

Yaolei Shen

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Research field: Robot Dynamic and Control, Micro Aerial Vehicle

EDUCATION:

09/19-present	Northwestern Polytechnical University	Master in Mechanical Engineering	Xi'an, China
09/15-06/19	Northwestern Polytechnical University	Bachelor in Mechanical Engineering (5/86)	Xi'an, China

EXPERIENCE:

11/20-present	Northwestern Polytechnical University (School of Mechanical Engineering)	Xi'an, China
<i>Modeling and control for a bird-scale flapping-wing aerial vehicle (Master's Project)</i>		
<ul style="list-style-type: none">• Multi-body dynamic modeling for the vehicle• Quasi-steady aerodynamic modeling• Design of path tracking strategy and vehicle attitude controller		
07/18-06/20	Northwestern Polytechnical University (School of Aeronautics)	Xi'an, China
<i>Seagull inspired flapping-wing aerial vehicle (National Key Research and Development Program, participator)</i>		
<ul style="list-style-type: none">• Design of the bio-inspired flapping-wing mechanism• Production of the vehicle prototype• Design and production of the rotary experiment platform		
11/20-12/20	Chang'an University (School of Construction Machinery)	Xi'an, China
<i>Autonomous docking system of rotorcraft (project participator)</i>		
<ul style="list-style-type: none">• Vehicle crash analysis at controlled condition		
05/16-06/18	Northwestern Polytechnical University (School of Mechanical Engineering)	Xi'an, China
<i>Design of locust inspired jumping robot (National Innovation Training Program for College Students, team leader)</i>		
<ul style="list-style-type: none">• Design of the bio-inspired jumping mechanism• Robot jumping process modeling• Production of the robot prototype		

PUBLICATIONS:

Y. Shen, W. Ge, P. Miao. "Multibody-dynamic Modeling and Stability Analysis for a Bird-scale Flapping-wing Aerial Vehicle," *Journal of Intelligent and Robotic Systems*. (accepted)

Y. Shen, W. Ge, X. Mo et al. "Design of a locust-inspired miniature jumping robot," *2018 IEEE International Conference on Robotics and Biomimetics (ROBIO)*, Kuala Lumpur, Malaysia, 2018, pp. 2322-2327.

X. Mo, W. Ge, D. Zhao et al. "Path and function synthesis of multi-bar mechanisms using beetle antennae search algorithm," *Filomat*, **34**(15), pp. 5215-5233.

PATENT:

W. Ge, X. Mo, Y. Shen et al. "Seagull inspired flapping-wing mechanism," CN109693788A (2019) (in Chinese)

SKILLS:

Programming skills: Matlab/Simulink, C language (Microcontroller Programming)

Design skills: CAD software, CAE software (ADAMS), optimization algorithm (gradient-based, swarm intelligence)

Control theory: Classical control theory, dynamic modeling, nonlinear control (sliding mode, backstepping)

Practical ability: Several robot prototypes have been designed and produced

AWARDS:

First-class academic scholarship of Northwestern Polytechnical University

Excellent conclusion of National Innovation Training Program for College Students of China

SUMMARY:

During my undergraduate and postgraduate stages, I have designed several robot prototypes in some relevant projects. The practical experience also promotes my theoretical knowledge including control theory, optimization theory and embedded system design. And, my research experience motivates me to find a potential doctoral candidate position to continue my study in robotics. If possible, I'd like to participate a research group of mobile robots and contribute to the team work.