CURRICULUM VITAE

1   Personal Information

1.1   Personal Details

Name: Shaofeng LU

Chinese Name: 卢少锋

Current Job Title: Associate Professor

Work Address:

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Shien-Ming Wu School of Intelligent Engineering
Guangzhou International Campus
South China University of Technology (SCUT)
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Panyu District
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Work phone: 020-81182116
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Work email: lushaofeng@scut.edu.cn

Private Email Address: Shaofeng.Lu@qq.com

Date of Birth (DD-MM-YYYY): 28-10-1985
Gender (Male or Female): Male
Country of Birth: China
Passport Nationality: China

1.1.1   Emergency Contact Details

Name of Emergency Contact: Ms. Hui Zhou

Relationship with Emergency Contact: Spouse

Telephone No. of Emergency Contact: 13626212203

Email address of Emergency Contact: angela.hui.zhou@qq.com

1.2   Academic Qualifications

PhD (Sep. 2007 – Dec. 2011) Electrical Engineering, School of Electronic, Electrical and Computer Engineering (Now School of Electronic, Electrical and Systems Engineering), the University of Birmingham, Birmingham. UK

Thesis title: Optimising Power Management Strategies for Railway Traction Systems (2011 School Best over-all PhD prize), Supervisors: Dr. Stuart Hillmansen and Prof. Clive Roberts

B.Eng (Sep. 2006 – Jul. 2007) Electronic and Electrical Engineering (Direct entry), School of Electronic, Electrical and Computer Engineering (Now School of Electronic, Electrical and Systems Engineering), the University of Birmingham, Birmingham, UK, 1st Class Honours

B.Eng. (Sep. 2003 – Jul. 2007) Electrical and Electronic Engineering, College of Electrical and Electronic Engineering, Huazhong University of Science and Technology (HUST), Wuhan, China

1.3   Employment Record

09/09/2019 – Present: **Associate Professor**
Shien-Ming Wu School of Intelligent Engineering, SCUT

01/09/2018 – 31/08/2019:   **Associate Professor**
Department of Electrical and Electronic Engineering, Xi'an Jiaotong-Liverpool University (XJTLU)

02/09/2013 – 31/08/2018   **Lecturer/Assistant Professor**

Department of Electrical and Electronic Engineering, XJTLU

01/09/2012 – 01/08/2013:   **Research Fellow**
School of Electrical and Electronic Engineering
Nanyang Technological University, Singapore

15/02/2011 – 31/08/2012:   **Facilities Manager/Research Associate**
Department of Electronic, Electrical and Computer Engineering
University of Birmingham, UK

01/09/2012 – 01/08/2013:   **Research Fellow**

2   Teaching Experience

I am a Fellow of Higher Education Academy, UK. In the past 8 years, I have been practicing different ways of improving students' learning experiences in the past few years including flipped-classroom type of teaching, using tablet and student response-systems to deliver the module and online quiz systems to support student feedback systems via conducting TDF project and collaborations with teaching colleagues.

I have passed all Certificate of Professional Studies (CPS), awarded by the Liverpool of University, with an overall grade of "Pass with Distinction". Part of the feedbacks from CPS assessor on module "Learning, Teaching and Assessment" is quoted as below:

This is a very strong submission that demonstrates a clear understanding of diversity in all its challenges within learning and teaching in Higher Education. You have provided evidence of evaluation of your own teaching methods and activities specifically designed to meet the needs of diverse student learning that present within your practice. The development of the systematic design of on-line quizzes in lab-based teaching environments demonstrates innovation and warrants wider dissemination to the further community of academics within XJTLU. Your project of designing and producing video content 'by and for' students is inspirational and intended to enhance the student learning experience of all your students. Enabling students to create these resources involves them in processes that motivate and engage them in learning and at the same time building transferable skills using technology.

This submission clearly meets the criteria of distinction level which overall gives you a distinction for CPS 301. It also demonstrates your commitment to continuous professional development in your teaching practice in order to enhance the learning experience of your students. Well done, I really enjoyed reading this assignment.

I have consistently received high scores in module teaching questionnaires for both modules. For example, for EEE103 with more 100 students participating in the questionnaire, my overall teacher score is 4.66/5 in AY 2017-18, 4.74/5 in AY 2016-17, 4.63/5 in AY 2015-16 which are significantly higher than department and university average scores.

