

Wendong Huo

(+86) 187-5605-4176 | huowd.cmech@gmail.com | wendong-huo.github.io

Dalian City, Liaoning Province, 116000, China

EDUCATION

- **Dalian University of Technology** 2019.09 - 2025.06 (expected)
Ph.D. in Solid Mechanics Dalian, China
 - Thesis: Explicit Design and Optimization of Complex Surface Shell Structures.
 - Advisors: Prof. Xu Guo and Prof. Chang Liu
- **Hefei University of Technology** 2015.09 - 2019.06
B.E. in Engineering Mechanics Hefei, China
 - Thesis: Isogeometric Boundary Element Method for Steady Heat Conduction Problems.
 - Advisor: Prof. Bo Yu

RESEARCH INTERESTS

- **Shell mechanics:** elasticity, wave motion, instability, metamaterial, etc.
- **Structure design:** size/shape/topology design, related mathematical programmings
- **Scientific ML:** creating novel tools and finding potential applications (please refer to the cover letter)

PUBLICATIONS

R=UNDER REVIEW, J=JOURNAL, *=CORRESPONDING AUTHORS, #=CO-FIRST AUTHORS

- [R.1] Chang Liu, Yanbo Ren, Yilin Guo, **Wendong Huo***, Xu Guo*. (2025). **Hierarchical Shape Optimization for Complex Shell Structures**. Under Review at *Structural and Multidisciplinary Optimization*
- [J.8] **Wendong Huo***, Chang Liu*, Yilin Guo, Zongliang Du, Weisheng Zhang, Xu Guo*. (2025). **Explicit Topography Design for Complex Shell Structures Based on Embedded Spline Components**. *Journal of the Mechanics of Physics of Solids*, Vol. 196, pp. 105974. DOI: 10.1016/j.jmps.2024.105974
- [J.7] **Wendong Huo**, Chang Liu*, Yunpu Liu, Zongliang Du, Weisheng Zhang, Xu Guo*. (2023). **A Novel Explicit Design Method for Complex Thin-walled Structures Based on Embedded Solid Moving Morphable Components**. *Computer Methods in Applied Mechanics and Engineering*, Vol. 417, pp. 116431. DOI: 10.1016/j.cma.2023.116431
- [J.6] **Wendong Huo**, Chang Liu*, Zongliang Du, Xudong Jiang, Zhenyu Liu, Xu Guo*. (2022). **Topology Optimization on Complex Surfaces Based on the Moving Morphable Component Method and Computational Conformal Mapping**. *ASME Journal of Applied Mechanics*, Vol. 89, pp. 051008. DOI: 10.1115/1.4053727
- [J.5] Xudong Jiang, **Wendong Huo***, Chang Liu*, Zongliang Du, Xiaoyu Zhang, Xiao Li, Xu Guo*. (2022). **Explicit Layout Optimization of Complex Rib-reinforced Thin-walled Structures via Computational Conformal Mapping (CCM)**. *Computer Methods in Applied Mechanics and Engineering*, Vol. 404, pp. 115745. DOI: 10.1016/j.cma.2022.115745
- [J.4] Mengcheng Huang#, **Wendong Huo#**, Chang Liu*, Dongsheng Yang, Jia Huang, Zongliang Du, Xu Guo*. (2021). **Substructuring Multi-resolution Topology Optimization with Template**. *Advances in Mechanics*, Vol. 51, pp. 901-909. DOI: 10.6052/1000-0992-21-030
- [J.3] Zongliang Du, Wenyu Hao, Xiaodong Chen, Xiuquan Hou, **Wendong Huo**, Chang Liu, Weisheng Zhang, Tianchen Cui*, Xu Guo*. (2023). **Artificial Intelligence-enhanced Bioinspiration: Design of Optimized Mechanical Lattices Beyond Deep-sea Sponges**. *Extreme Mechanics Letters*, Vol. 62, pp. 102033. DOI: 10.1016/j.eml.2023.102033

- [J.2] Xudong Jiang, Chang Liu*, Zongliang Du, **Wendong Huo**, Weisheng Zhang, Xiaoyu Zhang, Feng Liu, Xu Guo*. (2022). **A Unified Framework for Explicit Layout/Topology Optimization of Thin-walled Structures Based on Moving Morphable Components (MMC) Method and Adaptive Ground Structure Approach**. *Computer Methods in Applied Mechanics and Engineering*, Vol. 396, pp. 115047. DOI: 10.1016/j.cma.2022.115047
- [J.1] Bo Yu, Geyong Cao, **Wendong Huo**, Huanlin Zhou, Elena Atroshchenko. (2021). **Isogeometric Dual Reciprocity Boundary Element Method for Solving Transient Heat Conduction Problems with Heat Sources**. *Journal of Computational and Applied Mathematics*, Vol. 385, pp. 113197. DOI: 10.1016/j.cam.2020.113197

