



## Maochao Xiao

✉ Email: [maochao.xiao@uniroma1.it](mailto:maochao.xiao@uniroma1.it)

Gender: Male Date of birth: 30/05/1994 Nationality: Chinese

### WORK EXPERIENCE

[ 2019 – 2022 ]

#### Research assistant

*Laboratory of Advanced Simulation of Turbulence (LAST), Tsinghua University*

City: Beijing

Country: China

### EDUCATION AND TRAINING

[ 2022 – Current ]

#### PhD of Engineering

*Sapienza University of Rome*

Address: 00184, Rome, Italy

[ 2016 – 2019 ]

#### Master of Engineering

*Tsinghua University*

Address: 100084, Beijing, China

[ 2012 – 2016 ]

#### Bachelor of Engineering

*Northwestern Polytechnical University*

Address: 710100, Xi'an, China

### LANGUAGE SKILLS

Mother tongue(s): Chinese

Other language(s):

#### English

LISTENING C2 READING C2 WRITING C2

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

### PUBLICATIONS

**A New Detached Eddy Simulation Approach with Anisotropic Subgrid Stress modeling and Its Applications in Separated Iced Wing Flow Prediction**

Reference: drafting

**Study on Perturbation Introduction Method of Asymmetric Vortex Simulation of Slender Body at High Angle of Attack**

Reference: Zhang, S., Xiao, M., Zhang, Y., and Chen, H. Air & Space Defense, Vol. 5, No. 3, 2022.

## **Enhanced Prediction of Three-dimensional Finite Iced Wing Separated Flow Near Stall**

**Reference:** Xiao, M., Zhang, Y., and Zhou, F. International Journal of Heat and Fluid Flow, Vol. 98, 2022.

## **Improved Prediction of Flow Around Airfoil Accreted with Horn or Ridge Ice**

**Reference:** Xiao, M., and Zhang, Y. AIAA Journal, Vol. 59, No. 6, 2021, pp. 2318-2327.

## **Numerical Investigation of the Unsteady Flow Past an Iced Multi-Element Airfoil**

**Reference:** Xiao, M., Zhang, Y., and Zhou, F. AIAA Journal, Vol. 58, No. 9, 2020, pp. 3848-3862.

## **Assessment of the SST-IDDES with a Shear-Layer-Adapted Subgrid Length Scale for Attached and Separated Flows**

**Reference:** Xiao, M., and Zhang, Y. International Journal of Heat and Fluid Flow, Vol. 85, 2020.

## **Numerical Study of Iced Airfoils with Horn Features using Large-Eddy Simulation**

**Reference:** Xiao, M., Zhang, Y., and Zhou, F. Journal of Aircraft, Vol. 56, No. 1, 2019, pp. 94-107.

## **Software Copyright NSAWET, Version 1.1**

**Reference:** Chen, H., Zhang, Y., Li, Z., and Xiao, M.

## **CONFERENCES AND SEMINARS**

[ 2018 ] **Development of Shear-Layer-Adapted Sub-grid length Scale for SST-IDDES**  
10th International Conference on Computational Fluid Dynamics, Barcelona, Spain

[ 2018 ]

### **Evaluation of M-SST Based IDDES with a Shear-Layer-Adapted Sub-Grid Length Scale in Separated Flows**

7th Symposium on Hybrid RANS-LES Methods, Berlin, Germany

[ 2018 ] **Application of Large-Eddy Simulation in Aerodynamics and Aeroacoustics**  
4th National Conference on Unsteady Aerodynamics, Hefei, China

Best Paper Award (about 10 in China)

[ 2018 ]

### **Numerical Simulation of Separated Flow around an Iced Airfoil Based on WMLES**

3th National Conference on Aircraft Icing and Deicing, Chengdu, China

Best Paper Award (about 10 in China)

[ 2018 ]

### **Numerical Simulation of Separated Flow around an Iced Airfoil Based on WMLES**

3th National Conference on Aircraft Icing and Deicing, Chengdu, China

Best Paper Award, about 10 in China

[ 2017 ]

**Numerical Study of an Iced Airfoil Based on Delayed Detached-Eddy Simulation with Low Dissipation Scheme**

9th AIAA Atmospheric & Space Environments Conference, Denver, USA

[ 2017 ]

**Numerical Simulation of the Stall Behaviors of an Iced Airfoil Based on DDES**

Hangzhou, China

Best Paper Award, about 15 in China

**PROJECTS**

---

[ 2021 – Current ] **Development of IDDES with Anisotropic Minimum Dissipation SGS Modeling**

Developing an enhanced IDDES method with anisotropic minimum dissipation subgrid stress modeling (AMD-IDDES), suitable to use on anisotropic grids and in the flows where the “grey area” issue is severe and free-shear-layer transition exists

[ 2021 – Current ] **Numerical Study of Iced Wing Flows**

Studying the aerodynamic effects of horn and streamwise ice on wings via AMD-IDDES and analyzing the effects of wing tip vortex and end-wall interactions

[ 2017 – 2020 ] **Assessment of SST-IDDES with a Shear-Layer-Adapted Subgrid Length Scale**

Combining the SST-IDDES with a shear-layer-adapted subgrid length scale to address the “grey area” issue and validating the method via canonical test cases and iced airfoil/wing flows

[ 2016 – 2020 ] **Numerical Study of Iced Airfoil Flows**

Studying the aerodynamic effects of horn, streamwise and ridge ice on (multi-element) airfoils via wall-modeled LES and AMD-IDDES, extracting the dominant flow structures via proportional orthogonal decomposition (POD), and analyzing the vortex motions in the ice-induced separated shear layers and acoustic resonance around the iced slat

[ 2015 – 2016 ] **Development of Reduced-Order Finite Difference Method**

Developing a reduced-order finite difference method based on POD technique to accelerate the solving of the NS equations by two orders of magnitude and validating the reduced-order method via a laminar backward-facing step flow and cavity flow

[ 2013 – 2016 ] **Development of Mathematical Models for Real-Life Problems**

Competing in national and international mathematical contests in modelling and grading papers in the first round of the 8th MathorCup Mathematical Contest and in the 8th Asia Pacific Mathematical Contest

**HONOURS AND AWARDS**

---

**Outstanding Master Graduate Award**

3 recipients in the school, 2019

**Scholarship of Dongnan Elevator Corporation**

2019

**Outstanding Graduate Award**

2016

**Scholarship of National Aero-technology Import & Export Corporation (Rank 1, only 6 recipients among 3000 undergraduates)**

Rank 1, only 6 recipients among 3000 undergraduates, 2015

**First Prize in MathorCup Mathematical Contest in Modeling**

9 in China, 2015

**First Prize in Certificate Authority Cup Mathematical Contest in Modeling**

2 times, 2014, 2015

**First-class Scholarship for Academic Excellence (3 times)**

3 times, 2013, 2014, 2015

**National Scholarship**

top 1.5% in the department, 2 times, 2013, 2014

**Grant for Scientific Research Program**

\$4000, 2014

**Outstanding Delegate in Northwest District Model United Nation Conference (8 in China)**

8 in China, 2014