In 2018, UG student Bin Xu under my supervision received the First Prize for International Student Essay Competition and was invited to 2018 IEEE Conference on Intelligent Transportation Systems (ITSC2018).

In 2017, I led a team to participate Jiangsu Micro-Lecture Competition using materials I used in EEE103 Class.

2013 – 2019:	28 lecture-hour + 28 tutorial-hour course and 8-hours associated laboratory work for a 5-credit year-2 module on "**Electrical Circuits 1 – EEE103**" (Normally 200 students per year)
	28 lecture-hour + 28 tutorial-hour for a 5-credit Year-4 module on "**Smart Grid Technologies – EEE334**". (Normally 20 students per year)
2019 – Present:	24 lecture-hour, **Introductions to Engineering- Technical Communications** (100 students, <u>First-Class Course at Guangzhou International Campus</u>, SCUT)
	64 lecture-hour, **Introduction to Dynamics and Vibration**, (100 students)
	64 lecture-hour, **Introduction to Programming** (100 students)

3   Administration

2018 – 2019 Programme Leader, BEng Internet of Things (IoT), School of IoT, XJTLU Entrepreneur College (Taicang)

As the programme leader and preparatory team member for XJTLU Entrepreneur College, I am fully in charge of the development of the programme and research of the school with a close collaboration with the Principle and Dean (Learning and Teaching).

2014 – 2018   Member of University Academic Board

As a member of University Academic Board, I proposed several motions to the board. One of the key motions is about the **university research profile management system** and my motion contributed to a series of university administration actions on Sedona and other relevant issues. I have also support HoD to **realize important honorary appointment of IEEE fellow Prof. Yuhui Shi**. I have been collecting feedbacks from colleagues and report important decisions from the board to maximize the functions of the board amongst members of staff.

2017 – 2019   Department Research Officer

As the department research officer, I coordinate the department series research seminar and promote research environments within the department. I support the department on Internal Periodic Review and Master Degree Awarding Power Application. I support HoD to draft department Research Performance Report by collecting important research outcome data from each individual staff members. The duty takes significant amount of time in processing the information and leads me to propose an important motion related to research profile management systems to the University Academic Board and contributes to later series university administrative actions on this regard.

2017 – 2019   Member of University Research Committee

2017 – Present   Member of University RDF/PGRS Review Subcommittee

2017 – Present   Member of University Funding Subcommittee

As a member of university research committee and relevant subcommittees, I have been conducting my duty to support a fair, just and transparent university research funding allocations. I have been contributing to key updates of university policies such as policy on University Support on large external funding and fee-only scholarship via raising meeting agenda items.

2015 – 2016   University Autonomous Admission Assessment Panellist

2013 – 2016   Department Year-1 Leader and Member of Departmental Learning and Teaching Committee

As the year-one leader and member of DLTC, I have been able to support a series of department promotion events to year-one students. I help draft up the promotion slides which have been used as the fundamental version of department promotion slides. I volunteered to draft up a number of department promotion news stories, including the news about EEE professors receiving IET fellowship and IEEE fellowship in 2016.

2014 – Present   Department Progressive Committee Member (Ad Hoc)

4   Research Experience

4.1   Research Profile

Google Scholar Page: Link

OCRID: 0000-0001-5361-2463 Link

H-Index According to Google Scholar as of 2021-08-20: 14

Citation Number According to Google Scholar as of 2021-08-20: 939

4.2   Research Interests

My research interests lie in the following areas:

- Energy efficient train operations/ optimal train control
- Electric Vehicles and smart power grids
- Energy storage technology and its applications
- Complex network theory and applications in transportation networks and power grids

4.2.1   Teaching Research

As the **principal investigator (PI) for a Teaching Develop Fund (TDF) project (ref: 14/15-R10-087),** I and my project team members have been looking into the existing problems in electronic lab-based teaching at the Department of Electronic and Electrical Engineering. In last semester, we hired student volunteers to generate high-quality video tutorials for lab instruments and this have received positive feedbacks from our on-going modules EEE103 and EEE116. The backgrounds, motivation and more details about the practices are illustrated as follows.