ORAL PRESENTATIONS

C=CONFERENCE

- [C.7] Explicit Design of Complex Shell Structures Based on the Computational Conformal Mapping Technique and the Moving Morphable Component Approach, **ICTAM-26**, 2024.08.29, Daegu, Korea.
- [C.6] Explicit Design Framework of Shell Structures Based on the Moving Morphable Component Method and the Dimensionality Reduction Mapping Technique, **ACSMO-5**, 2024.05.22, Zhengzhou, China.
- [C.5] Explicit Designs of Complex Surface Structures Based on the MMC Method and Computational Conformal Mapping, **ICASD-1**, 2023.09.15, Xi'an, China.
- [C.4] Topology Optimization on Complex Surfaces Based on the Moving Morphable Component Method and Computational Conformal Mapping, **WCSMO-15**, 2024.08.29, Cork, Ireland.
- [C.3] Explicit Design Software for Complex Thin-walled Structures, the 1st Contest on Open-source Industrial Software Integration, 2023.02.24, Virtual.
- [C.2] Explicit Topology Optimization for Complex Thin-walled Structures Based on the Moving Morphable Component Method and Computational Conformal Mapping Technique, the 3rd Doctoral Academic Forum of the Chinese Society of Theoretical and Applied Mechanics, 2023.01.07, Virtual.
- [C.1] Topology Optimization on Complex Surfaces Based on the Moving Morphable Component Method and Computational Conformal Mapping, **ACSMO-4**, 2022.05.24, Virtual.

HONORS AND AWARDS

- **National Scholarship** 2018.09
Ministry of Education, China
- **Golden Prize, "Challenge Cup" Entrepreneurship Competition** 2024.11
Department of Science and Technology of Liaoning Province
- **Special Prize, International Engineering Mechanics Contest** 2019.01
Organizing Committee of International Engineering Mechanics Contest
◦ Team pursuit and ranked 2nd out of 104 teams in the Asian Region
- **Special Prize, Chinese Mechanics Competition, Anhui Province Site** 2017.06
Anhui Society of Theoretical and Applied Mechanics
- **1st Prize, "EBSCO Cup" Literature Information Acquisition Competition** 2018.11
EBSCO Information Services
- **2nd Prize, Open-source Industrial Software Integration Competition** 2023.04
Organizing Committee of Software Integration Competition, OpenAtom Foundation
- **2nd Prize, International Engineering Mechanics Contest** 2019.01
Organizing Committee of International Engineering Mechanics Contest
◦ Individual pursuit
- **3rd Prize, Chinese Mechanics Competition in Honor of Zhou Peiyuan** 2017.06
Chinese Society of Theoretical and Applied Mechanics, Zhou Peiyuan Foundation

SKILLS

- **CAD:** SpaceClaim, Siemens NX (UG), AutoCAD
- **CAE:** Abaqus, Ansys, Hyperworks, Fenics, Comsol
- **CG:** MeshLab, Blender, UE5, KeyShot
- **Numerical Methods:** Finite Element Method, Boundary Element Method, Isogeometric Analysis
- **Coding:** Python (rpy), Matlab, Fortran, C, C#, JavaScript, L^AT_EX, Qt
- **Toolkits:** trimesh, geomdl, pyvista, cg3lib, BFF, igl
- **Misc.:** Office, Visio, Origin

REFERENCES

1. Xu Guo

Relationship: Thesis Advisor

Professor, Member of the Chinese Academy of Science

Department of Engineering Mechanics, Dalian University of Technology

State Key Laboratory of Structural Analysis, Optimization and CAE Software for Industrial Equipment

Email: guoxu@dlut.edu.cn

2. Chang Liu

Relationship: Vice Advisor

Associate Professor, Young Scientist of National Key Research and Development Program

Department of Engineering Mechanics, Dalian University of Technology

State Key Laboratory of Structural Analysis, Optimization and CAE Software for Industrial Equipment

Email: c.Liu@dlut.edu.cn

3. Weisheng Zhang

Relationship: Project Supervisor

Professor, Distinguished Young Scholar of the National Natural Science Foundation of China

Department of Engineering Mechanics, Dalian University of Technology

State Key Laboratory of Structural Analysis, Optimization and CAE Software for Industrial Equipment

Email: weishengzhang@dlut.edu.cn

4. Zongliang Du

Relationship: Project Supervisor

Associate Professor

Department of Engineering Mechanics, Dalian University of Technology

State Key Laboratory of Structural Analysis, Optimization and CAE Software for Industrial Equipment

Email: zldu@dlut.edu.cn