

Juan Zhang

Homepage: <https://juanzhangcs.github.io/>

Last updated: April 2021

CONTACT INFORMATION	Room A1, Innovation Center University of Exeter, Exeter, UK	+44 7768255150 jz397@exeter.ac.uk
RESEARCH INTERESTS	Wireless Networks, Mobile Edge Computing, Game Theory, Deep Reinforcement Learning, Logical Reasoning, Statistical Modeling and Data Science	
EDUCATION	University of Exeter , Exeter, UK	
	PhD Candidate , Department of Computer Science Sep. 2017 – Present	
	<ul style="list-style-type: none">• Topic: <i>Strategy Optimisation based on Energy Efficiency of Mobile Edge Computing</i>• Supervisors: Dr. Yulei Wu and Prof. Geyong Min	
	Beihang University(BUAA) , (<i>Chinese Version</i>), Beijing, China	
	M.Sc. , School of Reliability and Systems Engineering, (<i>Chinese Version</i>) Major in: Control Science and Engineering Sep. 2011-Mar. 2014	
	<ul style="list-style-type: none">• Topic: <i>Software Dependability, Reliability and Safety in Aircraft Control Systems</i>• Supervisor: Dr. Guoqi Li	
	Beihang University(BUAA) , Beijing, China	Sep. 2006- Jul. 2010
	B.Eng. , Mechanical Design, Manufacturing & Its Automation	
WORK& RESEARCH EXPERIENCE	Research Assistant	Sep. 2015-Mar. 2017
	Department of Computer Science University of Otago, New Zealand I was doing a project on “QoE and Energy Efficient-aware on Mobile Multimedia Transmission”. The trade-off between Quality of Experience (QoE) and energy efficiency is a critical problem in the multimedia transmission area which I formulated problems from the aspects of resource allocation, scheduling strategies and buffering. A new algorithms was developed to improve the quality of tradeoff among them.	
	Research Assistant	Sep. 2014-Sep. 2015
	School of Transportation Science and Engineering Beihang University, China Research on the topic of “ Big data and Reliability in Traffic Networks”.	
	Network Architecture Engineer SINA Company	Mar. 2014-Jul. 2015
	My job was to design an ontology-based intelligent system which is able to warn the server’s faults automatically In this project, I was in charge of building intelligent model and system to realize auto-warning when it comes to abnormal situation. In the model of monitoring, RULE-SERVER module can generate ITEM and ITEM_ID	

according to rules and data from the front end and DC module respectively. After that, STORM-SERVER module can accept these rules and produce new rules in STROM module. Then Kafka module would send time series stream to STROM and receive these alarm rules from STROM. Similarly, ALARM-GEN module will require data from DB module for warning messages generation, meanwhile, DB sends data to RELE-SERVER. As the result, ALARM module will send a warning when it sees these warning messages.

Master thesis project

Nov. 2012-Jan. 2014

“Knowledge based Software Verification of Embedded Control Systems aided by Knowledge Database”

Theories and methods of knowledge engineering in embedded control software verification were studied in the project. Prolog- and Ontology-based knowledge database system used in FMEA analysis were built, and a relevant software prototype was verified. An expert system was finally been developed to identify and reuse the failure modes.

Participated projects as a key member | Beihang University(BUAA)

- Development of ontology knowledge platform for failure modes identification and verification 2012-2013
- Safety Analysis of Aircraft Embedded Software Systems based on Multiple Synergetic Models Jan. 2012-Dec. 2013
Responsibility: Built traceable meta-model and analysis its safety
- Software Failure Modes and Effects Analysis tool development 2011-2012
Responsibility: Participated the development of the tool, finished the test and tool guide.

AVIC Aviation Motor Control System Institute Jul. 2011-Jan. 2013

Project: Software FMEA for Engine Control System of a Specific Aircraft

Responsibility: Performed requirement analysis and failure modes analysis.

TEACHING EXPERIENCE

University of Exeter-Department of Computer Science

- **Enterprise Computing** (ECM3408) 60hrs
Instructor: Zeliang Wang, Ph.D Spring 2021
- **Learning from Data** (ECM3420 & ECMM457, ECMM445) 60hrs
Instructor: Bader-EI-Den, Mohamed Ph.D Autumn 2020
- **Software Development** (ECM2414) 140hrs
Instructor:Yulei Wu, Ph.D Autumn 2020
- **Learning from Data** (ECM3420 and ECMM445) 60hrs
Instructor: Hugo Barbosa Ph.D Autumn 2019
- **Software Development** (ECM2414) 140hrs
Instructor:Yulei Wu, Ph.D Autumn 2019
- **Artificial Intelligence and Applications** (ECM2423) 60hrs
Instructor:Alberto Moraglio, Ph.D Spring 2019
- **Algorithms that Changed the World** (ECM3428) 60hrs
Instructor: Chunbo Luo, Ph.D Autumn 2018
- **Outside The Box: Computer Science Research and Applications** (ECM2427) 90hrs

Instructor: Chunbo Luo, Ph.D

Spring 2018

Beihang University - School of Reliability and Systems Engineering

• **Formal Methods**

Sep. 2011- Jun. 2012

Instructor: Guoqi Li, Ph.D

COURSES

Reinforcement Learning - By David Silver DeepMind
Stanford CS234: Reinforcement Learning

TEACHING
TRAINING

Learning and Teaching in High Education Programme (Satge1 & 2)
University of Exeter Autumn 2018