Lab-based teaching in which hands-on experiments are to be conducted by students takes an important part for a wide range of engineering and science disciplines. In our current practice, the lab-based teaching involves live demonstration and tutorials after the off-line lab manual review. This has become particularly problematic when the number of students is large and insufficiency on the lab-supporting system becomes a common issue. In the meantime, even with a small number of students, it can be interesting to prepare the lab in a one-to-one tutorial. Well-designed video tutorials eliminate the time and space constraints on learning and provide comprehensive details to students to enable them focus on deepening the understanding of concepts, rather than spending majority of time of trouble shooting during the lab.

With the full technical support from the Digital Learning Resources Hub at Xi'an Jiaotong-Liverpool University, one of the pioneer international university in China, we propose to involve student volunteers to generate a series of customized video tutorials into our electronic lab-based teaching practice. From the viewpoint of students themselves, these video tutorials are carefully designed based on students' learning needs to seamlessly integrate a wide range of theoretical and practical information. Under the supervision of staff, volunteers will be able to repeat their learning cycles with a different role and enhance their own understanding and knowledge structures, promoting the student-centered education model. Some scenery-based video tutorials will be used in the online quizzes questions to better prepare the students. The generated video tutorials will be shared across a number of electronic modules to further investigate the effectiveness of these video tutorials. The effectiveness will be further explored using online questionnaires and online quizzes.

I am and my team members are a team consisting of module instructors, lab technicians and students who are the main stakeholders on teaching activities in the university. We would wish our practices and the experiences accumulated upon would benefit not only inside EEE, but also a wider XJTLU community.

A news story about our project was published on university website via link.

4.2.2   Teaching Professional Development

I have completed my **Certificate in Professional Studies (CPS)** assessment in 2017 after a completion of all relevant courses. My CPS assignment provisional feedbacks are with Distinction Grade for 10-credit module and Merit Grade for other two 5-credit component.

I participated as the oral presenter in **XJTLU Annual Learning and Teaching Colloquium** from 2015 to 2016.

I delivered 4 **ILEAD training sessions** to external visitors and XJTLU students as the training instructor and supervisor and a number of ILEAD events. My lectures delivered to ILEAD have received positive feedbacks from the attendees and ILEAD colleagues.

I led a team to participate **1ˢᵗ XJTLU National Teacher Competition** and awarded with the running-up prize in 2016.

4.3 Key Lab Involvement

4.3.1 Centre for Smart Grids and Information Convergence (CSGIC)

I am involved with CSGIC where my research includes smart grid technology and my role and responsibilities include support centre director in organizing the centre events and supervising visiting research students. The major accomplishments are 3 series centre organized international workshops and conference.

4.3.2 Suzhou Municipal Key Lab of Cognitive Computation & Applied Technology

I am involved with Suzhou Municipal Key Lab of Cognitive Computation & Applied Technology where my research includes Artificial Intelligence algorithms applied for energy-efficient train control.

4.4 External Research Grants

1. **Principal Investigator,** "Notch-based traction-oriented Speed Trajectory Optimization for High-Speed Trains", State Key Laboratory on Railway Traffic Safety and Control Open Project, RMB 40k, 2021

2. **Principal Investigator,** "Comprehensive Energy Management for Urban Electrified Transportation Systems", *Central University Fundamental Research Fund- Key Project*, RMB 200k, 2019-2021

3. **Principal Investigator,** State Grid Energy Research Institute, Industry Collaborative Project (SGERI-2018JT01-014), RMB110k 2018

4. **Principal Investigator** NSFC Young Scientist Category (61763016), RMB 190k 3 Research Assistants, awarded year 2017-2021

5. **Principal Investigator,** Jiangsu University Natural Science Fund (14KJB580010), RMB 30k, awarded year 2014

6. **Co-Investigator,** NSFC Regional Cooperation Project (61603306), RMB 400k awarded year 2017

7. **Co-Investigator,** SDIC Baiyin Wind Power Co., LTD. Cooperation Project, RMB 550k contract signed year 2017

4.5 Research Supervision

4.5.1 Master Students Supervised (12 in total)

Jiangxi University of Science and Technology

Degree awarded in 2021: Kuan Zhu

The University of Liverpool

Degree awarded in 2019: Yuchen Ding, Mateo Ramirez, Khalid Abdulkadir and Jacob Omari

Degree awarded in 2018: Wei Ding, Xiao Han, Lifu Song

Degree awarded before 2018: Li Gao (2015), Jie Jian (2016), Yang Wang (2017), Jin Huang (2017)

