

# James Jian Qiao Yu

ASSISTANT PROFESSOR · SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## Research Interest

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Deep learning in smart cities, big data and internet of things, evolutionary computation and optimization.

## Education

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### Doctor of Philosophy

Aug. 2015

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG

- Thesis: A Social Spider Inspired Metaheuristic for Global Numerical Optimization and its Applications
- Advisor: Prof. Victor On Kwok Li

### Bachelor of Engineering (Hons.)

Aug. 2011

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG

## Professional Experience

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### Assistant Professor

Jan. 2019 - Present

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY, CHINA

### Honorary Assistant Professor

Mar. 2017 - Present

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG

### Post-doctoral Fellow

Sept. 2015 - Dec. 2018

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG

- Advisor: Prof. David John Hill

### Visiting Scholar

Jun. 2013 - Jul. 2013

DEPARTAMENTO DE COMPUTACIÓN, CENTRO DE INVESTIGACIÓN Y DE ESTUDIOS AVANZADOS DEL INSTITUTO POLITÉCNICO NACIONAL, MEXICO

- Host: Prof. Carlos Artemio Coello Coello, Prof. Wen Yu

### Research Assistant

Nov. 2009 - Aug. 2010

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG

- Host: Prof. Victor On Kwok Li

## Research Grant

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### National Key Research and Development Program of China / 国家重点研发计划

Jul. 2017 - Dec. 2020

RESEARCH ON KEY TECHNOLOGY, CORE EQUIPMENT AND ENGINEERING DEMONSTRATION OF DISTRIBUTED RENEWABLE AC AND DC ENERGY GENERATION / 交直流混合的分布式可再生能源关键技术、核心装备和工程示范研究

- Grant number: 2017YFB0903200
- Awarded amount: RMB 62.56M
- Role: Co-Investigator and HKU Team Coordinator

### National Natural Science Foundation of China (Young Scientists Fund) / 国家自然科学基金 (青年基金)

Jan. 2018 - Dec. 2020

FUNDAMENTAL RESEARCH ON CONSTRUCTION AND OPERATION STRATEGIES OF CONVERGED NETWORK FOR SMART GRIDS AND ELECTRIC VEHICLES / 智能电网与电动车融合网络构建及运营策略的基础性研究

- Grant number: 51707170
- Awarded amount: RMB 200K
- Role: Co-Investigator

## Teaching Experience

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<b>Digital Logic</b> DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY • Role: Course Instructor	S'19
<b>Embedded System</b> DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG • Role: Guest Lecturer	F'16, F'17
<b>Engineering Management and Society</b> DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG • Role: Guest Lecturer	F'14
<b>Sustainability and Climate Change</b> DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG • Role: Teaching Assistant	S'14
<b>Communications Engineering</b> DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING, THE UNIVERSITY OF HONG KONG • Role: Teaching Assistant	S'12

## Professional Society Activities

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### Professional Committee Member

- Dec. 2017 Technical Program Committee, International Conference on Intelligent Systems Design and Applications
- 2015 Pre-College Activities Subcommittee, IEEE Computational Intelligence Society
- 2015 Young Professionals Subcommittee, IEEE Computational Intelligence Society
- Jul. 2014 Technical Program Committee, IEEE World Congress on Computational Intelligence
- 2014 Student Activities Subcommittee, IEEE Computational Intelligence Society
- Aug. 2013 Technical Program Committee, World Congress on Nature and Biologically Inspired Computing
- 2013 Webinars Subcommittee, IEEE Computational Intelligence Society

### Reviewer

IEEE Transactions on Smart Grid  
IEEE Transactions on Intelligent Transportation Systems  
IEEE Transactions on Power Systems  
IEEE Transactions on Industrial Informatics  
IEEE Transactions on Evolutionary Computation  
IEEE Transactions on Systems, Man, and Cybernetics: Systems  
IEEE Transactions on Cybernetics  
IEEE Transactions on Cognitive Communications and Networking  
IEEE Internet of Things Journal  
IEEE Systems Journal  
IEEE Access  
IET Generation, Transmission & Distribution  
International Journal of Electrical Power and Energy Systems  
International Journal of Production Economics  
International Journal of Engineering Science and Technology  
Journal of New Generation Computing

Journal of Renewable and Sustainable Energy  
Applied Soft Computing  
Cogent Engineering  
Cognitive Computation  
Computers and Operations Research  
Digital Signal Processing  
Neurocomputing  
Neural Computing and Applications  
Swarm and Evolutionary Computation  
Many other prestigious journals and top-tier international conferences

## Journal Publications

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### [1] Synchrophasor Recovery and Prediction: A Graph-based Deep Learning Approach

**JAMES J.Q. YU**, DAVID J. HILL, VICTOR O.K. LI, YUNHE HOU

IEEE Internet of Things Journal, in press, DOI: 10.1109/JIOT.2019.2899395.

