Long Wang

CONTACT INFORMATION

Department of Computer Science and Technology,
University of Science and Technology Beijing,
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RESEARCH INTERESTS

I am interested in machine learning, computer vision, computational intelligence, and their industrial applications. I have focused on developing deep learning based anomaly detection approaches for complex systems, such as wind turbines. Meanwhile, I have worked on developing computer vision algorithms for object detection based on UAV-taken images.

WORK EXPERIENCE

University of Science and Technology Beijing

Associate Professor 2017-now

Teach both undergraduate and graduate courses and supervise research students.
Postgraduate Level:

- Evolutionary Computation

Undergraduate Level:

- Database Systems Concept (in English)

City University of Hong Kong

Teaching Assistant 2015-2016

Duties at various times have included teaching tutorials, office hours, and leading weekly computer lab exercises.
Postgraduate Level:

- SEEM 6015 Supply Chain Management, Semester A 2015/16, Class Size: 85

Undergraduate Level:

- SEEM 4025 Quality Systems & Management, Semester B 2015/16, Class Size: 30
- SEEM 3040 Engineering Database & Systems, Semester A 2016/17, Class Size: 18

China Agricultural University

Research Assistant 2011-2013

Advisor: Prof. Peiling Yang
Developed a neural network based model to forecast soil moisture based on historical data and weather information.
Worked as the IT-supporter in the Soil-physics Lab

China Longyuan Power Group Corporation Ltd., Beijing, China

Summer Intern Summer 2015

Mentor: Jia Xu
Developed and implemented a data-driven framework for monitoring wind turbine power generation performance

Parensoc Ltd., London, UK

Summer Intern Summer 2014

Mentor: Mital Kinderkhedia

Developed both the front-end and the back-end of a social networking website. The project included user interface design, database design, and friend recommendation algorithm development.

Education

City University of Hong Kong 2014-2017
Ph.D. in Systems Engineering and Engineering Management Supervisor: Dr. Zijun Zhang

University College London (UCL) 2013-2014
M.Sc. in Computer Science, *Distinction* Dissertation Supervisor: Dr. Kevin Bryson

China Agricultural University 2011-2013
M.Eng. in Hydraulic Engineering Supervisor: Professor Peiling Yang

China Agricultural University 2007-2011
B.Eng. in Irrigation and Drainage Engineering, *GPA: 3.81/4.00*

Awards and Scholarships

Outstanding Associate Editors of 2018, IEEE Access	2019
Hong Kong PhD Fellowship	2014-2017
Research Tuition Scholarship	2015-2016
Chow Yei Ching School of Graduate Studies Entrance Scholarships	2014-2015
Outstanding Graduates of Beijing	2013
Outstanding Graduates of China Agricultural University	2013
Excellent All-round Student of Beijing	2011
First Class Scholarship for Academic Excellence	2010
Excellent All-round Student of China Agricultural University	2010
Samsung Scholarship for Agricultural Talents	2010
Second Class Scholarship for Academic Excellence	2009
Excellent All-round Student of China Agricultural University	2009
National Encouragement Scholarship	2009
First Class Scholarship for Academic Excellence	2008
Excellent All-round Student of China Agricultural University	2008
National Encouragement Scholarship	2008

Research Project

"Machine Learning Based Wind Turbine Condition Monitoring"
Sponsored by the Fundamental Research Funds for the Central Universities
Year: 2017-2020
PI: **Long Wang**

"Inferring User Interests from Social Images and Tags"
Sponsored by the University of Science and Technology Beijing National Taipei University of Technology Joint Research Program
Year: 2018
PI: **Long Wang**

"Wind Turbine Generation Performance Monitoring and Scheduling Optimization"
Sponsored by the Guangdong Provincial Key Laboratory of New and Renewable Research and Development

Year: 2018-2019
PI: **Long Wang**

"Wind Turbine Generation Performance Monitoring with Representation Learning"
Sponsored by Dong Energy Ltd.
Year: 2015-2017
PI: **Long Wang**

Publications

* Corresponding Author

J1. R. Jin, **L. Wang***, C. Huang, and S. Jiang, "Wind Turbine Generation Performance Monitoring with Jaya algorithm," *Internation Jouranl of Energy Research*, in press, 2019.

J2. **L. Wang**, Z. Zhang, J. Xu, and R. Liu, "Wind Turbine Blade Breakage Monitoring with Deep Autoencoders," *IEEE Transactions on Smart Grid*, vol. 9, no. 4, 2018.