4.5.2 Ph.D. Students Supervised (3 in Total)

Student: Chaoxian Wu

Period: From Oct. 1 2017 to Dec. 15 2021

Institution: University of Liverpool

Title: Intelligent Train Operation with On-Board Energy Storage Device: An Energy-Saving Perspective

Defended: Yes

Role: Main supervisor (Remained as key supervisor after leaving XJTLU)

Student: Bing Han

Period: From Oct. 1 2015 to Dec 15 2019

Institution: University of Liverpool

Title: Electric Vehicle Energy Management Considering Stakeholders' interest in Smart Grids

Defended: Yes

Role: Main supervisor

Student: Xiaotong Xu

Period: From Oct. 1 2014 to Dec 15 2018

Institution: University of Liverpool

Title: Upgrading Plan for Conventional Distribution Networks Considering Virtual Microgrid Systems

Defended: Yes

Role: Main co-supervisor

4.5.3   Graduate Students Currently Under Supervision

2 PhD students (SCUT) and 7 Master students (SCUT)

4.6   Research Examination Duties

4.6.1   External MRes Dissertation Examiner

Zhe Zheng, University of Birmingham, UK, 2017

5   Publications

Up until July. 2021, **I have published 30 referred journal papers, 15 of which (listed in red) are first-authored or corresponding-authored and the total number of refereed papers exceeds 60.** Most of the journal papers are published on top-tier high-impact IEEE transactions across transportation and power systems.

5.1   Refereed Journal Papers

[1]. Minling Feng, Chaoxian Wu, **Shaofeng Lu*** and Yihui Wang*, "Notch-based speed trajectory optimisation for high-speed railway automatic train operation", *Proc IMechE Part F: J Rail and Rapid Transit*, 2021 (Accepted for Publication)

[2]. **Shaofeng Lu,** Bing Han, Fei Xue, Lin Jiang and Kejun Qian, "Research on Multi-Objective Optimization of EV Charging and Discharging for Different Stakeholders", *CSEE Journal of Power and Energy Systems*, Accepted for Publication, 2021 (Accepted for Publication)

[3]. Chen Qiu, Tan Chen, **Shaofeng Lu**, Haifeng Wang, "A Safety-oriented Train Tracking Method of Dynamic Moving Block Train Control System Based on Train-to-Train Communication", *IEEE Intelligent Transportation Systems Magazine*, 2021

[4]. Yida Guo, Cheng Zhang, Chaoxian Wu, **Shaofeng Lu**, "MAS Based Near Real-time Trajectory and Microscopic Timetable Optimization for Rail Transit Network", *Journal of Transportation Engineering, Part A: Systems* 147 (2), 04020153

[5]. **S Lu,** B Han, F Xue, L Jiang, X Feng, "Stochastic bidding strategy of electric vehicles and energy storage systems in uncertain reserve market", *IET Renewable Power Generation* 14 (18), 3653-3661, 2021

[6]. C Wu, B Xu, **S Lu***, F Xue, L Jiang, M Chen, "Adaptive eco-driving strategy and feasibility analysis for electric trains with on-board energy storage devices", *IEEE Transactions on Transportation Electrification*, 2021

[7]. C Wu, **S Lu***, F Xue, L Jiang, M Chen, J Yang, "A Two-Step Method for Energy-Efficient Train Operation, Timetabling and On-Board Energy Storage Device Management", *IEEE Transactions on Transportation Electrification*, 2021

[8]. R. Miao, C. Wu, K. Zhu, F. Xue, Z. Tian, S. Hillmansen, C. Roberts, **S. Lu*** "An Integrated Optimisation Model for Neutral Section Loation Planning and Energy-efficient Train Control in Eletrified Railways," *IET Renewable Power Generation*, 14 (18), 3599-3607

[9]. C. Wu, **S. Lu***, F. Xue, L. Jiang and M. Chen, "Optimal Sizing of On-Board Energy Storage Devices for Electrified Railway Systems," in *IEEE Transactions on Transportation Electrification*, doi: 10.1109/TTE.2020.2996362.

[10]. X Xu, F Xue, X Wang, S Lu, L Jiang, C Gao "Upgrading conventional distribution networks by actively planning distributed generation based on virtual microgrids" *IEEE Systems Journal*, 2020

[11]. Z. Pan, M. Chen, **S. Lu**, Z. Tian and Y. Liu, "Integrated Timetable Optimization for Minimum Total Energy Consumption of an AC Railway System," in *IEEE Transactions on Vehicular Technology*, vol. 69, no. 4, pp. 3641-3653, April 2020, doi: 10.1109/TVT.2020.2975603.

