescu, Yongjie Zhang, Timon Rabczuk. **Two and Three Dimensional Image Registration Based on B-spline Composition and Level Sets.** *Communications in Computational Physics*, 21(2):600-622, 2017.
16. Guillermo Lorenzo, Michael A. Scott, Kevin B. Tew, Thomas J.R. Hughes, Yongjie Jessica Zhang, Lei Liu, Guillermo Vilanova, Hector Gomez. **Tissue Scale, Personalized Modeling and Simulation of Prostate Cancer Growth.** *PNAS*, 113(48):E7663-E7671, 2016.
17. Hugo Casquero, Lei Liu, Yongjie Zhang, Alessandro Reali, Josef Kiendl, Hector Gomez. **Arbitrary-Degree T-splines for Isogeometric Analysis of Fully Nonlinear Kirchhoff-Love Shells.** *Computer-Aided Design Special Issue on Isogeometric Design and Analysis*, 82C:140-153, 2016.
18. Lei Liu, Hugo Casquero, Hector Gomez, Yongjie Jessica Zhang. **Hybrid-Degree Weighted T-splines and Their Application in Isogeometric Analysis.** *A Special Issue of AFSI 2014 in Computers and Fluids*, 141:42-53, 2016.

19. Aishwarya Pawar, Yongjie Zhang, Yue Jia, Xiaodong Wei, Timon Rabczuk, Chiu Ling Chan, Cosmin Anitescu. **Adaptive FEM-based Nonrigid Image Registration Using Truncated Hierarchical B-splines.** *A Special Issue of FEF 2015 in Computers and Mathematics with Applications*, 72:2028-2040, 2016.
20. Devin T. O'Connor, Khalil I. Elkhodary, Youssef Fouad, Michael S. Greene, Fereshteh Sabet, Jin Qian, Yongjie Zhang, Wing Kam Liu, Ivona Jasiuk. **Modeling Orthotropic Elasticity, Localized Plasticity and Fracture in Trabecular Bone.** *Computational Mechanics*, 58(3):423-439, 2016.
21. Kangkang Hu, Yongjie Jessica Zhang. **Centroidal Voronoi Tessellation Based Polycube Construction for Adaptive All-Hexahedral Mesh Generation.** *Computer Methods in Applied Mechanics and Engineering*, 305:405-421, 2016.
22. Hao-Chih Lee, Tao Liao, Yongjie Jessica Zhang, Ge Yang. **Shape Component Analysis: Structure-Preserving Dimension Reduction on Biological Shape Spaces.** *Bioinformatics*, 32(5):755-763, 2016.
23. Hugo Casquero, Lei Liu, Yongjie Zhang, Alessandro Reali, Hector Gomez. **Isogeometric Collocation Using Analysis-Suitable T-splines of Arbitrary Degree.** *Computer Methods in Applied Mechanics and Engineering*, 301:164-186, 2016.
24. Qing Pan, Guoliang Xu, Gang Xu, Yongjie Zhang. **Isogeometric Analysis Based on Extended Catmull-Clark Subdivision.** *Computers and Mathematics with Applications*, 71(1):105-119, 2016.
25. Xiaodong Wei, Yongjie Jessica Zhang, Michael A. Scott, Thomas J.R. Hughes. **Extended Truncated Hierarchical Catmull-Clark Subdivision.** *Computer Methods in Applied Mechanics and Engineering*, 299:316-336, 2016.
26. Hugo Casquero, Lei Liu, Carles Bona-Casas, Yongjie Zhang, Hector Gomez. **A Hybrid Variational-Collocation Immersed Method for Fluid-Structure Interaction Using Unstructured T-splines.** *International Journal for Numerical Methods in Engineering*, 105:855-880, 2016.
27. Yang Gao, Yongjie Jessica Zhang, Prahlad Menon. **3D Shape Comparison Using a Laplace Spectral Shape Matching Approach.** *The Special Issue of CompIMAGE'14 in Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, 4(2):86-97, 2016.
28. Kangkang Hu, Yongjie Jessica Zhang. **Image Segmentation and Adaptive Superpixel Generation Based on Harmonic Edge-Weighted Centroidal Voronoi Tessellation.** *The Special Issue of CompIMAGE'14 in Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, 4(2):46-60, 2016.
29. Tao Liao, Xinge Li, Guoliang Xu, Yongjie Jessica Zhang. **Secondary Laplace Operator and Generalized Giaquinta-Hildebrandt Operator with Applications on Surface Segmentation and Smoothing.** *A Special Issue of SIAM Conference on Geometric & Physical Modeling 2015 in Computer Aided Design*, 70:56-66, 2016. **Autodesk Best Paper Award 1st Place**
30. Xinge Li, Guoliang Xu, Yongjie Jessica Zhang. **Localized Discrete Laplace-Beltrami Operator over Triangular Mesh.** *Computer Aided Geometric Design*, 39:67-82, 2015.
31. Tao Liao, Hao-Chih Lee, Ge Yang, Yongjie Jessica Zhang. **Shape Correspondence Analysis for Biomolecules Based on Volumetric Eigenfunctions.** *A Special Issue on "Computations in Molecular Modeling and Visualization" in Molecular Based Mathematical Biology*, 3:112-127, 2015.
32. Lei Liu, Yongjie Jessica Zhang, Xiaodong Wei. **Weighted T-splines with Application in Reparameterizing Trimmed NURBS Surface.** *Computer Methods in Applied Mechanics and Engineering*, 295:108-126, 2015.
33. Qing Pan, Guoliang Xu, Gang Xu, Yongjie Zhang. **Isogeometric Analysis Based on Extended Loop's Subdivision.** *Journal of Computational Physics*, 299:731-746, 2015.
34. Tao Liao, Guoliang Xu, Yongjie Jessica Zhang. **Atom Simplification and Quality T-mesh Generation for Multi-resolution Biomolecular Surfaces.** *A Special Issue of Isogeometric Analysis and Applications 2014 in Lecture Notes in Computational Sciences and Engineering*, 107:159-184, 2015.
35. Arjun Kumar, Pratiti Mandal, Yongjie Zhang, Shawn Litster. **Image Segmentation of Nanoscale Zernike Phase Contrast X-ray CT Images.** *Journal of Applied Physics*, 117:183102, 2015.
36. Xiaodong Wei, Yongjie Jessica Zhang, Thomas J.R. Hughes, Michael A. Scott. **Truncated Hierarchical Catmull-Clark Subdivision with Local Refinement.** *Computer Methods in Applied Mechanics and Engineering*, 291:1-20, 2015.
37. Shaolie S. Hossain, Yongjie Zhang, Xiaoyi Fu, Gerd Brunner, Jaykrishna Singh, Thomas J.R. Hughes, Dipan Shah, Paolo Decuzzi. **MRI-based Computational Modeling of Blood Flow and Nanomedicine Deposition in Patients with Peripheral Arterial Disease.** *Journal of the Royal Society Interface*, 12(106):20150001, 2015.