J3. C. Huang, **L. Wang***, and L.L. Lai, "Data-driven Short-term Solar Irradiance Forecasting Based on Information of Neighboring Sites," *IEEE Transactions on Industrial Electronics*, in press, 2018.

J4. M. Chen, Y. Li, X. Luo, W. Wang, **L. Wang**, and W. Zhao, "A novel human activity recognition scheme for smart health using multilayer extreme learning machine," *IEEE Internet of Things Journal*, in press, 2018.

J5. X. Luo, J. Sun, **L. Wang**, W. Wang, J. Wu, J.H. Wang, and Z. Zhang, "Short-term Wind Speed Forecasting via Stacked Extreme Learning Machine With Generalized Correntropy," *IEEE Transactions on Industry Informatics*, in press, 2018.

J6. **L. Wang**, L. Zhuang, and Z. Zhang "Automatic Detection of Rail Surface Crack with a Superpixel-based Data-driven Framework," *ASCE Journal of Computing in Civil Engineering*, in press, 2018.

J7. **L. Wang** and C. Huang, "Parameter Estimation of the Soil Water Retention Curve Model with Jaya Algorithm," *Computers and Electronics in Agriculture*, vol. 151, 2018.

J8. J. Sun, Z. Wang, X. Luo, P. Shi, W. Wang, **L. Wang**, J. Wang, and W. Zhao, "A parallel recommender system using a collaborative filtering algorithm with correntropy for social networks," *IEEE Transactions on Network Science and Engineering*, in press, 2018.

J9. X. Luo, L. Cao, **L Wang***, Z Zhao, C Huang, "Parameter Identification of the Photovoltaic Cell Model with a Hybrid Jaya-NM Algorithm," *Optik*, vol. 171, 2018.

J10. C. Huang, **L. Wang***, "Simulation study on the degradation process of photovoltaic modules," *Energy Conversion and Management*, vol. 165, 2018.

J11. **L. Wang**, Z. Zhang, C. Huang, "A GPU-accelerated Parallel Jaya Algorithm for Efficiently Estimating Li-ion Battery Model Parameters," *Applied Soft Computing*, vol. 65, 2018.

J12. C. Huang, Z. Wang, Z. Zhao, **L. Wang***, C.S. Lai, D. Wang, "Robustness Evaluation of Extended and Unscented Kalman Filter for Battery State of Charge Estimation," *IEEE Access*, vol. 6, 2018.

J13. L. Zhuang, **L. Wang**, Z. Zhang, K.L. Tsui, "Automated Vision Inspection of Rail Surface Cracks: A Double-layer Data-driven Framework," *Transportation Research Part C*, vol. 92, 2018.

J14. **L. Wang** and C. Huang, "A Novel Elite Opposition-Based Jaya Algorithm for Parameter Estimation of Photovoltaic Cell Models," *Optik*, vol. 155, 2018. (**ESI Highly Cited Paper**)

J15. C. Huang, **L. Wang**, R.S.C. Yeung, Z. Zhang, H.S.H. Chung, and A. Bensoussan, "A Prediction Model Guided Jaya Algorithm for the PV System Maximum Power Point Tracking," *IEEE Transactions on Sustainable Energy,* vol. 9, no. 1, 2018. (**ESI Highly Cited Paper**)

J16. C. Huang, L. Cao, N. Peng, S. Li, J. Zhang, **L. Wang***, X. Luo, J.H. Wang, "Day-ahead Forecasting of Hourly Photovoltaic Power Based on Robust Multilayer Perception," Sustainability, vol. 10, no. 12, 2018.

J17. C. Huang, **L. Wang***, "Gaussian Process Regression Based Modeling of Lithium-ion Battery Temperature-Dependent Open-Circuit-Voltage," *IET Electronics Letters*, vol. 53, no. 17, 2017.

J18. **L. Wang** and Z. Zhang, "Automatic Detection of Wind Turbine Blade Surface Cracks Based on UAV-taken Images," *IEEE Transactions on Industrial Electronics*, vol. 64, no. 9, 2017.

J19. **L. Wang**, Z. Zhang, H. Long, J. Xu, and R. Liu, "Wind Turbine Gearbox Failure Identification with Deep Neural Networks," *IEEE Transactions on Industrial Informatics*, vol. 13, no. 3, pp. 1360-1368, June 2017.