[12]. Chunchao Wu, Fei Xue, Xiaotong Xu, **Shaofeng Lu**, Lin Jiang and Gang Li, "Partitioning Method of Virtual Microgrid Based on Electrical Coupling Strength", *Automation of Electric Power Systems*, Vol 43, No. 13, 2019

[13]. Bing Han, **Shaofeng Lu*,** Fei Xue and Lin Jiang, "Day-Ahead Electric Vehicle Aggregator Bidding Strategy using Stochastic Programming in an Uncertain Reserve Market", *IET Generation, Transmission and Distribution*, 13 (12), 2517-2525

[14]. Fei Xue, **Shaofeng Lu**, Ettore Bompard, Ciwei Gao, Lin Jiang and Xiaoliang Wang, "Node Type Distribution and Its Impacts on Performance of Power Grids", IEEE Access, pp. 46480 – 46490, 2019

[15]. C. Wu, W. Zhang, **S. Lu*,** Z. Tan, F. Xue, and J. Yang, "Train Speed Trajectory Optimization With On-Board Energy Storage Device," IEEE Transactions on Intelligent Transportation Systems, pp. 1-11, 2018.

[16]. Zhaoxiang Tan, **Shaofeng Lu***, Kai Bao, Shaoning Zhang, Chaoxian Wu, Jie Yang and Fei Xue, "Adaptive Partial Train Speed Trajectory Optimization", *Energies*, 11, 3302, 2018

[17]. Yuanli Liu, Minwu Chen, **Shaofeng Lu,** Yinyu Chen, Qunzhan Li, "Optimized Sizing and Scheduling of Hybrid Energy Storage Systems for High-speed Railway Traction Substation", *Energies*, 2018

[18]. X. Xu, F. Xue, **S. Lu,** H. Zhu, L. Jiang, and B. Han, "Structural and Hierarchical Partitioning of Virtual Microgrids in Power Distribution Network," IEEE Systems Journal, Early Access, 2018.

[19]. J. Yang, L. Jia, Y. Fu, and **S. Lu,** "Speed Tracking Based Energy-Efficient Freight Train Control through Multi-Algorithms Combination," IEEE Intelligent Transportation Systems Magazine, vol. 9, pp. 76-90, 2017.

[20]. F. Xue, Y. Xu, H. Zhu, **S. Lu,** T. Huang, and J. Zhang, "Structural Evaluation for Distribution Networks with Distributed Generation Based on Complex Network," Complexity, vol. 2017, 2017.

[21]. F. Xue, E. Bompard, T. Huang, L. Jiang, **S. Lu,** and H. Zhu, "Interrelation of structure and operational states in cascading failure of overloading lines in power grids," Physica A: Statistical Mechanics and its Applications, vol. 482, pp. 728-740, 2017.

[22]. B. Han, **S. Lu*,** F. Xue, L. Jiang, and X. Xu, "Three-stage electric vehicle scheduling considering stakeholders economic inconsistency and battery degradation," IET Cyber-Physical Systems: Theory & Applications, vol. 2, pp. 102-110, 2017.

[23]. J. Yang, L. Jia, **S. Lu,** Y. Fu, and J. Ge, "Energy-efficient speed profile approximation: An optimal switching region-based approach with adaptive resolution," Energies, vol. 9, p. 762, 2016.

[24]. J. Yang L. Jia, **S. Lu,** and Z. Li, "Electrified Freight Train Energy-efficient Operation Part 1: Target Speed Trajectory Optimization", Journal of the China Railway Society, 38(4):27-36, 2016

[25]. **S. Lu,** M. Q. Wang, P. Weston, S. Chen, and J. Yang, "Partial Train Speed Trajectory Optimization Using Mixed-Integer Linear Programming," IEEE Transactions on Intelligent Transportation Systems, vol. 17, no. 10, pp. 2911–2920, 2016.

[26]. S. X. Chen, Y. S. F. Eddy, H. B. Gooi, M. Q. Wang, and **S. F. Lu,** "A centralized reactive power compensation system for LV distribution networks," IEEE Transactions on Power Systems, vol. 30, pp. 274-284, 2015.

