

XIANGLIN HUANG
PhD in Mechanical Engineering
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EDUCATION BACKGROUND

- University of Manchester (UoM)** **08/2019 – 12/2024**
PhD in Mechanical Engineering
- Department of Mechanical, Aerospace and Civil Engineering, School of Engineering
 - Dissertation: Determination of dynamic flow stress equation based on discrete material data
 - Supervisor: Prof. Qingming Li (Q.M. Li) (Qingming.li@manchester.ac.uk)
- Harbin Institute of Technology (HIT)** **09/2015 – 07/2017**
M.E. in Aeronautical and Astronautical Science and Technology
- School of Astronautics
 - Dissertation: Experimental investigation on the impact resistance of polymer-aluminium layered plates
 - Supervisor: Prof. Wei Zhang (zhdawei@hit.edu.cn)
- Civil Aviation University of China (CAUC)** **09/2010 – 07/2014**
B.E. in Aircraft Manufacturing Engineering
- College of Aeronautical Engineering
 - Coursework: Mechanics of Materials, Aircraft Fault Diagnosis Technology, Engineering Materials, Aircraft Flight Mechanics, Aircraft Manufacturing Technology

WORK EXPERIENCE

- Postdoctoral Researcher, KAIST** **10/2025 – Present**
Supervisor: Prof. Seunghwa Ryu
- Prognostics and Health Management of Lithium-Ion Batteries Based on Neuromorphic Sensor and Artificial Intelligence framework
- Visiting Scholar, Dongguk University** **10/2025 – Present**
Supervisor: Prof. Heung Soo Kim
- Prognostics and Health Management of Lithium-Ion Batteries Based on Neuromorphic Sensor and Artificial Intelligence framework
- Research Associate (unofficial, funded via research allowance), Zhejiang University** **05/2025 – 08/2025**
Supervisor: Prof. Guoxing Lu
- Conducted ringing signal suppression analysis on intermediate strain-rate tests to improve the fidelity of dynamic material characterization.
- Teaching Assistant, University of Manchester** **09/2019-12/2023**
- Supported students to complete the course of Advanced Modelling & Simulation
 - Supported students to complete the course of Composites & Polymers
 - Demonstrated the operation procedure of Column Buckling Experiments
 - Instructed students completing the course of ANSYS Numerical Simulation
- Research Associate, University of Manchester** **10/2020-04/2024**
Supervisor: Prof. Q.M. Li
- Instructed undergraduate student thesis: Machine learning based dynamic constitutive models (10/2023-04/2024)

- Instructed postgraduate (master's degree) student thesis: Signal analysis of damaged space structure by impact (08/2020-07/2021)
- Instructed undergraduate student thesis: Structural health monitoring of space structures under impacts (10/2020-03/2021)

RESEARCH EXPERIENCE

Prognostics and Health Management of Lithium-Ion Batteries Based on Neuromorphic Sensor and Artificial Intelligence framework 10/2024-Present

- Conducting Battery PHM research and Leading Battery PHM Group

Multiscale and Multiphysics Coupled Failure Mechanisms of High Energy Density Batteries under Dynamic Loading 11/2024-04/2025

- Participated in drafting the proposal for National Natural Science Foundation of China (NSFC) grant application, including the rationale, research content, objectives, and literature review.

Damage Detection and Evaluation Model for Lithium-Ion Batteries under Dynamic Impact Based on Machine Learning 11/2023-06/2025

- Graduate Research Project (CAUC-funded): Proposed the core concept of the research methodology and contributed to the writing and revision of a manuscript.

Machine Learning–Based Ballistic Resistance Modelling of Metallic Targets 07/2023-03/2025

- Developed core research concepts and methodology; authored and revised manuscripts; published one article as the corresponding author in Thin-Walled Structures, with a second manuscript currently under review (minor revision) in the same journal.

Multiscale Modelling of Impact Behaviour in Angle Interlock 3D Woven Composites 10/2023-05/2024

- Participated in constitutive modelling and simulation analysis; co-authored and published one article in the International Journal of Mechanical Sciences as a second author.

Mechanical Response & Damage Mechanisms of Sandwich Structures 07/2015-06/2017

- Contributed to experimental design, data acquisition, and finite element simulations for NSFC project at HIT; co-authored two articles published in the International Journal of Impact Engineering.

Application of Digital Image Correlation (DIC) in Sandbox impact Experiments 05/2015-08/2015

- Designed and executed DIC based penetration tests; analysed deformation fields and published findings at an American Institute of Physics (AIP) conference.