PUBLICATIONS

JOURNAL PAPERS

- [J1] Pangwei Wang, Hui Deng, **Juan Zhang***, Li Wang, Mingfang Zhang, and Yongfu Li, Model Predictive Control for Connected Vehicle Platoon under Switching Communication Topology. *IEEE Transactions on Intelligent Transportation Systems*. DOI: 10.1109/TITS.2021.3073012.
- [J2] Pangwei Wang, Yunfeng Wang, Hui Deng, Mingfang Zhang, **Juan Zhang***, Multilane Spatiotemporal Trajectory Optimization Method (MSTTOM) for Connected Vehicles. *Journal of advanced transportation*. DOI: 10.1155/2020/8819911.
- [J3] **Juan Zhang**, Yulei Wu, Geyong Min, Fei Hao, Laizhong Cui. Balancing Energy Consumption and Reputation Gain of UAV Scheduling in Edge Computing. *IEEE Transactions on Cognitive Communications and Networking*. DOI:10.1109/tccn.2020.3004592.
- [J4] Pangwei Wang, Hui Deng, **Juan Zhang***, Mingfang Zhang. Real-time Urban Regional Route Planning Model for Connected Vehicles based on V2X Communication. *Journal of Transport and Land Use*. DOI: 10.5198/jtlu.2020.1598.
- [J5] Guoqi Li, **Juan Zhang**. A Novel Ontology-Based Method to Represent and Classify Failure Modes of Sensors. *Sensors & Transducers Journal*: (ISSN: 2306-8515, e-ISSN 1726-5479). Nanjing. Aug. 2013.

CONFERENCE PAPERS

- [C1] **Juan Zhang**, Yulei Wu, Geyong Min. System Revenue Maximization for Offloading Decisions in Mobile Edge Computing. *IEEE International Conference on Communications*. IEEE ICC 2021. (accept)
- [C2] **Juan Zhang**, Yawen Chen, Haibo Zhang, Fangfang Zhang. QoE-aware and Energy-efficient Transmission of Multimedia Traffic in Wireless Networks. *2018 International Conference on Sensor Networks and Signal Processing (SNSP), IEEE*.

- [C3] **Juan Zhang**, Guoqi Li. A Novel Model-Based Method for Automatic Generation of FMEA. *The 2nd International Symposium on Computer, Communication, Control and Automation*. Shenyang. May. 2013.
- [C4] **Juan Zhang**, Guoqi Li and Xiao Liu. Compare of Formal Analysis and Testing for Verification of Safety-critical Systems: A Case Study. *International Conference on Software Engineering and Information System*. Xiamen. May. 2013.
- [C5] Xiao Yang, Li Guoqi and **Zhang Juan**. Passive Data Storage Based Housewares Store Management System. *2011 International Conference on Web Information Systems and Mining (WISM)*. Taiyuan. 2011.
- [C6] Yuchao Zhang, Guoqi Li, **Juan Zhang**. QP Based Framework for Development and Formal Verification of Flight Control Software of UAV. *AICI'11 Proceedings of the Third international conference on Artificial intelligence and computational intelligence*. Taiyuan. 2011.

CHINESE
PATENT **Juan Zhang** and Guoqi Li. FMEA-aided Process and information management based on model and text matching. 2012.06.28 / 201210218687.7

AWARDS

University of Exeter

- International Excellence Scholarship Sep. 2017- 2021

Student Awards —Graduate School of Beihang University

- Merit Student Award (4/150) Oct. 2012
- Excellent Graduate Award (5/150) Sep. 2012
- Outstanding Session Chair Award Oct. 2012
- First Class Scholarship 2014-2015
- Second Class Scholarship 2012-2014
- Second Class Scholarship 2011-2012

Student Awards —Beihang University

- Second Class Scholarship 2009-2010
- Second Class Scholarship 2008-2009
- Second Class Scholarship 2007-2008

SERVICES

Reviewer

- Journal of Parallel and Distributed Computing 2021
- IEEE Transactions on Network and Service Management 2021
- Sustainable Cities and Society, *IF*: 5.268 2021
- IEEE ISPA/BDCloud/SocialCom/SustainCom and IUCC 2019 & 2020
- Blockchain'20 2020
- IEEE Industrial Electronics Society, INDIN19, Multimedia Tools and Applications, Journal. *IF*: 2.313 2019
- Dependability in Sensor, Cloud, and Big Data Systems and Applications (DependSys) 2019
- Journal of Risk and Reliability, *IF*: 1.602 2018

- Mobile and Wireless Networking, IEEE ICC

2017

Local Arrangement Chair

17-19 Dec. 2020

- The 13th IEEE International symposium on Social Computing and Networking (SocialCom-2020), Exeter, U.K.
- The 18th IEEE International symposium on Parallel and Distributed Processing with Applications (ISPA-2020)
- The 10th IEEE International Conference on Big Data and Cloud Computing (BDCloud-2020)
- The 10th IEEE International Conference on Sustainable Computing and Communications(SustainCom-2020)
- The 19th International conference on Ubiquitous Computing and Communications

Session Chairs

- The 20th IEEE International Conference on High Performance Computing and Communications (HPSS-2018), Exeter, UK Jun. 2018
- The 9th EAI International Conference on Big Data Technologies and Applications (BDTA), Exeter, U.K. 4-5 Sep. 2018
- International Telecommunication Networks and Applications Conference (ITNAC), University of Otago, Dunedin, New Zealand Dec. 2016