38. Onofre Marco, Rubén Sevilla, Yongjie Zhang, Juan José Ródenas, Manuel Tur. **Exact 3D Boundary Representation in Finite Element Analysis Based on Cartesian Grids Independent of the Geometry.** *International Journal for Numerical Methods in Engineering*, 103(6):445-468, 2015.
39. Yue Jia, Yongjie Zhang, Timon Rabczuk. **A Novel Dynamic Multilevel Technique for Image Registration.** *Computers and Mathematics with Applications*, 69(9):909-925, 2015.
40. Cosmin Anitescu, Yue Jia, Yongjie Jessica Zhang, Timon Rabczuk. **An Isogeometric Collocation Method Using Superconvergent Points.** *Isogeometric Analysis Special Issue in Computer Methods in Applied Mechanics and Engineering*, 284:1073-1097, 2015.
41. Lei Liu, Yongjie Zhang, Yang Liu, Wenping Wang. **Feature-Preserving T-mesh Construction Using Skeleton-based Polycubes.** *A Special Issue of Solid and Physical Modeling 2014 in Computer Aided Design*, 58:162-172, 2015.
42. Tao Liao, Guoliang Xu, Yongjie Jessica Zhang. **Structure-Aligned Guidance Estimation in Surface Parameterization Using Eigenfunction-based Cross Field.** *Graphical Models*, 76(6):691-705, 2014.
43. Lei Liu, Yongjie Zhang, Thomas J.R. Hughes, Mike A. Scott, Thomas W. Sederberg. **Volumetric T-Spline Construction Using Boolean Operations.** *Engineering with Computers*, 30(4):425-439, 2014.
44. Xinghua Liang, Yongjie Zhang. **An Octree-based Dual Contouring Method for Triangular and Tetrahedral Mesh Generation with Guaranteed Angle Range.** *Engineering with Computers*, 30(2):211-222, 2014.
45. Qing Pan, Guoliang Xu, Yongjie Zhang. **A Unified Method for Hybrid Subdivision Surface Design Using Geometric Partial Differential Equations.** *A Special Issue of Solid and Physical Modeling 2013 in Computer Aided Design*, 46:110-119, 2014.
46. Peter M. Kekenus-Huskey, Tao Liao, Andrew Gillette, Johan E. Hake, Yongjie Zhang, Anushka P. Michailova, Andrew D. McCulloch, J. Andrew McCammon. **Molecular and Subcellular-Scale Modeling of Nucleotide Diffusion in the Cardiac Myofilament Lattice.** *Biophysical Journal*, 105(9):2130-2140, 2013.
47. Yue Jia, Yongjie Zhang, Gang Xu, Xiaoying Zhuang, Timon Rabczuk. **Reproducing Kernel Triangular B-spline-based FEM Solving for PDE Problems.** *Computer Methods in Applied Mechanics and Engineering*, 267:342-358, 2013.
48. Tao Liao, Yongjie Zhang, Peter M. Kekenus-Huskey, Yuhui Cheng, Anushka Michailova, Andrew D. McCulloch, Michael Holst, J. Andrew McCammon. **Multi-core CPU or GPU-accelerated Multiscale Modeling for Biomolecular Complexes.** *Molecular Based Mathematical Biology*, 1:164-179, 2013.
49. Juelin Leng, Yongjie Zhang, Guoliang Xu. **A Novel Geometric Flow Approach for Quality Improvement of Multi-Component Tetrahedral Meshes.** *Computer-Aided Design*, 45(10):1182-1197, 2013.
50. Juelin Leng, Guoliang Xu, Yongjie Zhang. **Medical Image Interpolation Based on Multi-resolution Registration.** *Computers and Mathematics with Applications*, 66(1):1-18, 2013.
51. Rui Zhang, Khee Poh Lam, Shi-Chune Yao, Yongjie Zhang. **Coupled EnergyPlus and Computational Fluid Dynamics Simulation for Natural Ventilation.** *Building and Environment*, 68:100-113, 2013.
52. Matthew J. Gonzales, Gregory Sturgeon, Adarsh Krishnamurthy, Johan Hake, Rene Jonas, Paul Stark, Wouter-Jan Rappel, Sanjiv M. Narayan, Yongjie Zhang, W. Paul Segars, Andrew D. McCulloch. **A Three-Dimensional Finite Element Model of Human Atrial Anatomy: New Methods for Cubic Hermite Meshes with Extraordinary Vertices.** *Medical Image Analysis*, 17(5):525-537, 2013.
53. Hong Zhang, Yuanfeng Jiao, Erick Johnson, Ling Zhan, Yongjie Zhang, Kenji Shimada. **Modeling Anisotropic Material Property of Cerebral Aneurysms for Fluid-Structure Interaction Simulation.** *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, 1(3):164-174, 2013.
54. Jin Qian, Yongjie Zhang, Devin Thomas O'Connor, M. Steven Greene, Wing Kam Liu. **Intersection-free Tetrahedral Meshing from Volumetric Images.** *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, 1(2):100-110, 2013.
55. Yongjie Zhang, Xinghua Liang, Guoliang Xu. **A Robust 2-Refinement Algorithm in Octree and Rhombic Dodecahedral Tree Based All-Hexahedral Mesh Generation.** *Computer Methods in Applied Mechanics and Engineering*, 256:88-100, 2013.
56. Kibaek Lee, Junjun Zhu, Judy Shum, Yongjie Zhang, Satish C. Muluk, Ankur Chandra, Mark K. Eskandari, Ender A. Finol. **Surface Curvature as a Classifier of Abdominal Aortic Aneurysms: A Comparative Analysis.** *Annals of Biomedical Engineering*, 41(3):562-576, 2013.
57. Yongjie Zhang, Wenyan Wang, Thomas J.R. Hughes. **Conformal Solid T-spline Construction from Boundary T-spline Representations.** *Computational Mechanics*, 51(6):1051-1059, 2013.

58. Shaolie S. Hossain, Yongjie Zhang, Xinghua Liang, Fazle Hussain, Mauro Ferrari, Thomas J.R. Hughes, Paolo Decuzzi. **in silico Vascular Modeling for Personalized Nanoparticle Delivery**. *Nanomedicine*, 8(3):343-357, 2013.
59. Wenyan Wang, Yongjie Zhang, Lei Liu, Thomas J.R. Hughes. **Trivariate Solid T-spline Construction from Boundary Triangulations with Arbitrary Genus Topology**. *A Special Issue of Solid and Physical Modeling 2012 in Computer Aided Design*, 45(2):351-360, 2013.
60. Yongjie Zhang, Yiming Jing, Xinghua Liang, Guoliang Xu, Lei Dong. **Dynamic Lung Modeling and Tumor Tracking Using Deformable Image Registration and Geometric Smoothing**. *Molecular & Cellular Biomechanics*, 9(3):213-226, 2012.
