

Rui Li

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Education

2015 - 2019: PhD, Institute for Computing Systems Architecture (ICSA), School of Informatics, The University of Edinburgh, Edinburgh, UK

Thesis Title: *Resource Optimisation in Future Mobile Networks: From Millimetre-Wave Backhauls to Airborne Access Networks*. Supervised by Dr Paul Patras. Examined by Dr Francesco Gringoli and Dr Mahesh Marina.

2013 - 2014: MSc, Embedded System and Control Engineering, Department of Engineering, The University of Leicester, Leicester, UK

(Grade: 80%) Achieved Distinction with the highest overall mark in the cohort. Individual Project on power-line networking for home appliances, in collaboration with industrial partner, i.e. Panasonic UK, supervised by Dr Alistair McEwan.

2009 - 2013: BEng, Communications Engineering, Northwestern Polytechnical University (member of the 985 and 211 Projects), Xi'an, China

(Grade: 81%) Obtained First Class Degree Honour. Been selected for Study Abroad Programme to visit the University of Leicester and achieved first class examination results.

Awards and Honours

2019: ACM IMC Conference Travel Grant

2018: **Best Student Paper Award** at International Conference on Machine Learning for Networking, Paris, France

2018: Winner of the **Brendan Murphy Memorial Prize** at the 30th Next Generation Networking Multi-Service Networks workshop

2018: IFIP WG Performance Conference Travel Grant, Toulouse, France

2016: N2Women Travel Grant for ACM MobiCom Conference, New York, USA

2016: ACM SIGCOMM Conference Student Travel Grant, Florianopolis, Brazil

2015: **Best Student Prize** awarded by the University of Leicester

2012: Champion Team in China Robocup Contest

2011: Elite Member of Students In Free Enterprise (SIFE)

2010, 2011: First Class Scholarships and Outstanding Student Prizes at Northwestern Polytechnical University

Work Experience

Jun. 2019: Researcher at Samsung AI Centre, Cambridge, UK

As part of the Embedded AI team, I am currently leading a research project on acoustic signal processing for automatic speech recognition, working closely with Prof. Romit Roy Choudury of UIUC. I am also involved in AI in information theory and 5G communication related research projects.

Mar. 2018: Visiting researcher at Agora group, INRIA, INSA Lyon, and CITI Lab, Lyon, France

Led a joint research project on deep reinforcement learning enabled mobility control of airborne base stations in emergency networking scenarios.

Work Experience (Cont.)

Sep. - Oct. 2017: Software Consultant for pureLifi Ltd., Edinburgh, UK

Conducted training on network simulator 3 (NS-3) for the Lead Software Architect and provided advice on the product design.

Apr. - Oct. 2016: Research Intern at Samsung R&D Institute UK, Staines, UK

Conducted research on 5G mobile networks, developed network simulation tools, participated in the mmMagic project funded by EU H2020, and contributed to the project white paper on architectural enablers and concepts for mm-wave radio access network (RAN) integration. Supervised by Prof. Maziar Nekovee.

Publications and Drafts

1. **R. Li**, P. Patras, “*Max-Min Fair Millimetre-Wave Backhauling*”, IEEE Transactions on Mobile Computing, May 2019
2. **R. Li**, C. Zhang, P. Cao, P. Patras, J. S. Thompson, “*Delmu: A Deep Learning Approach to Maximising the Utility of Virtualised Millimetre-Wave Backhauls*”, International Conference on Machine Learning for Networking, Paris, France, Nov. 2018 (**Best Student Paper**)
3. **R. Li**, C. Zhang, R. Stanica, F. Valois and P. Patras, “*Learning Driven Mobility Control of Airborne Base Stations in Emergency Networks*”, Workshop on AI in Networks, Toulouse, France, Dec. 2018
4. C. Zhang, **R. Li**, W. Kim, D. Yoon and P. Patras, “*Driver Behaviour Recognition via Interwoven Deep Convolutional Neural Nets with Multi-stream Inputs*”, submitted to IEEE Transactions on Intelligent Vehicles (under review), 2018
5. **R. Li**, P. Patras, “*WiHaul: Max-Min Fair Wireless Backhauling over Multi-Hop Millimetre-Wave Links*”, the 3rd ACM HotWireless, collocated with ACM MobiCom, New York, USA, Oct. 2016
6. **R. Li**, M. Shariat, M. Nekovee, “*Transport Protocols Behaviour Study in Evolving Mobile Networks*”, Recent Results, ISWCS, Poznan, Poland, Sept. 2016
7. G.H. Sim, **R. Li**, C. Cano, D. Malone, P. Patras, J. Widmer, “*Learning from Experience: Efficient Decentralised Scheduling for 60GHz Mesh Networks*”, IEEE WoWMoM, Coimbra, Portugal, Jun. 2016

