

## Ce ZHENG

### PERSONAL DATA

Place of Birth: Shandong, China  
Date of Birth: 15/10/1991  
Company: R&D Center (Beijing), SONY  
Personal Webpage: <https://chriszhengce.github.io/index.html>  
Phone: +86 13335281561  
Email: chriszhengce123@163.com  
ce.zheng@sony.com

### WORKING EXPERIENCE

***R&D Center, Sony (China) Limited, China,*** 08/2021 - present  
Wireless Researcher/ Research Scientist,  
3GPP SA2 Sony Delegate (from May 2022)  
Research and Development Center, Beijing, SONY

***IEMN-CNRS, France,*** 10/2017 - 10/2020  
Research PhD student,  
Laboratory: IRCICA - Research Institute on software and hardware devices for information and Advanced communication - USR 3380 du CNRS, Lille, France

### PhD Thesis

"Impulsive and Dependent Interference Modeling in IoT Networks", funded by AR-Burst

### EDUCATION

***University of Lille, France,*** 10/2017 - 03/2021  
Ph.D. in Wireless Communication,  
School of Micro and nano technologies, acoustics and telecommunications  
Supervisor: **Laurent CLAVIER, Malcolm EGAN, Jean-Marie GORCE**

***Aalborg University, Denmark,*** 09/2019 - 12/2019  
Visiting Ph.D. Guest,  
Department of Electronics  
Host Professors: **Troels PEDERSEN, Petar POPOVSKI (IEEE Fellow)**

***Xi'an Jiaotong University, China,*** 09/2013 - 07/2016  
M.E in Electronics and Communication Engineering,  
School of Electronics and Information Engineering  
Supervisor: **Xinmin LUO**

***Harbin Institute of Technology,*** 09/2009 - 07/2013  
B.E in Communication Engineering,  
School of Electronics and Information Engineering

### SUMMER & WINTER SCHOOLS

***CITIlab, INSA Lyon , University of Lyon, France,*** 18/11/2018 - 22/11/2018  
1st Winter School on Information Theory and Signal Processing for Internet of Things

***University of Tokushima, Japan,*** 07/2014 - 08/2014  
The Electrical and Information Science Course Program

***University of California Los Angeles, USA,*** 02/2014 - 03/2014  
American Language Center Intensive English Communication Program

## HONORS &AWARDS

**Mobility Grant,** 09/2019 - 12/2019  
Support of visit to Aalborg University in Denmark,  
University of Lille, France

**IRACON 5th TS Grant ,** 12/2019  
Training schools held in Lyon,  
The Inclusive Radio Communications (IRACON)

**Graduate Scholarship,** 2013 - 2016  
Second Class National Award (covers tuition fee and monthly living stipend),  
Xi'an Jiaotong University China,

**Third Class National People's Scholarship,** 2009  
Harbin Institute of Technology, China

**PUBLICATIONS** Qiong Liu, Chenhao Wang, **Ce Zheng**, "Distributed Decisions on Optimal Load Balancing in Loss Networks", *In 2023 IEEE Global Communications Conference* (To be submitted)

**Ce Zheng**, Shiyao Ma, Chen Sun, "How to Use Machine Learning to Aide Federated Learning: Exploiting Metadata in UE Selection", *In 2023 IEEE International Conference on Computer Communications (INFOCOM)* (To be submitted)

**Ce Zheng**, Tianming Zang, Wei Chen, Shiyao Ma, Chen Sun, "A General Solution for Straggler Effect and Unreliable Communication in Federated Learning", *In 2023 IEEE International Conference on Communications (ICC)*. (Under Review)

**Ce Zheng**, Tianming Zang, Wei Chen, Shiyao Ma, Chen Sun, "How to Exploit 3GPP Parameters for Federated Learning: A General UE Selection Approach by Clustering", *In 2023 IEEE Journal on Selected Areas in Communications (JSAC)*. (Under Review)

**Ce Zheng**, Malcolm Egan, Laurent Clavier, Gareth W. Peters, Jean-Marie Gorce, "On the interference arising from random spatial fields of interferers utilizing multiple subcarriers", *In: EURASIP Journal on Wireless Communications and Networking*. 2022 ; Vol. 2022.