### [2] Two-Stage Request Scheduling for Autonomous Vehicle Logistic System

**JAMES J.Q. YU**

IEEE Transactions on Intelligent Transportation Systems, in press, DOI: 10.1109/TITS.2018.2849091.

### [3] Delay Aware Power System Synchrophasor Recovery and Prediction Framework

**JAMES J.Q. YU**, ALBERT Y.S. LAM, DAVID J. HILL, YUNHE HOU, AND VICTOR O.K. LI

IEEE Transactions on Smart Grid, in press, DOI: 10.1109/TSG.2018.2834543.

### [4] Intelligent Fault Detection Scheme for Microgrids with Wavelet-based Deep Neural Networks

**JAMES J.Q. YU**, YUNHE HOU, ALBERT Y.S. LAM, AND VICTOR O.K. LI

IEEE Transactions on Smart Grid, in press, DOI: 10.1109/TSG.2017.2776310.

### [5] Core-Selecting Auctions for Autonomous Vehicle Public Transportation System

**JAMES J.Q. YU** AND ALBERT Y.S. LAM

IEEE Systems Journal, in press, DOI: 10.1109/JSYST.2018.2864589.

### [6] Delay Aware Transient Stability Assessment with Synchrophasor Recovery and Prediction Framework

**JAMES J.Q. YU**, DAVID J. HILL, AND ALBERT Y.S. LAM

Neurocomputing, Volume 322, Dec. 2018, Pages 187-194, DOI: 10.1016/j.neucom.2018.09.059.

### [7] Coordinated Autonomous Vehicle Parking for Vehicle-to-Grid Services: Formulation and Distributed Algorithm

ALBERT Y.S. LAM, **JAMES J.Q. YU**, YUNHE HOU, AND VICTOR O.K. LI

IEEE Transactions on Smart Grid, Volume 9, Issue 5, Sept. 2018, Pages 4356-4366, DOI: 10.1109/TSG.2017.2655299.

### [8] Online False Data Injection Attack Detection with Wavelet Transform and Deep Neural Networks

**JAMES J.Q. YU**, YUNHE HOU, AND VICTOR O.K. LI

IEEE Transactions on Industrial Informatics, Volume 14, Issue 7, Jul. 2018, Pages 3271-3280, DOI: 10.1109/TII.2018.2825243.

### [9] Autonomous Vehicle Logistic System: Joint Routing and Charging Strategy

**JAMES J.Q. YU** AND ALBERT Y.S. LAM

IEEE Transactions on Intelligent Transportation Systems, Volume 19, Issue 7, Jul. 2018, Pages 2175-2187, DOI: 10.1109/TITS.2017.2766682.

### [10] Double Auction-based Pricing Mechanism for Autonomous Vehicle Public Transportation System

**JAMES J.Q. YU**, ALBERT Y.S. LAM, AND ZHIYI LU

IEEE Transactions on Intelligent Vehicles, Volume 3, Issue 2, Jun. 2018, Pages 151-162, DOI: 10.1109/TIV.2018.2804161.

### [11] Intelligent Time-Adaptive Transient Stability Assessment System

**JAMES J.Q. YU**, DAVID J. HILL, ALBERT Y.S. LAM, JIATAO GU, AND VICTOR O.K. LI

IEEE Transactions on Power Systems, Volume 33, Issue 1, Jan. 2018, Pages 1049-1058, DOI: 10.1109/TPWRS.2017.2707501.

[12] A Unified Framework for Wide Area Measurement System Planning

**JAMES J.Q. YU**, ALBERT Y.S. LAM, DAVID J. HILL, AND VICTOR O.K. LI

International Journal of Electrical Power and Energy Systems, Volume 96, Mar. 2018, Pages 43-51, DOI: 10.1016/j.ijepes.2017.09.032.