PUBLICATIONS (SCI-indexed: 13, Q1: 13)

First Authored:

1. **X. Huang**, Q.M. Li, Determination of dynamic flow stress equation based on discrete experimental data: Part 2 Dynamic flow stress depending on strain, strain-rate and temperature. International Journal of Impact Engineering, 206 (2025) 105432 (JCR Q1, IF 5.7)
2. **X. Huang**, Q.M. Li, Determination of dynamic flow stress equation based on discrete experimental data: Part 1 Methodology and the dependence of dynamic flow stress on strain-rate. International Journal of Impact Engineering, 206 (2025) 105403 (JCR Q1, IF 5.7)
3. **X. Huang**, Q.M. Li, The legitimacy of decoupled dynamic flow stress equations and their representation based on discrete experimental data. International Journal of Impact Engineering 173 (2023) 104453. (JCR Q1, IF 5.7)
4. **X. Huang**, W. Zhang, Y. Deng, X. Jiang, Experimental investigation on the ballistic resistance of polymer-aluminium layered plates. International Journal of Impact Engineering 113 (2018) 212–221. (JCR Q1, IF 5.7)

As Corresponding Author (*Main contributions: Methodology, Conceptualization, Writing-original draft, review & Editing):

5. Y. Deng, J. Li, **X. Huang***, Deep learning-based real-time damage assessment of lithium-ion batteries under dynamic impact, *Journal of Power Sources*, 662, (2026), 238737. (JCR Q1, IF 7.9)
6. Y. Deng, H. Zheng, **X. Huang***, Failure modes and failure energy threshold of lithium-ion batteries under extreme impact, *Journal of Energy Storage*, 150, 10 March 2026, 120037. (JCR Q1, IF 9.8)
7. Y. Deng, Y. Lv, X. Yang, C. Du, **X. Huang***, Determination of residual velocity model of finite thickness material based on Artificial Neural Network. *Thin-Walled Structures*, (Minor revision), 2025. (JCR Q1, IF 6.6)
8. Y. Deng, X. Yang, **X. Huang***, Determination of ballistic resistance model of finite thickness material based on Artificial Neural Network. *Thin-Walled Structures*, 203 (2024) 112161. (JCR Q1, IF 6.6)

Co-authored:

9. H. Wei, **X. Huang**, et al., Multiscale modeling for the impact behavior of 3D angle-interlock woven composites, *International Journal of Mechanical Sciences*, 276 (2024) 109382. (JCR Q1, IF 9.4)
10. W. Huang, W. Zhang, **X. Huang**, et al., Dynamic response of aluminium corrugated sandwich subjected to underwater impulsive loading: experiment and numerical modelling. *International Journal of Impact Engineering* 109 (2017) 78–91. (JCR Q1, IF 5.7)
11. W. Huang, B. Jia, W. Zhang, **X. Huang**, et al., Dynamic failure of clamped metallic circular plates subjected to underwater impulsive loads. *International Journal of Impact Engineering* 94 (2016) 96–108. (JCR Q1, IF 5.7)
12. Y. Deng, H. Wu, Y. Zhang, **X. Huang**, et al., Experimental and numerical study on the ballistic resistance of 6061-T651 aluminium alloy thin plates struck by different nose shapes of projectiles. *International Journal of Impact Engineering* 160 (2022) 104083. (JCR Q1, IF 5.7)
13. N. Ye, W. Zhang, D. Li, W. Huang, W. Xie, **X. Huang**, X. Jiang, Dynamic response and failure of sandwich plates with PVC foam core subjected to impulsive loading. *International Journal of Impact Engineering* 109 (2017) 121–130. (JCR Q1, IF 5.7)
14. W. Zhang, **X. Huang**, et al., Experimental investigation on ballistic stability of high-speed projectile in sand. *AIP Conference Proceedings* 1793, 060031 (2017).

COLLABORATION EXPERIENCE

- Metamaterials designing and stress wave signal rectifying and modulating research (School of Aeronautics and Astronautics, Zhejiang University) (05/2025-06/2025)
- Determination of flow stress equation based on multi-axial tests (Department of Mechanical Engineering, University of Bath) (04/2025-06/2025)
- Physics-informed method for the prediction of dynamic flow stress data to very high strain-rate (School of Engineering, UOM) (11/2024-06/2025)
- Multiscale modelling of 3D angle-interlock woven composites (School of Astronautics, HIT) (10/2023-05/2024)
- Machine learning based Lithium-Ion batteries damage detection and evaluation under impact (College of Aeronautical Engineering, CAUC) (11/2023-06/2025)

PEER REVIEW EXPERIENCE

- **Reviewer**, *International Journal of Impact Engineering*, Elsevier
Reviewed manuscript (SOURCE-WORK-ID: 031d546b-a764-4110-a1bb-cf418c629ffc) - 2025
- **Reviewer**, *Scientific reports*, Springer Nature

Reviewed manuscript (Study on the effect of load on the structural response of projectile during penetration process) - 2024

RESEARCH INTERESTS

- Battery PHM
- Impact dynamics
- Structure health monitoring
- Artificial intelligence
- Neuromorphic sensor

COMPUTATIONAL SKILLS

- ABAQUS/ LS-DYNA: Explicit modelling in dynamic impact with user defined subroutines
- C, Python, MATLAB, Fortran: programming
- CATIA: Geometric modelling

AWARDS

- UK Henry Lester Trust Grant (05/2022)
- UK Henry Lester Trust Grant (05/2021)