YIDONG GUO

EDUCATION

Northwestern Polytechnical University, Xi'an 2019.9–2022.4

Master in Solid mechanics, School of Aeronautics GPA:3.7 Rank 9/268

Advisor: Yu-e Ma

Northwestern Polytechnical University, Xi'an 2015.9–2019.7

B.E. in Aircraft Design and Engineering, School of Aeronautics GPA:3.4 Rank 50/250

Ecole Superieure Des Techniques Aeronautiq (ESTACA), Paris 2018.2–2018.6

Exchange Student (CSC Scholarship)

Main Courses:

Mathematical Statistics (92), Theoretical Mechanics (97), C Programming(92)

RESEARCH INTEREST

Robotics, Path Planning, Motion Planning

My research interests are in Robotics, specifically in 1) Path planning, motion planning; 2) Trajectory planning 3) RL in control.

SKILLS

Programming: C++, Python, Java (Elementary), SQL, Qt, data structures, basic algorithms
Frameworks: pyQt, selenium, ROS(Elementary)
Others: IELTS (7.0), Abaqus, CATIA

INTERNSHIP

Huawei (Xi'an Research Center), Cloud BU (Database Product Dept.)

Summer Intern, Software Development (Jun.–Aug. 2021)

- Mastered MySQL operations and Linux commands.
- Learned JDBC-driven MySQL database connectivity.

PUBLICATIONS

- DIRRT*-Connect: An Optimal Ellipsoidal Heuristic Sampling-based Path Planning Algorithm using Gradient Descent Optimization (**First Author and corresponding author**, 2026 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2026)
- "Low-Velocity Impact Response of Additively Manufactured Titanium Alloy Micro-

Lattice Sandwich Panels"(**First Author**, *Acta Aeronautica et Astronautica Sinica*, EI-indexed)

- "Buckling Pattern Transition of Periodic Porous Elastomers Induced by Proportional Loading Conditions" (**First Author**, *International Journal of Applied Mechanics*, SCI-indexed)

PROJECTS

Path Planning algorithm boosting by introducing gradient descent method

- Introduce the idea of path deformation into the RRT variants programming framework
- Conduct experimental evaluations of the proposed planning algorithm on multiple classical 2D benchmark maps
- Conduct experimental evaluations of the proposed planning algorithm on multiple manipulator in 6D spaces

Stability of Rubber Porous Structures Under Multiaxial Proportional Loading

- Developed RVE model with hyperelastic constitutive behavior (UHYPER subroutine).
- Implemented periodic boundary conditions via MPC subroutines.
- Determined critical loading ratios for mode transitions using eigenvalue analysis.

Mechanical Properties of Additively Manufactured Titanium Alloy Lattice Structure

- Performed compression low-velocity impact test on BCC/FCC/BCCZ/FCCZ lattices.
- Simulated impact responses (Abaqus/Explicit) with Johnson-Cook constitutive model.
- Analyzed failure modes and validated FEM reliability.

HONORS & AWARDS

AVIC Special Class II Award (Comprehensive Score: 9/268) 2019–2020

NWPU First-Class Academic Scholarship ("Outstanding student of the school") 2019–2020

NWPU First-Class Academic Scholarship (Recommended for Master's Admission) 2019.09

NWPU First-Class Academic Scholarship ("Outstanding student of the school") 2017–2018

NWPU First-Class Academic Scholarship (Outstanding student of the school) 2016-2017

NWPU First-Class Academic Scholarship (Outstanding student of the school) 2015-2016

National Second Prize, "Huawei Cup" 16th China Graduate Math Modeling Contest

National Third Prize, National English Competition for College Students (2016)

Honorable Mention, MCM/ICM (2017)