[27]. M. Q. Wang, H. B. Gooi, S. X. Chen, and **S. Lu,** "A mixed integer quadratic programming for dynamic economic dispatch with valve point effect," IEEE Transactions on Power Systems, vol. 29, pp. 2097-2106, 2014.

[28]. **S. Lu,** P. Weston, S. Hillmansen, H. B. Gooi, and C. Roberts, "Increasing the regenerative braking energy for railway vehicles," IEEE Transactions on Intelligent Transportation Systems, vol. 15, pp. 2506-2515, 2014.

[29]. **S. Lu,** S. Hillmansen, T. K. Ho, and C. Roberts, "Single-train trajectory optimization," IEEE Transactions on Intelligent Transportation Systems, vol. 14, pp. 743-750, 2013.

[30]. **S. Lu,** S. Hillmansen, and C. Roberts, "A power-management strategy for multiple-unit railroad vehicles," IEEE transactions on vehicular technology, vol. 60, pp. 406-420, 2011.

5.2 Refereed Conference Paper

[1]. Yang Peng, Chaoxian Wu, and **Shaofeng Lu*, "**Optimal Energy Management Strategy for Fuel-cell Hybrid Trains with Different Types of Energy Storage Devices**",** The 5th International Conference on Electrical and Information Technologies for Rail Transportation, Oct.22-24 2021

[2]. Feng Chen, Minling Feng, and **Shaofeng Lu*,** "Mutistage and Dynamic Layout Optimization for EV Charging Stations based on Travellers' Behavior Analysis", The 34th International Electric Vehicle Symposium and Exhibition (EVS34), Jun 25-28, 2021

[3]. Jinpeng Li, Minling Feng, and **Shaofeng Lu*,** "Energy-Efficient Train Speed Trajectory Optimization Combining Photovoltaic Generation Forecast", The 34th International Electric Vehicle Symposium and Exhibition (EVS34), Jun 25-28, 2021

[4]. M Feng, C Wu, and **S Lu***, "A New Operation-Oriented Mixed Integer Linear Programming Model for Energy-Efficient Train Operations", *2020 10th International Conference on Power and Energy Systems (ICPES)*, 350-355, 2020

[5]. M Lyu, B Han and **S Lu***, "Electric Vehicle Operation Scheduling Optimization Considering Electrochemical Characteristics of Li-Ion Batteries", *2020 35th Youth Academic Annual Conference of Chinese Association of Automation (YAC), 2020*

[6]. K Zhu, C Wu, F Xue, J Yang, **S Lu*,** "Network-wide Timetabling for Urban Railway Network based on Complex Network Theory: A Beijing Subway Case Study", *2020 39th Chinese Control Conference (CCC)*, 5584-5589, 2020

[7]. Z. Huang, C. Wu, **S. Lu*,** and F. Xue, "Hydrogen Consumption Minimization for Fuel Cell Trains Based on Speed Trajectory Optimization," in International Conference on Electrical and Information Technologies for Rail Transportation, 2019, pp. 335–345 **(Best Paper Award).**

[8]. R. Miao, C. Wu, **S. Lu,** F. Xue, Z. Tian, and S. Hillmansen, "Optimization of neutral section location on high-speed railways with consideration of train operations," in Sustainable Buildings and Structures: Building a Sustainable Tomorrow: Proceedings of the 2nd International Conference in Sustainable Buildings and Structures (ICSBS 2019), October 25-27, 2019, Suzhou, China, 2019, p. 171.

[9]. C. Wu**, S. Lu,** F. Xue, L. Jiang, and G. Gong, "Smart Construction for Urban Rail Transit based on Energy-efficient Bi-directional Vertical Alignment Optimisation," in Sustainable Buildings and Structures: Building a Sustainable Tomorrow: Proceedings of the 2nd International Conference in Sustainable Buildings and Structures (ICSBS 2019), October 25-27, 2019, Suzhou, China, 2019, p. 163.

[10]. Y. D. Guo, C. Zhang, and **S. F. Lu**, "Use of multi-agent system to switch driving strategy in rail transit and procedure simulation," in Sustainable Buildings and Structures: Building a Sustainable Tomorrow: Proceedings of the 2nd International Conference in Sustainable Buildings and Structures (ICSBS 2019), October 25-27, 2019, Suzhou, China, 2019, p. 192.