61. Yongjie Zhang, Jin Qian. **Resolving Topology Ambiguity for Multiple-Material Domains**. *Computer Methods in Applied Mechanics and Engineering*, 247-248:166-178, 2012.
62. Joshua Levine, Rasmus Paulsen, Yongjie Zhang. **Mesh Processing in Medical Image Analysis – a Tutorial**. *IEEE Computer Graphics & Applications Special Issue on Biomedical Applications: From Data Capture to Modeling*, 32(5):22-28, 2012.
63. Yongjie Zhang, Xinghua Liang, Jun Ma, Yiming Jing, Matthew J. Gonzales, Christopher Villongco, Adarsh Krishnamurthy, Lawrence R. Frank, Paul Stark, Sanjiv M. Narayan, Andrew McCulloch. **An Atlas-Based Geometry Pipeline for Cardiac Hermite Model Construction and Diffusion Tensor Reorientation**. *Medical Image Analysis*, 16(6):1130-1141, 2012.
64. Yongjie Zhang, Wenyan Wang, Thomas J.R. Hughes. **Solid T-Spline Construction from Boundary Representations for Genus-Zero Geometry**. *Computer Methods in Applied Mechanics and Engineering HOFEIM Special Issue*, 249-252:185-197, 2012.
65. Yongjie Zhang, Jin Qian. **Dual Contouring for Domains with Topology Ambiguity**. *Computer Methods in Applied Mechanics and Engineering*, 217-220:34-45, 2012.
66. Wenyan Wang, Yongjie Zhang, Guoliang Xu, Thomas J.R. Hughes. **Converting an Unstructured Quadrilateral/Hexahedral Mesh to a Rational T-Spline**. *Computational Mechanics*, 50(1):65-84, 2012.
67. Jin Qian, Yongjie Zhang. **Automatic Unstructured All-Hexahedral Mesh Generation from B-Reps for Non-Manifold CAD Assemblies**. *Engineering with Computers*, 28(4):345-359, 2012.
68. Xinghua Liang, Yongjie Zhang. **Matching Interior and Exterior All-Quadrilateral Meshes with Guaranteed Angle Bounds**. *Engineering with Computers*, 28(4):375-389, 2012.
69. Wenyan Wang, Yongjie Zhang, Michael A. Scott, Thomas J.R. Hughes. **Converting an Unstructured Quadrilateral Mesh to a Standard T-Spline Surface**. *Computational Mechanics*, 48(4):477-498, 2011.
70. Xinghua Liang, Yongjie Zhang. **Hexagon-based All-Quadrilateral Mesh Generation with Guaranteed Angle Bounds**. *Computer Methods in Applied Mechanics and Engineering*, 200(23-24):2005-2020, 2011.
71. Erick Johnson, Yongjie Zhang, Kenji Shimada. **Estimating an Equivalent Wall-Thickness of a Cerebral Aneurysm through Surface Parameterization and a Non-linear Spring System**. *International Journal for Numerical Methods in Biomedical Engineering*, 27(7):1054-1072, 2011.
72. Rui Zhang, Yongjie Zhang, Khee Poh Lam, David Archer. **A Prototype Mesh Generation Tool Development for CFD Simulations in Architecture Domain**. *Building and Environment*, 45(10): 2253 – 2262, 2010.
73. Xinghua Liang, Mohamed Ebeida, Yongjie Zhang. **Guaranteed-Quality All-Quadrilateral Mesh Generation with Feature Preservation**. *Computer Methods in Applied Mechanics and Engineering*, 199(29-32):2072-2083, 2010.
74. Jin Qian, Yongjie Zhang, Wenyan Wang, Alexis C. Lewis, M.A. Siddiq Qidwai, Andrew B. Geltmacher. **Quality Improvement of Non-Manifold Hexahedral Meshes for Critical Feature Determination of Microstructure Materials**. *International Journal for Numerical Methods in Engineering*, 82(11):1406-1423, 2010.
75. Yuri Bazilevs, Ming-Chen Hsu, Yongjie Zhang, Wenyan Wang, Trond Kvamsdal, S. Hentschel, Jorgen Isaksen. **Computational Vascular Fluid-Structure Interaction: Methodology and Application to Cerebral Aneurysms**. *Biomechanics and Modeling in Mechanobiology*, 9(4):481-498, 2010.
76. Yuri Bazilevs, Ming-Chen Hsu, Yongjie Zhang, Wenyan Wang, Xinghua Liang, Trond Kvamsdal, Reidar Brekken, Jorgen Isaksen. **A Fully-Coupled Fluid-Structure Interaction Simulation of Cerebral Aneurysms**. *Computational Mechanics*, 46(1):3-16, 2010.
77. Wenyan Wang, Yongjie Zhang. **Wavelets-based NURBS Simplification and Fairing**. *Computer Methods in Applied Mechanics and Engineering*, 199(5-8):290-300, 2010.

78. Yongjie Zhang, Thomas J.R. Hughes, Chandrajit L. Bajaj. **An Automatic 3D Mesh Generation Method for Domains with Multiple Materials.** *Computer Methods in Applied Mechanics and Engineering*, 199(5-8):405-415, 2010.
79. Yongjie Zhang, Wenyan Wang, Xinghua Liang, Yuri Bazilevs, Ming-Chen Hsu, Trond Kvamsdal, Reidar Brekken, Jorgen Isaksen. **High-Fidelity Tetrahedral Mesh Generation from Medical Imaging Data for Fluid-Structure Interaction Analysis of Cerebral Aneurysms.** *Computer Modeling in Engineering & Sciences*, 42(2):131-149, 2009.
80. Yuri Bazilevs, J. R. Gohean, Thomas J.R. Hughes, Robert D. Moser, Yongjie Zhang. **Patient-Specific Isogeometric Fluid-Structure Interaction Analysis of Thoracic Aortic Blood Flow due to Implantation of the Jarvik 2000 Left Ventricular Assist Device.** *Computer Methods in Applied Mechanics and Engineering special issue on Models and Methods in Computational Vascular and Cardiovascular Mechanics*, 198(45-46):3534-3550, 2009.
81. Yongjie Zhang, Chandrajit L. Bajaj, Guoliang Xu. **Surface Smoothing and Quality Improvement of Quadrilateral/Hexahedral Meshes with Geometric Flow.** *The special issue of the Journal Communications in Numerical Methods in Engineering*, 25(1):1-18, 2009. (invited paper)
82. Yongjie Zhang, Boyle C. Cheng, Changho Oh, Jessica L. Spehar, James Burgess. **Dynamic Neural Foramina Cross Section Measurement and Kinematic Analysis of Lumbar Spine Undergoing Extension.** *Computer Modeling in Engineering & Sciences*, 29(2):55-62, 2008.