[13] Delay Aware Intelligent Transient Stability Assessment System

**JAMES J.Q. YU**, ALBERT Y.S. LAM, DAVID J. HILL, AND VICTOR O.K. LI

IEEE Access, Volume 5, Aug. 2017, Pages 17230-17239, DOI: 10.1109/ACCESS.2017.2746093.

[14] A Social Spider Algorithm for Solving the Non-convex Economic Load Dispatch Problem

**JAMES J.Q. YU** AND VICTOR O.K. LI

Neurocomputing, Volume 171, Jan. 2016, Pages 955-965, DOI: 10.1016/j.neucom.2015.07.037.

[15] A Social Spider Algorithm for Global Optimization

**JAMES J.Q. YU** AND VICTOR O.K. LI

Applied Soft Computing, Volume 30, May 2015, Pages 614-627, DOI: 10.1016/j.asoc.2015.02.014.

[16] Power-Controlled Cognitive Radio Spectrum Allocation with Chemical Reaction Optimization

ALBERT Y.S. LAM, VICTOR O.K. LI, AND **JAMES J.Q. YU**

IEEE Transactions on Wireless Communications, Volume 12, Issue 7, Jul. 2013, Pages 3180-3190, DOI: 10.1109/TWC.2013.061713.120255.

[17] Real-Coded Chemical Reaction Optimization

ALBERT Y.S. LAM, VICTOR O.K. LI, AND **JAMES J.Q. YU**

IEEE Transactions on Evolutionary Computation, Volume 16, Issue 3, Jun. 2012, Pages 339-353, DOI: 10.1109/TEVC.2011.2161091.

## Journal Submissions

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[1] Real-Time Traffic Speed Estimation with Graph Convolutional Generative Autoencoder

**JAMES J.Q. YU** AND JIATAO GU

IEEE Transactions on Intelligent Transportation Systems, major revision.

[2] Online Vehicle Routing with Neural Combinatorial Optimization and Deep Reinforcement Learning

**JAMES J.Q. YU**, WEN YU, AND JIATAO GU

IEEE Transactions on Intelligent Transportation Systems, major revision.

[3] Travel Mode Identification with GPS Trajectories using Wavelet Transform and Deep Learning

**JAMES J.Q. YU**

IEEE Transactions on Intelligent Transportation Systems, under review.

[4] A Novel Interpolation-SVT Approach for Recovering Missing Low-Rank Air Quality Data

YANGWEN YU, **JAMES J.Q. YU**, VICTOR O.K. LI, AND JACQUELINE C.K. LAM

IEEE Transactions on Big Data, under review.

## Books and Chapters

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[1] Optimal scheduling with vehicle-to-grid ancillary services

JUNHAO LIN, **JAMES J.Q. YU**, KA-CHEONG LEUNG, AND VICTOR O.K. LI

Energy Systems for Electric and Hybrid Vehicles, IET 2016.

## Conference Publications

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[1] Low-rank Singular Value Thresholding for Recovering Missing Air Quality Data

YANGWEN YU, **JAMES J.Q. YU**, VICTOR O.K. LI, AND JACQUELINE C.K. LAM

Proc. IEEE International Conference on Big Data, Boston, MA, Dec. 2017, Pages 508-513, DOI: 10.1109/BigData.2017.8257965.

[2] Energy Exchange Coordination of Off-Grid Charging Stations with Vehicular Energy Network

**JAMES J.Q. YU**, ALBERT Y.S. LAM, AND SIEW-CHONG TAN

Proc. IEEE International Conference on Smart Grid Communications, Dresden, Germany, Oct. 2017, DOI: 10.1109/SmartGridComm.2017.8340687.

[3] Robust Routing for Vehicular Energy Network Routing

ALBERT Y.S. LAM AND **JAMES J.Q. YU**

Proc. ACM International Conference on Future Energy Systems, Shatin, Hong Kong, May 2017, Pages 341-346, DOI: 10.1145/3077839.3078465.

[4] Maximizing Aggregator Profit through Energy Trading by Coordinated Electric Vehicle Charging

**JAMES J.Q. YU**, JUNHAO LIN, ALBERT Y.S. LAM, AND VICTOR O.K. LI

Proc. IEEE International Conference on Smart Grid Communications, Sydney, Australia, Nov. 2016, Pages 497-502, DOI: 10.1109/SmartGridComm.2016.7778810.