[11]. Y. Guo, C. Zhang, and **S. Lu,** "Enhancing Sustainability of Rail Transit System by Applying Multi-Agent System," in Computing in Civil Engineering 2019: Smart Cities, Sustainability, and Resilience - Selected Papers from the ASCE International Conference on Computing in Civil Engineering 2019, 2019, pp. 412–419.

[12]. X. Wang, F. Xue, **S. Lu,** L. Jiang, and Q. Wu, "Functional Community Detection in Power Grids," in International Conference on Complex Networks and Their Applications, 2019, pp. 883–894.

[13]. X. Xu, F. Xue, X. Wang, **S. Lu,** L. Jiang, and C. Gao, "Upgrading Conventional Distribution Networks by Actively Planning Distributed Generation Based on Virtual Microgrids," IEEE Syst. J., 2020.

[14]. Yida Guo, Cheng Zhang, **Shaofeng Lu**, "Application of Multi-agent System (MAS) in Control Systems of Rail Transit", 2019 TRB Annual Meeting, 2019

[15]. C. Wu, **S. Lu,** F. Xue and L. Jiang, "Integrated Train Speed Profiles Optimization Considering Signalling System and Delay", the 2018 IEEE International Conference on Intelligent Railway Transportation (ICIRT 2018), Dec. 11-14, 2018

[16]. C. Wu, **S. Lu,** F. Xue and L. Jiang "Earth Potential as the Energy Storage in Rail Transit System-on a Vertical Alignment Optimization Problem", The 21th International IEEE Conference on Intelligent Transportation Systems (ITSC2018), Nov. 7-11, 2018

[17]. C. Wu, X. Wang, F. Xue, X. Xu, **S. Lu,** L. Jiang, Y. Zhai, "Evaluation of Buses in Power Grids by Extended Entropic Degree", the 37th Chinese Control Conference, July 23-27 2018

[18]. C. Wu, **S. Lu,** F. Xue, L. Jiang, and J. Yang, "Optimization of Speed Profile and Energy Interaction at Stations for a Train Vehicle with On-board Energy Storage Device," presented at the 2018 IEEE Intelligent Vehicles Symposium (IV) (IV'18), Changshu, China, 2018.

[19]. Z. Tan, **S. Lu,** F. Xue, and K. Bao, "A speed trajectory optimization model for rail vehicles using mixed integer linear programming," presented at the 2017 IEEE 20th International Conference on Intelligent Transportation Systems (ITSC2017), Yokohama, Japan, 2017.

[20]. **S. Lu,** J. Yang, F. Xue, T. O. Ting, and H. Zhu, "Partial speed trajectory optimization for urban rail vehicles with considerations on motor efficiency," in 2017 IEEE 20th International Conference on Intelligent Transportation Systems (ITSC2017), Yokohama, Japan, 2017, pp. 1-6.

[21]. **S. Lu,** Y. Cheng, X. Wang, Y. Du, and E. G. Lim, "Exploring the Effectiveness of Student-generated Video Tutorials in Electronic Lab-based Teaching," presented at the 2017 IEEE Frontiers in Education Conference (FIE), Indianapolis, Indiana, USA, 2017.

[22]. B. Han, **S. Lu,** F. Xue, L. Jiang, and H. Zhu, "A two-stage electric vehicles scheduling strategy to address economic inconsistency issues of stakeholders," in Intelligent Vehicles Symposium (IV), 2017 IEEE, 2017, pp. 1904-1909.

[23]. B. Han, **S. Lu,** F. Xue, and L. Jiang, "Electric vehicle charging and discharging scheduling considering reserve call-up service," presented at the Smart Cities Conference (ISC2), 2017 International, Wuxi, China, 2017.

[24]. Y. Cheng, **S. Lu,** Y. Du, and E. Lim, "Introducing online quizzes into lab-based teaching in university," presented at the 2016 6th International Conference on Education, Research and Innovation, Beijing 2017.

[25]. X. Chen, Y. Du, W. Xiao, and **S. Lu,** "Power ramp-rate control based on power forecasting for PV grid-tied systems with minimum energy storage," presented at the Industrial Electronics Society, IECON 2017-43rd Annual Conference of the IEEE, 2017.

[26]. K. Bao, **S. Lu,** F. Xue, and Z. Tan, "Optimization for train speed trajectory based on Pontryagin's Maximum Principle," presented at the 2017 IEEE 20th International Conference on Intelligent Transportation Systems (ITSC2017), Yokohama, Japan, 2017.