83. Yuri Bazilevs, Victor M. Calo, Thomas J.R. Hughes, Yongjie Zhang. **Isogeometric Fluid-Structure Interaction: Theory, Algorithms and Computations.** *Computational Mechanics*, 43(1):3-37, 2008.
84. Y. Cheng, C. Chang, Z. Yu, Y. Zhang, M. Sun, T.S. Leyh, M. Holst, and J.A. McCammon. **Diffusional Channeling in the Sulfate Activating Complex: Combined Continuum Modeling and Coarse-Grained Brownian Dynamics Studies.** *Biophysical Journal*, 95(10):4659-67, 2008.
85. Jorgen Isaksen, Yuri Bazilevs, Trond Kvamsdal, Yongjie Zhang, Jon Harald Kaspersen, Knut Waterloo, Bertil Romner, Tor Ingebrigtsen. **Determination of Wall Tension in Cerebral Artery Aneurysms by Numerical Simulation.** *Stroke*, 39:3172-3178, 2008.
86. Yongjie Zhang, Yuri Bazilevs, Samrat Goswami, Chandrajit L. Bajaj, Thomas J.R. Hughes. **Patient-Specific Vascular NURBS Modeling for Isogeometric Analysis of Blood Flow.** *Computer Methods in Applied Mechanics and Engineering*, 196(29-30):2943-2959, 2007.
87. Mark S. Wochner, Yongjie Zhang, Yurii A. Ilinskii, Mark F. Hamilton, Evgenia A. Zabolotskaya. **Influence of Inhomogeneity and Geometry on Lung Response to Low-Frequency Underwater Sound.** *Journal of the Acoustical Society of America*, 122(5):2957, 2007.
88. Yuhui Cheng, Jason Suen, Deqiang Zhang, Stephen D. Bond, Yongjie Zhang, Yuhua Song, Nathan A. Baker, Chandrajit L. Bajaj, Michael J. Holst, J. Andrew McCammon. **Finite Element Analysis of the Time-Dependent Smoluchowski Equation for Acetylcholinesterase Reaction Rate Calculations.** *Biophysical Journal*, 92:3397-3406, 2007.
89. J. T. Oden, K. R. Diller, C. Bajaj, J. C. Browne, J. Hazle, I. Babuska, J. Bass, L. Demkowicz, A. Elliott, Y. Feng, D. Fuentes, S. Prudhomme, M. N. Rylander, R. J. Stafford, Y. Zhang. **Dynamic Data-Driven Finite Element Models for Laser Treatment of Cancer.** *Journal of Numerical Methods for Partial Differential Equations*, 23(4):904-922, 2007.
90. Yongjie Zhang, Guoliang Xu, Chandrajit L. Bajaj. **Quality Meshing of Implicit Solvation Models of Biomolecular Structures.** *The special issue of Computer Aided Geometric Design on Geometric Modeling in the Life Sciences*, 26(3):510-530, 2006.
91. Yuri Bazilevs, Victor Calo, Yongjie Zhang, Thomas J.R. Hughes. **Isogeometric Fluid-Structure Interaction Analysis with Applications to Arterial Blood Flow.** *Computational Mechanics*, 38(4-5):310-322, 2006.
92. M. Nichole Rylander, Yusheng Feng, Yongjie Zhang, Jon Bass, R. Jason Stafford, John Hazle, Kenneth R. Diller. **Optimizing Heat Shock Protein Expression Induced by Prostate Cancer Laser Therapy Through Predictive Computational Models.** *Journal of Biomedical Optics*, 11(4):41113-41128, 2006.
93. Wing Kam Liu, Yaling Liu, David Farrell, Lucy Zhang, X. Sheldon Wang, Yoshio Fukui, Neelesh Patankar, Yongjie Zhang, Chandrajit L. Bajaj, Junghoon Lee, Juhee Hong, Xinyu Chen, Huayi Hsu. **Immersed Finite Element Method and Its Applications to Biological Systems.** *Computer Methods in Applied Mechanics and Engineering*, 195(13-16):1722-1749, 2006.
94. Yongjie Zhang, Chandrajit L. Bajaj. **Adaptive and Quality Quadrilateral/Hexahedral Meshing from Volumetric Data.** *Computer Methods in Applied Mechanics and Engineering*, 195(9-12):942-960, 2006.

95. Yongjie Zhang, Chandrajit Bajaj, Bong-Soo Sohn. **3D Finite Element Meshing from Imaging Data**. *The special issue of Computer Methods in Applied Mechanics and Engineering on Unstructured Mesh Generation*, 194(48-49):5083-5106, 2005.
96. Deqiang Zhang, Jason Suen, Yongjie Zhang, Yuhua Song, Zoran Radic, Palmer Taylor, Michael J. Holst, Chandrajit L. Bajaj, Nathan A. Baker, J. Andrew McCammon. **Tetrameric Mouse Acetylcholinesterase: Continuum Diffusion Rate Calculations by Solving the Steady-State Smoluchowski Equation Using Finite Element Methods**. *Biophysical Journal*, 88(3):1659-1665, 2005.
97. Yuhua Song, Yongjie Zhang, Chandrajit L. Bajaj, Nathan A. Baker. **Continuum Diffusion Reaction Rate Calculations of Wild Type and Mutant Mouse Acetylcholinesterase: Adaptive Finite Element Analysis**. *Biophysical Journal*, 87(3):1558-1566, 2004.
98. Yuhua Song, Yongjie Zhang, Tongye Shen, Chandrajit L. Bajaj, J. Andrew McCammon, Nathan A. Baker. **Finite Element Solution of the Steady-state Smoluchowski Equation for Rate Constant Calculations**. *Biophysical Journal*, 86(4):2017-2029, 2004.
99. Zhao-chang Zheng, Dan Guo, Yongjie Zhang, Zhi-chao Hou. **Dynamic Analysis of Large-scale Flexible Systems for Free-free Space Structures**. *Philosophical Transactions of the Royal Society of London Series A, Mathematical, Physical and Engineering Sciences*, 359(1788): 2209-2229, 2001.
100. Song Shen, Yongjie Zhang, Debao Li, Zhao-chang Zheng. **Experiment and Analysis on Refrigerator Vibration Reduction and Noise Control**. *Journal of Experimental Mechanics (China)*, 13(4): 574-578, Dec. 1998.

CONFERENCE PUBLICATIONS:

1. Jianzhe Gu, David Edward Breen, Jenny Hu, Lifeng Zhu, Ye Tao, Charles Tyson Van de Zande, Guanyun Wang, Yongjie Jessica Zhang, Lining Yao. **Geodesy: Self-Rising 2.5D Tiles by Printing along 2D Geodesic Closed Path**. ACM CHI Conference on Human Factors in Computing Systems. Glasgow, UK. May 4-9, 2019.