Technical Skills

Modelling; Data Analysis; Deep Learning; Reinforcement Learning; Statistics; Optimisation; Python; TensorFlow; C/C++; MATLAB; Linux/UNIX; Network Simulator 3 (NS-3); FPGA

Scholarly Activities

2019: ACM Internet Measurement Conference (IMC'19) Shadow PC

2016: Committee Member of the Scottish Informatics & Computer Science Alliance (SICSA) PhD Conference

2014: Course Representative for MSc Embedded System and Control Engineering, the University of Leicester, Leicester, UK

2012: Class President BEng Communication Engineering at Northwestern Polytechnical University, Xi'an, China

Active reviewer for IEEE Transactions on Mobile Computing (TMC), IEEE Transactions on Wireless Communications (TWC), IEEE Transactions on Communications (TCOM), IEEE Communications Letters, IEEE Wireless Communications and Networking Conference (WCNC), and IFIP Wireless Communications and Mobile Computing

Talks and Poster Presentations

2018: Invited talk “*Resource Optimisation in Future Mobile Networks*” at Northwestern Polytechnical University, Xi’an, China

2018: Poster presentation “*A Deep Learning Approach to Maximising the Utility of 5G Backhaul Networks*” at Facebook Inc. London TechTalk, London, UK (Selected as top 10)

2018: Presentation “*Maximising the Utility of Virtually Sliced Millimetre-Wave Backhauls*” at Next Generation Networking, Multi-Service Networks workshop, Abingdon, UK (Best Student Presentation)

2018: Presentation “*Maximising the Utility of Virtually Sliced Millimetre-Wave Backhauls via a Deep Learning Approach*” at INRIA, INSA de Lyon, and CITI Lab, Lyon, France

2017: Poster presentation “*60GHz Small Cell Backhauling: A Max-Min Approach to Rate Allocation and Scheduling*”, SICSA PhD Conference, Dundee, UK (nominated for Best Poster)

2017: Invited talk “*Max-Min Fair Airtime Allocation for Millimetre Wave Backhaul Networks*” at Institute for Digital Communications (IDCom), School of Engineering, University of Edinburgh, Edinburgh, UK

2016: Selected presentation “*WiHaul: Max-Min Fair Wireless Backhauling over Multi-Hop Millimetre-Wave Links*” to visiting delegation of Chinese Ministry from Industry and IT (MIIT), Edinburgh, UK

Teaching

Spring 2017: Tutor of Informatics Research Proposal module, MSc in Informatics, School of Informatics, The University of Edinburgh

Spring 2017: Demonstrator of 4th year undergraduate Secure Programming course, School of Informatics, The University of Edinburgh

Public Engagement and Volunteering

2017: Tiree Tech Wave Project, Isle of Tiree, Scotland, UK

Developed hardware and software prototype of a user interface incorporated in a British telephone box to provide access to digital content promoting the traditional Scottish island culture via social media.

2014: Online Translation Volunteer for the United Nations Development Programme

Translated the National Implementation Manual for the Sustainable Development Goals from English to Chinese