Jixiang Qing

Mobile: (86)131-6578-0597
E-Mail: tsingjixiang@yahoo.com
Address: P.O.Box 790 Northwestern Polytechnical University
        127 West Youyi Road, Beilin District
        Xi'an Shaanxi, 710072, P. R. China.

EDUCATION

Sep.2016-Present	**Northwestern Polytechnical University (NPU)** **A 985-Project and 211-Project sponsored University, top level in China** Candidate Master of Flight Vehicle Design • GPA: 3.33 / 4.0 • Research Majors: Ducted Fans, Applied Aerodynamic Optimization (optimization algorithms, framework construction) • Relevant Coursework: Aerodynamic Optimization Theories and Methods, Fundamentals of Aerodynamic Design, Fundamentals of Flight Vehicle Design etc.
Sep.2012-July.2016	**Northwestern Polytechnical University** Bachelor of Aircraft Design Engineering • GPA: 3.17 / 4.0 • Undergraduate dissertation: Design of a double-duct VTOL flight vehicle • Relevant Coursework: Aerodynamics, Automatic Control Theory, Aircraft Conceptual Design, Linear Algebra, Advanced Mathematics etc.

RELEVANT WORK

May.2018 – Present	**Constrained Multi-objective Optimization of Ducted System Structure and Aerodynamic Parameters Using Surrogate Based Optimization** • Formulated the optimization problem, i.e. the objective function, design variables and constraints • Implemented a constrained multi-objective surrogate based optimization method and validated the method through numerical benchmark functions (ZDTs, etc.). • Constructing the main optimization framework.
Dec.2017 – May.2018	**Integrated Rotor-Duct Optimization of Ducted System** • Investigated relevant work of ducted fan optimization and verified the potential value of this research • Formulated the optimization problem. Constructed the main optimization framework using MATLAB ooDACE toolbox, ANSYS Fluent and FFD grid deformation method. The framework was mainly written in MATLAB, some python codes were used to call CFD solver and process the output data • Analyzed the optimization results, flow-fields and output data. Evaluated the effectiveness of this research propose • Concluded the work and wrote a paper about this research
Aug.2017 – Dec.2017	**Aircraft Design Optimization for AIAA Design•Build•Fly Competition** • Completed the initial design of the aircraft and selected the initial configuration(canard wing) of the aircraft through mission analysis. • Analyzed the score model of the competition and formulated the optimization problem: an integrated design-mission planning optimization. • Constructed the optimization framework based on PyADAO to find the optimal aircraft design(a two-stage optimization framework : a parallel particle swarm optimization (PSO) coupled with a mixed integer nonlinear programming as sub-optimization problem) • Completed the structure design of the aircraft
Dec.2016 – Dec.2017	**Design Optimization of a relaxed-stability flying-wing** • The object of this postgraduate innovation funding project aims to develop an aircraft design framework with an optimizing of a flying-wing configuration as a validation. • Designed a python based aircraft design and optimization framework: PyADAO • Implemented a parametric modeling method to model the aircraft, variable fidelity geometries can be represented • Developed an optimization toolbox: pyOptimize. Common algorithms like genetic algorithms (GA) and PSO have been integrated and an orthogonal learning particle swarm optimization has been implemented • Wrapped some low fidelity solvers like vortex lattice method (VLM) and Xfoil • Conducted an aerodynamic optimization of a baseline flying wing based on low-fidelity VLM. A lower induced drag configuration was obtained

PUBLICATION

Aerospace Science Technology (Journal Paper)	• Computational Investigation of the Integrated Rotor-Duct Optimization for ducted fan in hover (first author, the paper is currently under review)
AIAA SciTech Forum Jan.2019	• Integrated Rotor-Duct Optimization for ducted fan (first author and presenter, the paper is under review)

FELLOWSHIPS/AWARDS

Aug.2017	• The 3rd Postgraduate Future Aircraft Vehicle Design Competition Second Prize
May.2015	• Airbus 2015 'Fly Your Ideas' global university student's aerospace innovation competition Finalists (the only team consisted of all bachelors)
Oct.2014	• The 9th 'Innovation Cup' National Future Aircraft Designing Contest Third Prize
Oct.2014	• The '611 Cup' Future Aircraft Designing Contest Meritorious Second Prize in Amateur Division
July.2014	• The NUAA 'Fei Bao' Cup Aerospace knowledge tournament Runner-up
July.2014	• The NUAA 'Fei Bao' Cup Aerospace knowledge tournament Best Practice Award
May.2013	• The NPU outstanding volunteer
Feb.2013	• A patent for utility model (CN 203319366 U)
July.2016	• The First Prize Scholarship
2012~2015	• Merit Student of school of Aeronautical
2012~2015, 2016~2017	• The Second Prize Scholarship

SKILLS

Programming	• Python (familiar, 2 years+ experience on scientific computation, object-oriented programming, anaconda distribution, etc.)
	• MATLAB (familiar, 3 years+ experience)
	• familiar with git and GitHub, bitbucket (made a little contribution on some opensource projects on GitHub)
CFD	• ANSYS ICEM, Pointwise
	• ANSYS Fluent, SU2(Learning)
	• XFLR5, AVL, XFOIL, Digital Datcom (Low fidelity solver)
	• Tecplot
CAD	• CATIA, SOLIDWORKS
	• PythonOCC
Numerical Optimization	• Gradient free optimization methods (GA, PSO, NSGA2, Hook-Jeeves, ACO, Golden search)
	• Gradient based methods (BFGS, etc.)
	• Surrogate based optimizations (Kriging/Gauss Process with their acquisition functions, Radial Basis Functions)
Others	• data visualization(Matplotlib, MATLAB, Excel, PowerPoint)
	• Good self-study ability and have rich experience on taking online courses on Cousera and Edx.

LANGUAGES

	• Chinese (native language)
	• English (IELTS 7.0 overall, CET6 535, CET4 580)

MISCELLANEOUS

Certifications	• Certificate of "The Way to Success" Career & Leadership Development Program at NPU
	• Certificate of course: Robotics: Aerial Robotics by University of Pennsylvania and offered through Coursera
Activities	• The NPU English dubbing contest First prize
	• The NPU 'The road to chief Engineer' flight Model assemble competition First prize
	• The 2018 Vienna International Music Competition Shaanxi Conference Second prize in piano group
Interests:	• Piano (Level 10 for nonprofessionals, ABRSM music theory level 5)