2. Yanyang Xiao, Zhonggui Chen, Juan Cao, Yongjie Jessica Zhang, Cheng Wang. **Optimal Power Diagrams via Function Approximation**. *Solid and Physical Modeling*. Bilbao, Spain. June 11-13, 2018. **Best Paper Award 1st Place**
3. Zhonggui Chen, Tieyi Zhang, Juan Cao, Yongjie Jessica Zhang, Cheng Wang. **Point Cloud Resampling Using Centroid Voronoi Tessellation Methods**. *Solid and Physical Modeling*. Bilbao, Spain. June 11-13, 2018.
4. Lifeng Zhu, Xuanpeng Li, Wenjie Lu, Yongjie Jessica Zhang. **A Field-Based Representation of Surrounding Vehicle Motion from a Monocular Camera**. The 29th IEEE Intelligence Vehicle Symposium. Changshu, Suzhou, China. June 26-30, 2018.
5. Zhonggui Chen, Wen Chen, Jianzhi Guo, Juan Cao, Yongjie Jessica Zhang. **Orientation Field Guided Line Abstraction for 3D Printing**. *The 12th International Conference on Geometric Modeling and Processing*. Aachen, Germany. April 9-11, 2018.
6. Xiaoqi Chai, Douglas Qian, Qinle Ba, Angran Li, Yongjie Jessica Zhang, Ge Yang. **Image-Based Measurement of Cargo Traffic Flow in Complex Neurite Networks**. *IEEE International Conference on Image Processing*. Beijing, China. Sept. 17-20, 2017.
7. Aishwarya Pawar, Yongjie Zhang, Yue Jia, Cosmin Anitescu, Timon Rabczuk. **3D Nonrigid Image Registration Using Truncated Hierarchical B-splines**. *5th International Conference on Computational and Mathematical Biomedical Engineering*. Pittsburgh, PA. April 10-12, 2017.
8. Hugo Casquero, Carles Bona-Casas, Yongjie Zhang, Hector Gomez. **Dynamics and Rheology of Biological Cells in Flow**. *5th International Conference on Computational and Mathematical Biomedical Engineering*. Pittsburgh, PA. April 10-12, 2017.
9. Kangkang Hu, Yongjie Jessica Zhang, Xinge Li, Guoliang Xu. **Feature-Aligned Surface Parameterization Using Secondary Laplace Operator and Loop Subdivision**. *25th International Meshing Roundtable*. Washington, DC. Sept. 27-30, 2016. *Procedia Engineering*, 163:186-198, 2016.
10. Kangkang Hu, Yongjie Jessica Zhang, Guoliang Xu. **CVT-based 3D Image Segmentation for Quality Tetrahedral Meshing**. *CompIMAGE (Computer Modeling of Objects Presented in Images: Fundamentals, Methods, and Applications)*. Niagara Falls, USA. Sept. 21-23, 2016. **Best Paper Award**
11. Eugene Fang, Jim Lua, Yicong Lai, Yongjie Jessica Zhang, Nam D. Phan. **Isogeometric Analysis based Finite Element Approach for Ductile Failure Prediction of the Second Sandia Fracture Challenge**

- Problem.** *AHS International's 72nd Annual Forum and Technology Display Conference.* West Palm Beach, FL. May 17-19, 2016.
12. Aishwarya Pawar, Yongjie Zhang, Xiaodong Wei, Yue Jia, Timon Rabczuk, Chiu Ling Chan, Cosmin Anitescu. **Non-rigid Image Registration Using Hierarchical B-splines.** *Viplmage (V ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing).* Tenerife, Canary Islands, Spain. Oct. 19-21, 2015.
 13. Kangkang Hu, Yongjie Jessica Zhang. **Surface Segmentation and Polycube Construction Based on Generalized Centroidal Voronoi Tessellation.** *24th International Meshing Roundtable.* Austin, TX. Oct. 12-14, 2015. Research Notes.
 14. Lei Liu, Yongjie Jessica Zhang, Xiaodong Wei. **Handling Extraordinary Nodes with Weighted T-spline Basis Functions.** *24th International Meshing Roundtable.* Austin, TX. Oct. 12-14, 2015. *Procedia Engineering*, 124:161-173, 2015.
 15. Tao Liao, Xinge Li, Guoliang Xu, Yongjie Jessica Zhang. **Secondary Laplace Operator and Generalized Gjaquinta-Hildebrandt Operator with Applications on Surface Segmentation and Smoothing.** *SIAM Conference on Geometric & Physical Modeling.* Salt Lake City, UT. Oct. 12-14, 2015. **Autodesk Best Paper Award 1st Place**
 16. Eugene Fang, Jim Lua, Yongjie Jessica Zhang, Yicong Lai, Waruna Seneviratne. **Multi-scale Characterization of an Adhesive Bondline with Fabrication Induced Defects.** *American Society for Composite 30th Conference.* East Lansing, MI. Sept. 28-30, 2015.
 17. Eugene Fang, Jim Lua, Jessica Zhang, Anisur Rahman, Nam D. Phan. **A Multiscale Bondline Damage Characterization and Hybrid Analysis Approach for Adhesively Bonded Composite Structures.** *AHS International 71st Annual Forum & Technology Display.* Virginia Beach, VA. May 5-7, 2015.
 18. Lei Liu, Yongjie Jessica Zhang, Yang Liu, Wenping Wang. **Feature-Preserving T-mesh Construction Using Skeleton-based Polycubes.** *Symposium on Solid and Physical Modeling.* Hong Kong. Oct. 26-28, 2014.
 19. Lei Liu, Yongjie Jessica Zhang, Xiaodong Wei. **NURBS Surface Reparameterization Using Truncated T-splines.** *23rd International Meshing Roundtable.* London, UK. Oct. 12-15, 2014.
 20. Arjun Kumar, Pratiti Mandal, Yongjie Zhang, Shawn Litster. **Image Restoration of Phase Contrast Nano Scale X-ray CT Images.** *CompIMAGE (Computer Modeling of Objects Presented in Images: Fundamentals, Methods, and Applications).* Pittsburgh, PA. Sept. 3-5, 2014. *Lecture Notes in Computer Science*, 8461:280-285, 2014.
 21. Kangkang Hu, Yongjie Jessica Zhang. **Extended Edge-Weighted Centroidal Voronoi Tessellation for Image Segmentation.** *CompIMAGE (Computer Modeling of Objects Presented in Images: Fundamentals, Methods, and Applications).* Pittsburgh, PA. Sept. 3-5, 2014. *Lecture Notes in Computer Science*, 8461:164-175, 2014.
 22. Xiaodong Wei, Yongjie Jessica Zhang. **Truncated Hierarchical Catmull-Clark Surface with Local Refinement.** *Workshop on Structured Meshing: Theory, Application and Evaluation, the 27th Conference on Computer Animation and Social Agents (CASA 2014).* Houston, TX. May 26-28, 2014.
