

Huawei Wang

PhD Candidate in Mechanical Engineering

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<https://huaweiwang.github.io> (Personal Webpage)

PERSONAL INFORMATION

Nationality: China | Birthday: March-22-1989
Languages: Chinese(native); English(C1) | USA immigration status: F1

RESEARCH INTERESTS

Human Motion (Gait) Control: Wearable Robotics; Human-machine Interaction;
Human Motion Analysis and Optimization; Robot Dynamics and Control.

EDUCATION

Washkewicz College of Engineering, Cleveland State University

Doctoral Program, Controller Identification in Human Motions, 2016 - present

- Supervisor: Dr. Antonie van den Bogert
- Thesis: Identification of Feedback Controllers in Human Standing and Walking
- GPA: 3.92/4.0

School of Energy and Power Engineering, Beihang University

Master Study, Control Theory and Engineering, 2012 - 2015

- Supervisor: Dr. Xi Wang
- Thesis: Robust Controller Design Based on Aero-engine Co-Simulation System
- GPA: 3.64/4.0 (6th/90 *students*)

College of Aeronautical Engineering, Civil Aviation University of China

Bachelor Study, Aircraft Propulsion Engineering, 2008 - 2012

- Supervisor: Dr. Hongcun Qu
- Thesis: Modeling and Simulation of the CFM56 Engine's Control System
- GPA: 3.77 (1st/402 *students*)

PROFESSIONAL HISTORY

Cleveland State University (Cleveland, USA) 2016 - current

Research assistant, Human Motion & Control Lab

Tsinghua University (Beijing, China) 2015 - 2016

Research Intern, Robotics and Automation Lab

Beihang University (Beijing, China) 2012 - 2015

Student Research Assistant, Aero-engine Control Lab

PEER REVIEWED PUBLICATIONS

- [1] **Huawei Wang**, Antonie van den Borget. Identification of the Human Postural Control System through Stochastic Trajectory Optimization. *Journal of Neuroscience Method*. In review
- [2] **Huawei Wang**, Antonie van den Borget. Identification of A Foot Placement Controller in Human Walking. *Journal of Biomechanics*. In review
- [3] **WANG Hua-wei**, WANG Xi, LI Zhi-peng, DANG Wei and LI Hong-sheng. Quantitative Analysis on Constant Pressure Valve Stability, *Journal of Propulsion Technology*, 2015.
- [4] WANG Bin, WANG Xi, SHI Yu-lin and **Huawei Wang**. A real-time piece-wise linear dynamic model of aeroengine. *Journal of Propulsion Technology*, 2014.

CONFERENCE
PROCEEDINGS
& POSTERS

- [5] **Huawei Wang**, Antonie van den Borget. Identification of swing leg control laws from human walking data. *Midwest ASB 2019 Annual Meeting, Dayton, Ohio.*
- [6] Anne D. Koelewijn, **Huawei Wang**, Florin Dzeladini, Andrea Di Russo, Auke J. Ijspeert. Development of a Human Neuromuscular Balance Controller. *The 9th AMAM 2019, Lausanne, Switzerland*
- [7] **Huawei Wang**, Antonie van den Borget. Identification of posture controllers in human standing balance task. *Dyanmic Walking 2018, Pensacola, Florida.*
- [8] **Huawei Wang**, Antonie van den Borget. Identification of stable human posture controllers through stochastic trajectory optimization. *ASME 2017: Dynamics and Control of Robotics, Cleveland, Ohio.*
- [9] **Huawei Wang**, Antonie van den Borget. Ramp perturbation tests are too simple to identify realistic controller in human standing balancing. *2017 BMES Annual Meeting, Phoenix, Arizona.*
- [10] **Huawei Wang**, Antonie van den Borget. Identify posture controller in standing balance using direct collocation. *Dyanmic Walking 2016, Ann Arbor, Michigan..*
- [11] **Huawei Wang**, Xi Wang, Huating Yao and Bin Wang. Generic Design Methodology for Electro-Hydraulic Servo Actuator in Aero-engine Main Fuel Control System, In: *Proceedings of ASME Turbo Expo 2014*, June 16–20, Dsseldorf, Germany, GT2014-27337, 2014.

FELLOWSHIPS
& AWARDS

- CSU Kerka Research Poster Award (*2nd Place*) 2018
- Outstanding Master Thesis 2015
- China National Scholarship (*Master study, 0.2%*) 2014
- Outstanding Graduate 2012
- China National Scholarship (*Bachelor study, 0.2%*) 2011
- China National Encouragement Scholarship 2010
- The Blue-sky Scholarship 2009
- Outstanding Undergraduate Student 2009 - 2012
- Outstanding Teaching Quality Control Assistant 2010

RESEARCH
PROJECTS

Human Motion & Control Lab, Cleveland State University

- Step Strategy Identification in Human Walking
- Cycling Exoskeleton
- Impedance Controller identification in Human Walking (Ongoing)
- Perturbed Walking Experiment
- Controller Identification in Human Standing
- Ball Bouncing Optimization

Robotics and Automation Lab, Tsinghua University

- Push-Recovery Strategies for Biped Robot
- M2V2 Humanoid Robot Simulation Platform
- Human Motion Experiment and Analysis

Aero-engine Control Lab, Beihang University

- Real-time Modeling of Gas Turbine system
- Modeling Hydraulic-mechanical Units in Turbofan Engine Control System
- Difference Evolution Optimization

RESEARCH SKILLS

Operated Experimental Devices:

- Motion capture system (Motion Analysis)
- Instrumented dual-belt treadmill with 6-axis GRFs (Motek)
- EMG and IMU systems (Delsys Trigno)
- Portable metabolic analyzer (Cosmed K4b(2))
- lower limb exoskeleton (Indego)

Engineering Skills:

- Multibody dynamic modeling
- Human body musculoskeletal modeling
- Large scaling optimization – gradient and evolutionary based
- Feedback control system design – classical and modern control
- Human motion data analysis – motion capture/GRFs/EMGs data

CODING SKILLS

Coding Languages:

- Most Experienced: **Python; Cython; Matlab; Simulink**
- Less Experienced: **C; Julia; R**

Productivity Applications:

- **GitHub; L^AT_EX; Jupyter Notebook; Pelican**