J20. S. Jang, K.S. Chin, **L. Wang**, G. Qu, and K.L. Tsui, "Modified Genetic Algorithm-based Feature Selection Combined with Pre-trained Deep Neural Network for Demand Forecasting in Outpatient Department," *Expert Systems with Applications*, vol. 82, pp. 216-230, October 2017.

J21. **L. Wang**, Z. Zhang, and J. Chen, "Short-term Electricity Price Forecasting with Stacked Denoising Autoencoders," *IEEE Transactions on Power Systems*, vol. 32, no. 4, July 2017.

J22. H. Long, **L. Wang**, Z. Zhang, Z. Song, and J. Xu, "Data-Driven Wind Turbine Power Generation Performance Monitoring," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 10, pp. 6627-6635, June 2015.

C23. **L. Wang**, H. Long, Z. Zhang, J. Xu, and R. Liu, "Wind Turbine Gearbox Failure Monitoring Based on SCADA Data Analysis," *2016 IEEE Power and Energy Society General Meeting*, Boston, MA, July 2016.

C24. C. Huang, Z. Zhang, **L. Wang**, Z Song, and H Long, "A novel global maximum power point tracking method for PV system using Jaya algorithm," *2017 IEEE Conference on Energy Internet and Energy System Integration*, Beijing, China, November 2017.

Submitted Papers

L. Wang and Z. Zhang, "A Two-stage Data-driven Approach for Image based Wind Turbine Blade Crack Inspection," *IEEE Transactions on Mechatronics,* under 3rd review after minor revision.

C. Huang, J. Zhang, L. Cao, **L. Wang**, X. Luo, and A. Bensoussan, "Robust Forecasting of Riverflow Based on Convolutional Neural Networks and Transfer Learning," *IEEE Transactions on Cybernetics,* Under review.

C. Huang, **L. Wang**, Z. Zhang, and X. Luo, "The Short-term Solar Radiation Point and Probabilistic Forecasting via a Novel Gaussian Process Based Method," *IEEE Transactions on Systems, Man and Cybernetics: Systems*, Under review.

Presentations

"Data-driven Wind Turbine Condition Monitoring," 2016 East Lake International Forum for Outstanding Overseas Young Scholars, December, 2016, Wuhan, China

"Data Mining and its Application to Wind Energy," China Longyuan Power Group Corporation Ltd., November, 2016, Beijing, China

"Wind Turbine Gearbox Failure Monitoring Based on SCADA Data Analysis," 2016 IEEE Power and Energy Society General Meeting, July 2016, Boston, USA

"Wind Turbine Gearbox Failure Monitoring Based on SCADA Data Analysis," Seminar Series, Department of Systems Engineering and Engineering Management, City University of Hong Kong, August, 2016, Hong Kong

"Data-driven Wind Turbine Generation Performance Monitoring," China Longyuan Power Group Corporation Ltd., August, 2015, Beijing, China

Software

Sarky Grammaticus
Developers: Long Wang, Haoqiang Liu, and Jun Shang
This is a mobile game application (sponsored by Google UK) for Icelandic language learning, which supports multiple platforms including iOS and Android. An introduction video can be found at: `https:\\youtu.be\VAVMbOHz_h8`.

Professional Activities

Associate Editor, *IEEE Access* (IF: 3.557)
Academic Editor and Member of Editorial Board, *PLoS ONE* (IF: 2.766)
Lead Guest Editor, Special Issue "Data-Driven Methods for Agricultural Water Management" on *Water* (IF: 2.069)
Member, IEEE & IEEE Industrial Electronics Society
Member, China Computer Federation (CCF)
Member, CCF Technical Committee on Computer Vision
Member, Chinese Society for Electrical Engineering (CSEE)
Reviewer, *IEEE Transactions on Industrial Electronics*
Reviewer, *IEEE Transactions on Sustainable Energy*
Reviewer, *IEEE Transactions on Cybernetics*
Reviewer, *IEEE Transactions on Network Science and Engineering*
Reviewer, *IET Image Processing*
Reviewer, *IET Electronics Letters*
Reviewer, *Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering*
Reviewer, *Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering*
Reviewer, *Applied Soft Computing*
Reviewer, *Energy Conversion & Management*
Reviewer, *Evolutionary Computation*
Reviewer, *Renewable Energy*
Reviewer, *Journal of Intelligent Manufacturing*

References

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