 23. Tao Liao, Wenyan Wang, Yongjie Jessica Zhang. **Adaptive and Anisotropic T-mesh Generation from Cross Field.** *Workshop on Structured Meshing: Theory, Application and Evaluation, the 27th Conference on Computer Animation and Social Agents (CASA 2014).* Houston, TX. May 26-28, 2014.
 24. Qing Pan, Guoliang Xu, Yongjie Zhang. **A Unified Method for Hybrid Subdivision Surface Design Using Geometric Partial Differential Equations.** *SIAM Conference on Geometric & Physical Modeling (GD/SPM13).* Denver, CO. Nov. 11-14, 2013.
 25. Kangkang Hu, Jin Qian, Yongjie Zhang. **Adaptive All-Hexahedral Mesh Generation Based on A Hybrid Octree and Bubble Packing.** *22nd International Meshing Roundtable.* Orlando, FL. Oct. 13-16, 2013.
 26. Lei Liu, Yongjie Zhang, Thomas J.R. Hughes, Mike A. Scott, Thomas W. Sederberg. **Volumetric T-Spline Construction Using Boolean Operations.** *22nd International Meshing Roundtable*, pp. 405-424. Orlando, FL. Oct. 13-16, 2013.
 27. Wenyan Wang, Yongjie Zhang, Lei Liu, Thomas J.R. Hughes. **Trivariate Solid T-spline Construction from Boundary Triangulations with Arbitrary Genus Topology.** *Symposium on Solid and Physical Modeling.* University of Burgundy, Dijon, France. Oct. 29-31, 2012.
 28. Yongjie Zhang, Xinghua Liang, Guoliang Xu. **A Robust 2-Refinement Algorithm for Octree and Rhombic Dodecahedral Tree Based All-Hexahedral Mesh Generation.** *21th International Meshing Roundtable*, pp. 155-172. San Jose, CA. Oct. 7-10, 2012.

29. Hong Zhang, Yuanfeng Jiao, Yongjie Zhang, Kenji Shimada. **Automated Segmentation of Cerebral Aneurysms Based on Conditional Random Field and Gentle Adaboost.** *Workshop on Mesh Processing in Medical Image Analysis in Conjunction with 15th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). Nice, France. Oct. 1-5, 2012. Lecture Notes in Computer Science, 7599:59-69, 2012.*
30. Yongjie Zhang, Yiming Jing, Xinghua Liang, Guoliang Xu, Lei Dong. **Dynamic Lung Modeling and Tumor Tracking Using Deformable Image Registration and Geometric Smoothing.** *CompImage (Computational Modeling of Objects Presented in Images: Fundamentals, Methods and Applications)*, pp. 215-220. Rome, Italy. Sept. 5-7, 2012.
31. Hong Zhang, Yuanfeng Jiao, Erick Johnson, Yongjie Zhang, Kenji Shimada. **Modeling Anisotropic Material Property of Cerebral Aneurysms for Fluid-Structure Interaction Computational Simulation.** *CompImage (Computational Modeling of Objects Presented in Images: Fundamentals, Methods and Applications)*, pp. 261-266. Rome, Italy. Sept. 5-7, 2012.
32. Guoliang Xu, Juelin Leng, Yanmei Zheng, Yongjie Zhang. **Biomedical Image Interpolation Based on Multi-resolution Transformations.** *CompImage (Computational Modeling of Objects Presented in Images: Fundamentals, Methods and Applications)*, pp. 199-204. Rome, Italy. Sept. 5-7, 2012.
33. Rui Zhang, Khee Poh Lam, Shi-Chune Yao, Yongjie Zhang. **Annual Coupled EnergyPlus and Computational Fluid Dynamics Simulation of Natural Ventilation.** *International Building Performance Simulation Association (IBPSA)-USA's SimBuild. Madison, WI. Aug. 1-3, 2012.*
34. Rui Zhang, Khee Poh Lam, Shi-Chune Yao, Yongjie Zhang. **Coupled EnergyPlus and CFD for Annual Natural Ventilation Simulation.** *International Building Performance Simulation Association (IBPSA)-USA's SimBuild. Madison, WI. Aug. 1-3, 2012.*
35. Rui Zhang, Khee Poh Lam, Yongjie Zhang. **Conformal Adaptive Hexahedral-Dominant Mesh Generation for CFD Simulation in Architecture Design Applications.** *Winter Simulation Conference (WSC), Phoenix, Arizona. Dec. 11-14, 2011.*
36. Jin Qian, Yongjie Zhang. **Dual Contouring for Domains with Topology Ambiguity.** *20th International Meshing Roundtable*, pp. 41-60. Paris, France. Oct. 23-26, 2011.
37. Juelin Leng, Yongjie Zhang, Guoliang Xu. **A Novel Geometric Flow-Driven Approach for Quality Improvement of Segmented Tetrahedral Meshes.** *20th International Meshing Roundtable*, pp. 347-364. Paris, France. Oct. 23-26, 2011.
38. Yongjie Zhang, Xinghua Liang, Jun Ma, Yiming Jing, Matt Gonzales, Adarsh Krishnamurthy, Paul Stark, Sanjiv M. Narayan, Andrew McCulloch. **An Atlas-Based Geometry Pipeline for Cardiac Hermite Model Construction.** *Workshop on Mesh Processing in Medical Image Analysis in Conjunction with 14th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Toronto, Canada. Sept. 18-22, 2011.*
39. Erick Johnson, Yongjie Zhang, Kenji Shimada. **An Equivalent Wall Thickness Estimation for Cerebral Aneurysms.** *2nd International Conference on Computational & Mathematical Biomedical Engineering*, pp. 51-54. George Mason University, Washington DC. Mar.30-Apr.1, 2011.
40. Xinghua Liang, Yongjie Zhang. **Hexagon-based All-Quadrilateral Mesh Generation with Guaranteed Angle Bounds.** *19th International Meshing Roundtable*, pp. 1-22. Chattanooga, TN. Oct. 3-6, 2010.
41. Jin Qian, Yongjie Zhang. **Sharp Feature Preservation in Octree-based All-Hexahedral Mesh Generation for CAD Assembly Models.** *19th International Meshing Roundtable*, pp. 243-262. Chattanooga, TN. Oct. 3-6, 2010.
42. Jin Qian, Yongjie Zhang, Wenyan Wang, Alexis C. Lewis, M.A. Siddiq Qidwai, Andrew B. Geltmacher. **Quality Improvement of Non-Manifold Hexahedral Meshes for Critical Feature Determination of Microstructure Materials.** *18th International Meshing Roundtable*, pp. 211-230. Salt Lake City, Utah. Oct. 25-28, 2009.
43. Xinghua Liang, Mohamed Ebeida, Yongjie Zhang. **Guaranteed-Quality All-Quadrilateral Mesh Generation with Feature Preservation.** *18th International Meshing Roundtable*, pp. 45-64. Salt Lake City, Utah. Oct. 25-28, 2009.
