# Associate Professor Weixiang Shen

Associate Professor


## Faculty of Science, Engineering & Technology >

School of Software and Electrical Engineering >

Department of Telecommunications, Electrical, Robotics and Biomedical Engineering

EN701b Hawthorn campus >


## Biography

A/Prof. Weixiang Shen received his BEng., MEng., and PhD degrees all from Electrical Engineering. He worked in several universities as Lecturer, Associate Professor and Research Fellow in China, German, Singapore and Malaysia. He is currently an Associate Professor in Faculty of Science, Engineering and Technology at Swinburne University of Technology, Melbourne, Australia. Weixiang's research interests are (1) battery applied research and control strategy for electric vehicles(EVs), including battery capacity estimation, battery charging, battery sorting and balancing, battery energy and thermal management system as well as EV control, (2) integration of EVs and renewable energy systems (e.g. solar photovoltaic (PV) systems and wind systems) into conventional power systems, including the smart use of EV batteries in power systems (e.g. smart grid) and the analysis and improvement of system stability for power systems integrated with renewable energy systems. In these areas, he has published more than 70 papers in referred journals and conference proceedings. In addition, he has actively sought research fund from various organizations and has been a principal investigators and co-investigators of many national, industrial and university sponsored projects for EV technology and solar PV system technology in China, Malaysia, Singapore and Australia. Since 2002, Weixiang has been served as the reviewers of IEEE Transaction on Vehicular

Technology, IEEE Transaction on Industrial Electronics, IEEE Transaction on Power Electronics, IEEE Transaction on Energy Conversion and Journal of Power Sources, etc. He was also invited as organizing committee members, track chairs and session chairs for several international conferences.

# Research interests

applied battery research for electric vehicles and integration of EVs and renewable energy systems into power grid

# PhD candidate and honours supervision

## Higher degrees by research

Accredited to supervise Masters & Doctoral students as Principal Coordinating Supervisor.

### PhD topics and outlines

Battery safety and integrity of battery packaging

Design of next generation battery management systems for EVs

Integration of EVs into power grids (G2V and V2G)

Integration of renewable energy sources into power grids with battery storage

Physic-based mathematical modelling of batteries for states estimation

Use of ultrasound to monitor and protect battery systems

# Fields of Research

Electrical And Electronic Engineering - 090600
Chemical Engineering - 090400
Mechanical Engineering - 091300

Publications Recent research grants awarded Recent media

*Also published as: Shen, Weixiang; Shen, W.; Shen, W. X.*

This publication listing is provided by Swinburne Research Bank. If you are the owner of this profile, contact us to update.

2017

2016

2015

2014

2013

2012

2011

2010

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**Journal article** Chowdhury, Md. Ayaz ; Mahmud, Md. Apel ; Shen, Weixiang ; Pota, Hemanshu Roy ; 2017. Nonlinear controller design for series-compensated DFIG-based wind farms to mitigate Subsynchronous Control Interaction, IEEE TRANSACTIONS ON ENERGY CONVERSION, Vol. 32, no. 2 (Jun 2017), pp. 707-719 ›

**Journal article** Cui, Xiudong ; Shen, Weixiang ; Zhang, Yunlei ; Hu, Cungang ; 2017. A fast multi-switched inductor balancing system based on a fuzzy logic controller for lithium-ion battery packs in electric vehicles, Energies, Vol. 10, no. 7 (Jul 2017), article no. 1034 ›

**Journal article** Arora, Shashank ; Shen, Weixiang ; Kapoor, Ajay ; 2017. Critical analysis of open circuit voltage and its effect on estimation of irreversible heat for Li-ion pouch cells, Journal of Power Sources, Vol. 350 (May 2017), pp. 117-126 ›

**Journal article** Arora, Shashank ; Shen, Weixiang ; Kapoor, Ajay ; 2017. Neural network based computational model for estimation of heat generation in LiFePO pouch cells of different nominal capacities, Computers and Chemical Engineering, Vol. 101 (Jun 2017), pp. 81-94 ›

**Journal article** Zhang, YongZhi ; Xiong, Rui ; He, HongWen ; Shen, Weixiang ; 2017. A lithium-ion battery pack state of charge and state of energy estimation algorithms using a hardware-in-the-loop validation, IEEE Transactions on Power Electronics, Vol. 32, no. 6 (Jun 2017), pp. 4421-4431 ›

**Conference paper** Ye, Wenjie ; Shen, Weixiang ; Zheng, Jinchuan ; Honnery, Damon ; Dayawansa, Daya ; 2017. Fuzzy parameter tuning sliding mode control for longitudinal motion of underground mining electric vehicles based on a single wheel model, International Conference on Advanced Mechatronic Systems (ICAMechS), Melbourne, Australia, 30 November-3 December 2016, pp. 283-288 ›

**Journal article** Cui, Xiudong ; Shen, Weixiang ; Zhang, Yunlei ; Hu, Cungang ; Zheng, Jinchuan ; 2017. Novel active LiFePO4 battery balancing method based on chargeable and dischargeable capacity, Computers and Chemical Engineering, Vol. 97 (Feb 2017), pp. 27-35 ›

**Journal article** Roy, T. K. ; Mahmud, M. A. ; Shen, Weixiang ; Oo, A. M. T. ; Haque, M. E. ; 2017. Robust nonlinear adaptive backstepping excitation controller design for rejecting external disturbances in multimachine power systems, International Journal of Electrical Power and Energy Systems, Vol. 84 (Jan 2017), pp. 76-86 ›



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