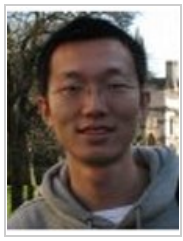
# University of Birmingham

# Dr Xiaoguang Yang BSc, MSc, PhD

Researcher in Vehicle Dynamics

School of Mechanical Engineering

## Contact details



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## About

X. Yang received his B.Sc and M.Sc from the School of Mechanical Engineering and Automation of Northeastern University in China. He received full scholarship from the ORSAS awards of UK and University of Birmingham in 2007. At present, he is a half-year research fellow starting from November 2011 in the Vehicle Dynamics Laboratory for a TSB Project-Low Carbon Emission Variable Rolling Resistance Wheel.

## Qualifications

- PhD in Mechanical Engineering, University of Birmingham, UK, November 2011
- MSc in Mechanical Engineering, Northeastern University, China, 2007
- BSc in Mechanical Engineering, Northeastern University, China, 2005

## Biography

Xiaoguang Yang graduated from the Northeastern University in China with a BSc in Mechanical Engineering and Automation in 2005. Then he started his postgraduate research on the Nonlinear Dynamics of General Synchronous System supported by the Important Project of Ministry of Education, China (Grant No. 108037), the National Natural Science Foundations of China (Grant Nos. 10402008 and 50535010). He received his master degree from Northeastern University in 2007 and then joined the Vehicle Dynamics Laboratory in the University of Birmingham, UK.

## Research

Research interests

- Intelligent Tyre System
- Tyre Dynamics
- Finite Element Analysis
- Vehicle ride and handling dynamics
- Control Synchronization of Dynamic Systems
- Biomechanics

Research activity in doctoral program, 2007-Present

Develop Intelligent Tyre System by Finite Element Analysis and Experiment

Finite element tyre modelling using ABAUQS considering tyre composite structure and nonlinear material properties

Utilized tri-axial hydraulic tyre test rig to investigate tyre deformation, strain, damping, footprint, vibration, force, etc.

Designed a strain-based intelligent tyre system prototype and demonstrate the feasibility of the system for measuring tyre dynamic strain with wireless transmission and self power.

Investigated the strain-based intelligent tyre technology by FEA and experiment for improving vehicle anti-lock brake system, stability control system and active safety system.

## Publications

- X. Yang, O.A.Olatunbosun, Optimization of Reinforcement Turn-up Effect on Tyre Durability and Operating Characteristics for Racing Tyre Design, Material and Design, 2011 (accepted).
- X. Yang, O.A. Olatunbosun, E.O. Bolarinwa, “Materials Testing for Finite Element Tire Model”. SAE Int. J. Mater. Manuf. 3(1): 211-220, 2010.
- Qingkai Han, Xueyan Zhao, Xiaoguang Yang and Bangchun Chun Wen. Periodic and Chaotic Motions of a Two-Bar Linkage with OPCL Controller, Mathematical Problems in Engineering, vol. 2010, doi:10.1155/2010/986319.
- Han Qingkai, Sun Xiaoyu, Yang Xiaoguang, Wen Bangchun. External synchronization of two dynamical systems with uncertain parameters. Science China: Technological Sciences, 2010, 53 (3): 731-740
- X. Yang, O.A. Olatunbosun, E.O. Bolarinwa, Generation of tyre cross-sectional geometry for FE tyre model using image processing techniques, International Journal of Engineering Simulation. Vol.10, No.1 (2009).

- Qingkai Han, Xiaoyu Sun, Xiaoguang Yang, 2009, External Synchronization of A Hysteretic System with A Duffing System by Feedback Control Strategy, International Journal of Structural Stability and Dynamics, Vol. 9, No. 3 (2009)
- Q. Han, X. Yang, Z. Qin, B. Wen, Effects of exciter parameters on self-synchronous vibration system, Journal of Northeastern University (Natural Science), 2007 28(7) (in Chinese)
- Q. Han, Z. Qin, X. Yang, X. Chen. B. Wen. Vibration analysis of a self-synchronization system with dual rotors, Journal of Vibration Engineering, 2007 20(5) (in Chinese)
- Qingkai Han, Zhaoye Qin, Xiaoguang Yang, etc. 2007, Rhythmic Swing Motions of A Two-link Robot With A Neural Controller, International Journal of Innovative Computing, Information and Control, Vols. 1349-4198, pp. 335-342.
- Li Wang, Tao Yu, Xiaoguang Yang, et al. Finite Element Analysis of Tooth with Defect, Journal of Machine Design (Supplement), 2005, Vol.22 (In Chinese).
- Xiaoguang Yang, Li Wang, Tao Yu, et al. Tooth Rebuilding Based on NURBS Surface Technology and CT Images, Journal of Machine Design (Supplement), 2005, Vol.22 (In Chinese).


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