**Ce Zheng**, Malcolm Egan, Laurent Clavier, Petar Popovski, Anders Ellersgaard Kalør, "Stochastic Resource Allocation for Outage Minimization in Random Access with Correlated Activation", *In 2022 IEEE Wireless Communications and Networking Conference (WCNC)*. (pp. 1-6), Austin, US

**Ce Zheng**, Malcolm Egan, Laurent Clavier, Petar Popovski, Anders Ellersgaard Kalør, "Stochastic Resource Optimization of Random Access for Transmitters with Correlated Activation", *In 2021 IEEE Communication Letters*

**Ce Zheng**, Malcolm Egan, Laurent Clavier, Troels Pedersen and Jean-Marie Gorce.

“Linear Combining in Dependent  $\alpha$ -Stable Interference”, *In 2020 IEEE International Conference on Communications (ICC)* (pp. 1-6), Dublin, Ireland.

**Ce Zheng**, Egan Malcolm, Laurent Clavier, Gareth W. Peters, Gorce, Jean-Marie. “On the Validity of Isotropic Complex  $\alpha$ -Stable Interference Models for Interference in the IoT” *In 2019 GRETSI, Groupe d’Etudes du Traitement du Signal et des Images*.

**Ce Zheng**, Egan Malcolm, Laurent Clavier, Gareth W. Peters, Gorce, Jean-Marie. “Copula-Based Interference Models for IoT Wireless Networks” *In 2019 IEEE International Conference on Communications (ICC)* (pp. 1-6), Shanghai, China.

Egan Malcolm, Laurent Clavier, **Ce Zheng**, Mauro De Freitas, Jean-Marie Gorce. “Dynamic interference for uplink SCMA in large-scale wireless networks without coordination” *EURASIP Journal on Wireless Communications and Networking* 2018, no. 1 (2018): 213.

**Ce Zheng**, Jiancun Fan, and Xinmin Luo. “Spectrum and energy efficiency analysis of ultra dense network with sleep.” *2016 8th IEEE International Conference on Communication Software and Networks (ICCSN)*.

## PATENTS

**Ce Zheng**, Chen Sun. “A Split Learning (Model Splitting) Aided Federated Learning (SL-aided FL) Network”. 2023

Wei Chen, Tianming Zang, **Ce Zheng**, Chen Sun. “An UE Selection Approach for FL: Clustering Based on Individual Physical Parameters or Performance Metrics”. 2023

Yuanrui Liu, Wei Chen, **Ce Zheng**, Chen Sun. “Sidelink-Enhanced Model Splitting and Transmission Scheme between AI/ML Endpoints”. 2022

**Ce Zheng**, Chen Sun. “A service guarantee scheme in Federated Learning (FL) Network”. 2022

**Ce Zheng**, Chen Sun. “A Handover Scheme for Service Continuity in VMR-aided Hierarchical Federated Learning”. 2022

Wei Chen, Junjie Wu, **Ce Zheng**, Chen Sun. “Federated Learning in V2X Communications for Side-link Enhancement”. 2022

Wei Chen, Zhanyuan Xie, **Ce Zheng**, Chen Sun. “A Scheme to Ensure Service Continuity During Handover between Vehicle Mounted Relays—Users Outside the Vehicle”. 2022

## SEMINARS & PRESENTATIONS

**Online** (29/11/2019 and 30/11/2021), *Choosing a proper starting point in SGD by exploiting dependence between features — an intuition from resource allocation in event triggered communication* Sony AI Conference, SONY

**Online** (22/05/2020), *Linear Combining in Dependent  $\alpha$ -Stable Interference*, IEEE International Conference on Communications