[27]. **S. Lu,** F. Xue, T. O. Ting, and Y. Du, "Speed trajectory optimisation for electric vehicles in eco-approach and departure using linear programming," presented at the IET Conference Proceedings, 2016.

[28]. **S. Lu,** P. Weston, and N. Zhao, "Maximise the regenerative braking energy using linear programming," presented at the 2014 IEEE 17th International Conference on Intelligent Transportation Systems (ITSC), Qingdao, China, 2014.

[29]. **S. Lu,** S. Hillmansen, and C. Roberts. "Power management strategy study for a multiple unit train" IET Conference Proceedings, 29-29. Available: http://digital-library.theiet.org/content/conferences/10.1049/ic.2010.0035

[30]. **S. Lu,** D. H. Meegahawatte, S. Guo, S. Hillmansen, C. Roberts, and C. J. Goodman, "Analysis of energy storage devices in hybrid railway vehicles," in Railway Engineering-Challenges for Railway Transportation in Information Age, 2008, pp. 1-6.

6   Membership of Professional Bodies

2018 – Present: **Fellow of Higher Education Academy**, UK

2011 – 2019: Member of Institute of Electrical and Electronic Engineering, USA

2014 – 2019: Member of Institute of Engineering and Technology, UK

7   Prizes and Awards received and nominated

Suzhou Industry Park High-level and Shortage Talent Programme, Suzhou, China, 2017

Adjunct Academic Staff at Jiangxi University of Science and Technology, Ganzhou, China, 2018

Nominated for "Jiangxi Double-thousand Top Talent Plan" with Jiangxi University of Science and Technology, Ganzhou, China, 2018

Nominated as a candidate for the member of board of directors for IEEE Intelligent Transportation System Society, IEEE, USA, 2017

Nominated for Jiangsu Excellent Returnee, sole nomination from XJTLU, Jiangsu, China, 2017

Nominated for XJTLU Best Teaching Prize, XJTLU, China, 2017

Jiangsu Province PhD-holders Plan Government Awards, total amount of 150,000 RMB Awarded, Jiangsu, China, 2014

8   Impact and Esteem

Invited Talk, "Onboard Energy Storage Devices and Energy-efficient Train Control: System Modeling and Optimization", The 5th. IEEE Symposium on Emerging Technology of Transportation Electrification, May 13-15, 2021

Roundtable Talk and Poster Presentation, High-Speed Rail Education Interchange (online), Birmingham, UK, 2020

Tutorial presentation on" Train Speed Trajectory Optimization: Boosting Energy Efficiency of Future Urban Electrified Transportation in Smart City", The 18th International Conference on Industrial Informatics, July. 2020

Invited Lecture to Engineers at Qingdao Metro, Aug. 2020

Best Paper Award, the 4th. International Conference on Electrical and Information Technologies for Rail Transportation, 2019

Supervisor of 1st Prize Winner Essay for 2018 International Student Essay Competition, IEEE Society of Intelligent Transportation Systems, 2018

External Master Supervisor for Jiangxi University of Science and Technology, China, Since 2018

Invited talk to Southwest Jiaotong University on May 9 2018

Invited as an **evaluation expert** from railway transportation sector for TAR VISION student competition 2018 from EU.

Section chair for 2017 IEEE International Conference on Intelligent Transportation Systems (IEEE ITSC 2017)

Invited talk to Beijing Jiaotong University on Dec. 25 2014 and May 4 2016

Invited reviewer for high-impact international journals in the field, including Transportation Research Part B: Methodological, IEEE Transactions on Intelligent Transportation Systems, and Proceedings of Institute of Mechanical Engineering Part F: Journal of Rail and Rapid Transit.

9   Collaborations with External Partners or Institutions

9.1   With overseas Partners or Institutions

University of Liverpool

University of Birmingham

Nanyang Technological University

Singapore Institute of Technology

9.2   With Partners or Institutions in China

State Grid Energy Research Institute

Beijing Jiaotong University

Shandong University

Soochow University

South Central University

Southwest Jiaotong University

10 Other Activities

10.1 L&T

Panellist for University Autonomous Admission Evaluation for year 2016 and 2017, XJTLU

Panellist for University Autonomous Admission Evaluation for year 2021, SCUT

Academic staff member for students site visit to local wind farms and thermal power plant

11 Date of last update of CV

Aug. 25th 2021