[5] Coordinated Autonomous Vehicle Parking for Vehicle-to-Grid Services

ALBERT Y.S. LAM, **JAMES J.Q. YU**, YUNHE HOU, AND VICTOR O.K. LI

Proc. IEEE International Conference on Smart Grid Communications, Sydney, Australia, Nov. 2016, Pages 284-289, DOI: 10.1109/SmartGridComm.2016.7778775.

[6] Joint Relay and User Selection for Two-hop Multi-relay Multi-user MIMO Systems

YIJIE MAO, SOBIA JANGSHER, **JAMES J.Q. YU**, AND VICTOR O.K. LI

Proc. IEEE International Conference on Communication Systems, Shenzhen, China, Dec. 2016, DOI: 10.1109/ICCS.2016.7833597.

[7] Parameter Sensitivity Analysis of Social Spider Algorithm

**JAMES J.Q. YU** AND VICTOR O.K. LI

Proc. IEEE Congress on Evolutionary Computation, Sendai, Japan, May 2015, Pages 3200-3205, DOI: 10.1109/CEC.2015.7257289.

[8] Adaptive Chemical Reaction Optimization for Global Numerical Optimization

**JAMES J.Q. YU**, ALBERT Y.S. LAM, AND VICTOR O.K. LI

Proc. IEEE Congress on Evolutionary Computation, Sendai, Japan, May 2015, Pages 3192-3199, DOI: 10.1109/CEC.2015.7257288.

[9] Base Station Switching Problem for Green Cellular Networks with Social Spider Algorithm

**JAMES J.Q. YU** AND VICTOR O.K. LI

Proc. IEEE World Congress on Computational Intelligence, Beijing, China, Jul. 2014, Pages 2338-2344, DOI: 10.1109/CEC.2014.6900235.

[10] Chemical Reaction Optimization for the Set Covering Problem

**JAMES J.Q. YU**, ALBERT Y.S. LAM, AND VICTOR O.K. LI

Proc. IEEE World Congress on Computational Intelligence, Beijing, China, Jul. 2014, Pages 512-519, DOI: 10.1109/CEC.2014.6900233.

[11] An Inter-molecular Adaptive Collision Scheme for Chemical Reaction Optimization

**JAMES J.Q. YU**, VICTOR O.K. LI, AND ALBERT Y.S. LAM

Proc. IEEE World Congress on Computational Intelligence, Beijing, China, Jul. 2014, Pages 1998-2004, DOI: 10.1109/CEC.2014.6900234.

[12] Optimal V2G Scheduling of Electric Vehicles and Unit Commitment using Chemical Reaction Optimization

**JAMES J.Q. YU**, VICTOR O.K. LI, AND ALBERT Y.S. LAM

Proc. IEEE Congress on Evolutionary Computation, Cancun, Mexico, Jun. 2013, Pages 392-399, DOI: 10.1109/CEC.2013.6557596.

[13] Sensor Deployment for Air Pollution Monitoring Using Public Transportation System

**JAMES J.Q. YU**, VICTOR O.K. LI, AND ALBERT Y.S. LAM

Proc. IEEE World Congress on Computational Intelligence, Brisbane, Australia, Jun. 2012, DOI: 10.1109/CEC.2012.6256495.

[14] Real-Coded Chemical Reaction Optimization with Different Perturbation Functions

**JAMES J.Q. YU**, ALBERT Y.S. LAM, AND VICTOR O.K. LI

Proc. IEEE World Congress on Computational Intelligence, Brisbane, Australia, Jun. 2012, DOI: 10.1109/CEC.2012.6252925.

[15] Chemical Reaction Optimization for the Optimal Power Flow Problem

YI SUN, ALBERT Y.S. LAM, VICTOR O.K. LI, JIN XU, AND **JAMES J.Q. YU**

Proc. IEEE World Congress on Computational Intelligence, Brisbane, Australia, Jun. 2012, DOI: 10.1109/CEC.2012.6253003.

[16] Evolutionary Artificial Neural Network Based on Chemical Reaction Optimization

**JAMES J.Q. YU**, ALBERT Y.S. LAM, AND VICTOR O.K. LI

Proc. IEEE Congress on Evolutionary Computation, New Orleans, LA, Jun. 2011, Pages 2083-2090, DOI: 10.1109/CEC.2011.5949872.