44. Mohamed Ebeida, Eric Mestreau, Yongjie Zhang, Saikat Dey. **Mesh Insertion of Hybrid Meshes.** *18th International Meshing Roundtable*, pp. 359-376. Salt Lake City, Utah. Oct. 25-28, 2009.
45. Erick Johnson, Yongjie Zhang, Kenji Shimada. **Using Conformal Mapping and Springs to Determine Aneurysm Wall Thickness.** *18th International Meshing Roundtable*, pp. 397-414. Salt Lake City, Utah. Oct. 25-28, 2009.

46. Rui Zhang, Yongjie Zhang, Khee Poh Lam, David Archer. **A Prototype Mesh Generation Tool Development for CFD Simulations in Architecture Domain.** IBPSA (*International Building Performance Simulation Association*) *Building Simulation*, Glasgow, Scotland. July 27-30, 2009.
47. Wenyan Wang, Yongjie Zhang, Jin Qian. **Error-Bounded Solid NURBS Construction for Navy Structures Using Offsets.** *Marine 2009*, pp. 205-208, Trondheim, Norway. June 15-17, 2009.
48. Yongjie Zhang, Wenyan Wang, Xinghua Liang, Yuri Bazilevs, Ming-Chen Hsu, Trond Kvamsdal, Reidar Brekken, Jorgen Isaksen. **High Fidelity Tetrahedral Meshing from Imaging Data for Fluid-Structure Interaction Analysis of Aneurysms.** *International Conference on Computational & Experimental Engineering and Sciences*, Phuket, Thailand. April 8-13, 2009.
49. Yuri Bazilevs, Ming-Chen Hsu, Yongjie Zhang, Wenyan Wang, Xinghua Liang, Trond Kvamsdal, Reidar Brekken, Jorgen Isaksen. **Computational Vascular Fluid-Structure Interaction: Methodology and Application to Cerebral Aneurysms.** *15th International Conference on Finite Elements in Flow Problems*, Tokyo, Japan. April 1-3, 2009.
50. Rong Li, Yongjie Zhang, David Archer. **Computation of Air Flow in CMU's Intelligent Workplace and Its Effect on Occupant Comfort and Health.** *ASME International Conference on Energy Sustainability*, Jacksonville, FL. Aug. 10-14, 2008.
51. Yuri Bazilevs, Victor M. Calo, Thomas J.R. Hughes, Yongjie Zhang. **Modeling and Computation of Patient-Specific Vascular Fluid-Structure Interaction using Isogeometric Analysis.** *The 6th International Conference on Computation of Shell and Spatial Structures IASS-IACM 2008: "Spanning Nano to Mega"*, J.F. Abel and J.R. Cooke (eds.), Cornell University, Ithaca, NY. May 28-31, 2008.
52. Yongjie Zhang, Boyle C. Cheng, Changho Oh, Jessica L. Spehar, James Burgess. **Dynamic Neural Foramina Cross Section Measurement and Kinematic Analysis of Lumbar Spine Undergoing Extension.** *International Conference on Computational & Experimental Engineering and Sciences*, 293(1):1-6. Honolulu, Hawaii. Mar. 17-22, 2008.
53. Chandrajit Bajaj, Yongjie Zhang, Guoliang Xu. **Physically-based Texture Synthesis using A Coupled Finite Element System.** *Geometric Modeling and Physics (GMP). Hangzhou, China. April 23-25, 2008. Lecture Notes in Computer Science*, 4975:344-357, 2008.
54. Yongjie Zhang, Thomas J.R. Hughes, Chandrajit L. Bajaj. **Automatic 3D Meshing for a Domain with Multiple Materials.** *Proceedings of 16th International Meshing Roundtable*, pp.367-386. Seattle, Washington. Oct. 14-17, 2007.
55. Jason F. Shepherd, Yongjie Zhang, Claurissa J. Tuttle, Claudio T. Silva. **Quality Improvement and Boolean-like Cutting Operations in Hexahedral Meshes.** *The 10th ISGG Conference on Numerical Grid Generation*. FORTH, Crete, Greece. Sept. 16-20, 2007.
56. Yuri Bazilevs, Victor M. Calo, J. Austin Cottrell, Thomas J.R. Hughes, Yongjie Zhang. **Isogeometric modeling and analysis for naval ship structures.** *Marine*. Barcelona, Spain. June 5-7, 2007.
57. C. Bajaj, J. T. Oden, K. R. Diller, J. C. Browne, J. Hazle, I. Babuska, J. Bass, L. Bidaut, L. Demkowicz, A. Elliott, Y. Feng, D. Fuentes, S. Prudhomme, R. J. Stafford, and Y. Zhang. **Using Cyber-infrastructure for Dynamic Data Driven Laser Treatment of Cancer.** *International Conference on Computational Science. Beijing, China. May 27-30, 2007. Lecture Notes in Computer Science*, 4487: 972-979, 2007.
58. Yuri Bazilevs, Victor M. Calo, Yongjie Zhang, Thomas J.R. Hughes. **A fully integrated approach to fluid-structure interaction.** *Coupled Problems*. Ibiza, Spain. May 21-23, 2007.
59. Yongjie Zhang, Yuri Bazilevs, Samrat Goswami, Chandrajit Bajaj, Thomas J.R. Hughes. **Patient-Specific Vascular NURBS Modeling for Isogeometric Analysis of Blood Flow.** *Proceedings of 15th International Meshing Roundtable*, pp. 73-92. Birmingham, AL. Sept. 17-20, 2006.
60. Yuri Bazilevs, Yongjie Zhang, Victor Calo, Samrat Goswami, Chandrajit Bajaj, Thomas J.R. Hughes. **Isogeometric Analysis of Blood Flow: a NURBS-based Approach.** *CompIMAGE Symposium*, 2006.
61. Chandrajit Bajaj, Samrat Goswami, Zeyun Yu, Yongjie Zhang, Yuri Bazilevs, Thomas J.R. Hughes. **Patient Specific Heart Models from High Resolution CT.** *CompIMAGE Symposium*, 2006.
62. J. T. Oden, K. R. Diller, C. Bajaj, J. C. Browne, J. Hazle, I. Babuska, J. Bass, L. Demkowicz, Y. Feng, D. Fuentes, S. Prudhomme, M. N. Rylander, R. J. Stafford, Y. Zhang. **Development of a Computational Paradigm for Laser Treatment of Cancer.** *International Conference on Computational Science. University of Reading, UK. May 28-31, 2006. Lecture Notes in Computer Science*, 3993: 530-537, 2006.
63. Yongjie Zhang, Chandrajit L. Bajaj, Guoliang Xu. **Surface Smoothing and Quality Improvement of Quadrilateral/Hexahedral Meshes with Geometric Flow.** *Proceedings of 14th International Meshing Roundtable*, pp. 449-468. San Diego, CA. Sept. 11-14, 2005.

