Junbin Huang

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Personal

Citizen of China
Also known as: Jun-Bin Huang
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Research Interests

Quantitative Investment

Machine Learning (Scientific Computing and Mathematical Theory)

Finite Element Methods (Interpolations and Error Estimates)

Appointments

2023–Present **Quantitative Researcher** at Starvast Quant. I focus most on machine learning methods for identifying investment opportunities.

Dec. 2020–Dec. 2022 **Boya Postdoctoral Fellow** at Beijing International Center for Mathematical Research, Peking University. My supervisor is Prof. Bin Dong. This appointment is funded by the International Postdoctoral Exchange Fellowship Program (Talent-Introduction Program). I studied machine learning approaches for solving differential equations and the underlying mathematics.

Feb. 2020–May 2020 **Teaching Assistant** for Prof. Wim van Rees, in MIT Subject 2.081 *Plates & Shells* (Graduate level).

Sept. 2017–May 2020 **Research Assistant** for Prof. Klaus-Jürgen Bathe, at Department of Mechanical Engineering, Massachusetts Institute of Technology. The main job was developing overlapping finite elements with applications.

Education

May 2020 **Ph.D.** in Mechanical Engineering and Computation, Massachusetts Institute of Technology
Thesis Title: New Overlapping Finite Elements and Their Application in the AMORE Paradigm (Advisor: Professor Klaus-Jürgen Bathe)
GPA: 5.0/5.0

June 2017 **M.Eng.** with outstanding master's thesis, in Mechanics, Tsinghua University
Thesis Title: Developments of High-Performance Finite Element Models Based on the Analytical Trial Functions (Advisor: Professor Song Cen)
GPA: 92.5/100 (ranking 1/51)

July 2014 **B.Eng.** with honors, in Civil Engineering, Tsinghua University
GPA: 90/100 (ranking 7/92)

July 2014 **B.Sc.** in Pure and Applied Mathematics (Second Bachelor Degree), Tsinghua University

Service

Reviewer: Computers & Structures, Engineering Computations, Journal of Computational Physics, Computer Methods in Applied Mechanics and Engineering

Programming Skills

Python, Linux, MATLAB, Fortran, LaTeX

Publications

2021 1. **J Huang**, KJ Bathe*. On the convergence of overlapping elements and overlapping meshes. *Computers & Structures*, 2021, 244: 106429.

2020b 2. **J Huang**, KJ Bathe*. Overlapping finite element meshes in AMORE. *Advances in Engineering Software*, 2020, 144: 102791.

2020a 3. Z Li, S Cen*, **J Huang**, CF Li. Hyperelastic finite deformation analysis with the unsymmetric finite element method containing homogeneous solutions of linear elasticity. *International Journal for Numerical Methods in Engineering*, 2020, 121(16): 3702–3721.

2019b 4. Z Li, **J Huang**, S Cen*, CF Li. An unsymmetric 8-node hexahedral solid-shell element with high distortion tolerance: Geometric nonlinear formulations. *International Journal for Numerical Methods in Engineering*, 2019, 120(5): 580–606.

2019a 5. **J Huang**, KJ Bathe*. Quadrilateral overlapping elements and their use in the AMORE paradigm. *Computers & Structures*, 2019, 222: 25–35.

2018 6. **J Huang**, S Cen*, Z Li, CF Li. An unsymmetric 8-node hexahedral solid-shell element with high distortion tolerance: Linear formulations. *International Journal for Numerical Methods in Engineering*, 2018, 116(12–13): 759–783.

2017b 7. **JB Huang**, S Cen*, Y Shang, CF Li. A new triangular hybrid displacement function element for static and free vibration analyses of Mindlin-Reissner plate. *Latin American Journal of Solids and Structures*, 2017, 14(5): 765–804.

2017a 8. S Cen*, Y Shang, PL Zhou, MJ Zhou, et al. Advances in shape-free finite element methods: A review. *Gongcheng Lixue/Engineering Mechanics*, 2017, 34(3): 1–14. (in Chinese)

2016 9. PL Zhou, S Cen*, **JB Huang**, CF Li, et al. An unsymmetric 8-node hexahedral element with high distortion tolerance. *International Journal for Numerical Methods in Engineering*, 2016, 109(8): 1130–1158.

2015 10. Y Shang, S Cen*, CF Li, **JB Huang**. An effective hybrid displacement function element method for solving the edge effect of Mindlin-Reissner plate. *International Journal for Numerical Methods in Engineering*, 2015, 102(8): 1449–1487.