**AALBORG** (13/11/2019 and 27/11/2019), *Copula Theory in Communication Society*, invited talk and hosted by Professor Petar POPOVSKI and Professor Troels PEDERSEN, Department of Electronics, Aalborg University, Aalborg, Denmark

**AALBORG** (30/09/2019 and 03/10/2019), *Modeling Impulsiveness and Dependence of Interference in Wireless Communication Network*, invited talk and hosted by Professor Troels PEDERSEN and Professor Petar POPOVSKI, Department of Electronics, Aalborg University, Aalborg, Denmark

**GUANGZHOU** (30/05/2019), *Interference Modeling for Wireless IoT Networks*, invited talk and hosted by Professor Li CHEN and Dr. Ting-yi Wu, School of Electronics and Communication Engineering, Sun Yat-sen University, Guangzhou, China

**Shanghai** (10/06/2019), *Copula-Based Interference Models for IoT Wireless Networks*, IEEE International Conference on Communications

**RENNES** (06/03/2019), *Modeling Interference with  $\alpha$ -stable and Copulas*, ARBurst Project meeting, ITER Lab, Rennes, France

**LYON** (11/10/2018), *Modeling of Dependence in Impulsive Interference and Copula Theory*, ARBurst Project meeting, CITI-lab, Lyon, France

**LILLE** (12/06/2018), *Dependent Impulsive Interference modeling*, Seminar on 'Mathematics and IoT', IRCICA Lab, Lille, France

**RENNES** (14/02/2018), *Copula Theory and Dependence in Interference*, ARBurst Project meeting, ITER Lab, Rennes, France

**RESEARCH &  
PROJECT  
EXPERIENCE**

**SONY and Tsinghua Coresearch Project** (600,000 RMB) 2022  
**Responsibility:** Supervise 6 Ph.D student in Tsinghua University and output 4 patents for 3GPP standards.

**SONY and Tsinghua Coresearch Project** (600,000 RMB) 2021  
**Responsibility:** Supervise 6 Ph.D student in Tsinghua University and output 4 patents for 3GPP standards .

**Impact of impulsive and dependent interference on radio communications** (fully funded by ANR project ARBurst in collaboration with INSA/CITI Lyon, INSA/IETR Rennes and IRCICA Lille.) 10/2017 - 06/2021  
**Responsibility:** - Model interference and essentially the dependent and impulsive case. Capacity has to be revisited under the impact of dependence on capacity. Other metrics will be necessary for the bursty communications and lead to multi-object optimization.

**Green Transmissions: the Tradeoff between Energy Efficiency and Spectrum Efficiency** 10/2014 - 06/2016  
**Responsibility:** Study and analyze the performance of Distributed Antenna Systems focusing on the tradeoff between energy efficiency and spectrum efficiency. Both the single-user and multi-user scenarios are studied.

**High Energy Efficient Transmissions** (funded by the Fundamental Re-

search Grants for the key Universities) 01/2014 - 12/2015  
**Responsibility:** Study and design efficient MAC protocol for Ultra Dense Network. Mathematical model is proposed to improve the performance based on Stochastic Geometry.

**Research on Wireless Access Strategies based on EE and SE Optimization for 5G cellular Networks** 10/2013 - 10/2014  
**Responsibility:** Familiarize myself with the literature and write a review report in energy efficient cellular networks

<b>TEACHING EXPERIENCE</b>	<b>Teaching Assistant</b>	
	INFT 3037 Stochastic Signal Analysis	09/2014 - 01/2015
	INFT 3036 Communication Principals	02/2014 - 07/2014

<b>RESEARCH SKILLS</b>	Matlab, Latex, Stochastic Geometry, Copula Theory, $\alpha$ -stable, Markov Chain, Federated Learning, NOMA, SCMA, NB-IoT, LPWAN, XR, AI, VMR, 3GPP SA1 & SA2
----------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>Languages</b>	Mandarin (Native); English (Proficiency): TOEFL 96; French (Beginner): A1 Japanese(Beginner)
------------------	-------------------------------------------------------------------------------------------------------