XUAN ZHOU

Ph.D. Candidate

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A. BIOGRAPHY

Xuan Zhou is currently a Ph.D. candidate at the School of Aeronautic Science and Engineering, Beihang University (Supervisor: Prof. Leiting Dong) and the Department of Mechanical Engineering, Politecnico di Milano (Supervisor: Prof. Claudio Sbarufatti). His research interests include structural integrity, airframe digital twins, structural health monitoring, and surrogate modeling. He has published 8 articles in the mainstream peer-reviewed journals in aeronautical and mechanical engineering, including the AIAAJ, MSSP .etc. He won the ICCES2023 Best Student Paper Award.

B. EDUCATION

Politecnico di Milano	Mechincal Engineering	Double Ph.D. Candidate, 2021-Present
Beihang University	Flight Vehicle Design	Ph.D. Candidate, 2019-Present
Beihang University	Flight Vehicle Design	M.Eng. Candidate, 2017-2019
Beihang University	Aircraft Design and Engineering	B.E., 2013-2017

C. RESEARCH INTERESTS

- Structural Integrity and Airframe Digital Twin
- Structural Health Monitoring
- Surrogate and Reduced-order Modelling

D. PUBLICATIONS & ORAL PRESENTATIONS

Journal Article

1. **Zhou, X.**, Sbarufatti, C.*, Giglio, M., Dong, L.* & Atluri, S. N.. (2023). Copula-based Collaborative Multi-Structure Damage Diagnosis and Prognosis for Fleet Maintenance Digital Twins. **AIAA Journal**. https://doi.org/10.2514/1.J063105. (Accepted)
2. Zhao, F., **Zhou, X.***, Wang, C., Dong, L.*, & Atluri, S. N. (2023), Setting Adaptive Inspection Intervals in Helicopter Components, Based on a Digital-Twin. **AIAA Journal**. https://doi.org/10.2514/1.J062222 (Corresponding Author)
3. **Zhou, X.**, Sbarufatti, C.*, Giglio, M., & Dong, L.* (2023), A Fuzzy-set-based Joint Distribution Adaptation Method for Regression and its Application to Online Damage Quantification of a Structural Digital Twin. **Mechanical Systems and Signal Processing**, 191, 110164. https://doi.org/10.1016/j.ymssp.2023.110164
4. **Zhou, X.**, Oboe, D., Poloni, D., Sbarufatti, C.*, & Dong, L.*, Giglio, M. (2023). Cluster-based Joint Distribution Adaptation Method for Debonding Quantification in Composite Structures. **AIAA Journal**, 61(2), 831–842. https://doi.org/10.2514/1.J062417
5. He, S., Wang, C., **Zhou, X.** *, Dong, L. *, & Atluri, S. N. (2022). Weakly Singular Symmetric Galerkin Boundary Element Method for Fracture Analysis of Three-Dimensional Structures Considering Rotational Inertia and Gravitational Forces. **Computer Modeling in Engineering & Sciences**, 131(3), 1857–1882. https://doi.org/10.32604/cmes.2022.019160 (Corresponding Author)

6. **Zhou, X.**, He, S.*, Dong, L., & Atluri, S. N. (2022). Real-Time Prediction of Probabilistic Crack Growth with a Helicopter Component Digital Twin. **AIAA Journal**, 60(4), 2555–2567. https://doi.org/10.2514/1.J060890
7. Zhao, F., **Zhou, X.**, & Dong, L. (2021). An Intelligent Digital-Twin-Based Strategy for the Inspection and Repair of Aircraft Skin Cracks. **Chinese Journal of Solid Mechanics**, 42(03), 277 – 286. https://doi.org/10.19636/j.cnki.cjsm42-1250/o3.2021.030 (in Chinese)
8. Dong, L., **Zhou, X.**, Zhao, F., He, S., Lu, Z., & Feng, J. (2021). Key Technologies for Modeling and Simulation of Airframe Digital Twin. **Acta Aeronautica et Astronautica Sinica**, 42(03), 113-141. https://doi.org/10.7527/S1000-6893.2020.23981 (EI, in Chinese)

Book Chapter

1. **Zhou, X.**, Dong, L. (2023). Digital Twin driven damage diagnosis and prognosis of complex aircraft structures. **Handbook of Digital Twins**, CRC Press. (In Press)

Conference Presentation

1. **Zhou, X.**, Dziendzikowski, M., Dragan, K., Dong, L., Giglio, M., & Sbarufatti, C. (2023). Generating High-Resolution Flight Parameters in Structural Digital Twins using Deep Learning-based Upsampling. 2023 Prognostics and Health Management Conference (PHM Paris 2023), Paris, France.
2. **Zhou, X.**, Sbarufatti, C.*, Giglio, M., & Dong, L.* (2023). Copula-based Multi-structure Damage Co-diagnosis and Prognosis for the Fleet Maintenance Digital Twin. 29th International Conference on Computational & Experimental Engineering and Sciences (ICCES2023), Shenzhen, China. (**Best Student Paper Award)**
3. **Zhou, X.**, Dong, L.* (2020), Airframe digital twin case study of a helicopter component, Oral presentation at the 20th National Conference on Fatigue and Fracture (NCFF-20), Chongqing, China.
4. **Zhou, X.**, Dong, L.* (2019), Machine Learning based Crack Growth Predictions: Application to a Helicopter Component, Oral presentation at the 6th Asia-Pacific International Conference on Computational Methods in Engineering (ICOME-19), Dalian, China.

E. SELECTED AWARDS AND HONORS

- **ICCES Best Student Paper Award (2023)**
- **Award from the Academic Excellence Foundation of BUAA for PhD Students (2022-2023)**
- Outstanding Graduate of Beihang University (2021, 2022)
- Outstanding Graduate from Beihang University (Bachelor, 2017)