64. Yongjie Zhang, Chandrajit L. Bajaj. **Adaptive and Quality Quadrilateral/Hexahedral Meshing from Volumetric Data**. *Proceedings of 13th International Meshing Roundtable*, pp. 365-376. Williamsburg, VA. Sept. 19-22, 2004.
65. Yongjie Zhang, Chandrajit L. Bajaj, Bong-Soo Sohn. **Adaptive and Quality 3D Meshing from Imaging Data**. *Proceedings of 8th ACM Symposium on Solid Modeling and Applications*, pp. 286-291. Seattle, WA. June 16-20, 2003.

TECHNICAL REPORTS:

1. Xiaodong Wei, Yongjie Jessica Zhang, Deepesh Toshniwal, Hendrik Speleers, Xin Li, Carla Manni, John Evans, Thomas J.R. Hughes. **Blended B-Spline Construction on Unstructured Quadrilateral and Hexahedral Meshes with Optimal Convergence Rates in Isogeometric Analysis**. *ICES Report 17-33, The University of Texas at Austin*. 2017.
2. Benjamin Urick, Travis M. Sanders, Shaolie S. Hossain, Yongjie J. Zhang, Thomas J.R. Hughes. **Patient-Specific Vascular Modeling: Template-Based Isogeometric Framework and the Case for CAD**. *ICES Report 17-24, The University of Texas at Austin*. 2017.
3. Xiaodong Wei, Yongjie Jessica Zhang, Thomas J.R. Hughes. **Volumetric Truncated Hierarchical Spline Construction on Unstructured Hexahedral Meshes for Isogeometric Analysis Applications**. *ICES Report 17-02, The University of Texas at Austin*. 2017.
4. Guillermo Lorenzo, Michael A. Scott, Kevin B. Tew, Thomas J.R. Hughes, Yongjie Jessica Zhang, Lei Liu, Guillermo Vilanova, Hector Gomez. **Tissue Scale, Personalized Modeling and Simulation of Prostate Cancer Growth**. *ICES Report 16-25, The University of Texas at Austin*. 2016.
5. Xiaodong Wei, Yongjie Jessica Zhang, Lei Liu, Thomas J.R. Hughes. **Truncated T-splines: Fundamentals and Methods**. *ICES Report 16-02, The University of Texas at Austin*. 2016.
6. Xiaodong Wei, Yongjie Jessica Zhang, Thomas J.R. Hughes, Michael A. Scott. **Extended Truncated Hierarchical Catmull-Clark Subdivision**. *ICES Report 15-15, The University of Texas at Austin*. 2015.
7. Xiaodong Wei, Yongjie Jessica Zhang, Thomas J.R. Hughes, Michael A. Scott. **Truncated Hierarchical Catmull-Clark Subdivision with Local Refinement**. *ICES Report 14-31, The University of Texas at Austin*. 2014.
8. Lei Liu, Yongjie Zhang, Thomas J.R. Hughes, Mike A. Scott, Thomas W. Sederberg. **Volumetric T-Spline Construction Using Boolean Operations**. *ICES Report 13-19, The University of Texas at Austin*. 2013.
9. Yongjie Zhang, Wenyan Wang, Thomas J.R. Hughes. **Conformal Solid T-spline Construction from Boundary T-spline Representations**. *ICES Report 12-29, The University of Texas at Austin*. 2012.
10. Wenyan Wang, Yongjie Zhang, Lei Liu, Thomas J.R. Hughes. **Solid T-spline Construction from Boundary Triangulation with Arbitrary Genus Topology**. *ICES Report 12-13, The University of Texas at Austin*. 2012.
11. Shaolie S. Hossain, Yongjie Zhang, Xinghua Liang, Fazle Hussain, Mauro Ferrari, Thomas J.R. Hughes, Paolo Decuzzi. **in silico Vascular Modeling for Personalized Nanoparticle Delivery**. *ICES Report 12-09, The University of Texas at Austin*. 2012.
12. Yongjie Zhang, Wenyan Wang, Thomas J.R. Hughes. **Solid T-spline Construction from Boundary Representations for Genus-Zero Geometry**. *ICES Report 11-40, The University of Texas at Austin*. 2011.
13. Wenyan Wang, Yongjie Zhang, Guoliang Xu, Thomas J.R. Hughes. **Converting an Unstructured Quadrilateral/Hexahedral Mesh to a Rational T-Spline**. *ICES Report 11-27, The University of Texas at Austin*. 2011.
14. Wenyan Wang, Yongjie Zhang, Michael A. Scott, Thomas J.R. Hughes. **Converting an Unstructured Quadrilateral Mesh to a Standard T-Spline Surface**. *ICES Report 10-50, The University of Texas at Austin*. 2010.
15. Yuri Bazilevs, J. R. Gohean, Thomas J.R. Hughes, Robert D. Moser, Yongjie Zhang. **Patient-Specific Isogeometric Fluid-Structure Interaction Analysis of Thoracic Aortic Blood Flow due to Implantation of the Jarvik 2000 Left Ventricular Assist Device**. *ICES Report 08-14, The University of Texas at Austin*. 2008.
16. Jorgen Isaksen, Yuri Bazilevs, Trond Kvamsdal, Yongjie Zhang, Jon Harald Kaspersen, Knut Waterloo, Bertil Romner, Tor Ingebrigtsen. **Determination of Wall Tension in Cerebral Artery Aneurysms by Numerical Simulation**. *ICES Report 07-18, The University of Texas at Austin*. 2007.
17. Jason F. Shepherd, Clairissa J. Tuttle, Claudio T. Silva, Yongjie Zhang. **Quality Improvement and Feature Capture in Hexahedral Meshes**. *SCI Institute Technical Report UUSCI-2006-029, University of Utah*. 2006.

18. Yongjie Zhang, Guoliang Xu, Chandrajit L. Bajaj. **Quality Meshing of Implicit Solvation Models of Biomolecular Structures.** *ICES Technical Report 04-61, The University of Texas at Austin*, 2004.
19. Wing Kam Liu, Grace Chen, Xiaodong Wang, Yongjie Zhang, Chandrajit L. Bajaj, Thomas J.R. Hughes. **A Study of a Three-Dimensional Heart Model Using Immersed Continuum Method.** *ICES Technical Report, The University of Texas at Austin*, 2004.
20. Yongjie Zhang, Chandrajit L. Bajaj. **Finite Element Meshing for Cardiac Analysis.** *ICES Technical Report 04-26, The University of Texas at Austin*, 2004.
21. Yongjie Zhang, Chandrajit L. Bajaj, Bong-Soo Sohn. **Adaptive Multiresolution and Quality 3D Meshing from Imaging Data.** *CS and ICES Technical Report (TR-02-63, 02-42), The University of Texas at Austin*, 2002.