QIAN YANG

Email: qian-yang@outlook.com Phone: +1 9492322476 *(valid through Jan. 2020)*; +86 18392181969
Address: No. 28 Xianning West Road, Xi'an 710049, China Website: https://cv.qqy.pw

EDUCATION

Xi'an Jiaotong University *(Jan. 2019 – Jan. 2020: visiting University of California, Irvine)* *Sep. 2014 – Present*
Ph.D. student in Information & Communication Engineering *Xi'an, China*
(Successive postgraduate and doctoral program) Advisors: Prof. Hui-Ming Wang & Prof. Qinye Yin
GPA: 93.09/100 *(Ranked: 1/96)*

Xi'an Jiaotong University (XJTU) *Sep. 2010 – Sep. 2014*
B.S. in Information Engineering (Major) & Business Administration (Minor) *with Dual Degree* *Xi'an, China*
Major GPA: 91.05/100 *(Ranked: 2/156)*

RESEARCH EXPERIENCE

School of Electronic and Information Engineering *Sep. 2014 – Present*
Xi'an Jiaotong University *Xi'an, China*

I have a wide range of interests in wireless communications and signal processing in physical layer, with emphasis on

- IoT and backscatter wireless communications (cf. [J2, J3, J5])
- Non-orthogonal multiple access (NOMA) systems (cf. [J1, J6, J9, J10])
- Physical layer security (cf. [J2, J3, J4, J6, J7, J8, J10])
- Convex and nonconvex optimization (cf. [J1, J2, J3, J4, J5, J6, J7, J8, J9, J10])
- Probability theory (cf. [J1, J4, J5, J8])
- Stochastic geometry (cf. [J4, J5, J8])

I also serve as a reviewer for IEEE Wireless Communications Magazine and five IEEE journals like JSAC and TWC.

National High-tech R&D Program of China (863 Program) *Sep. 2015 – Jan. 2016*
Xi'an Jiaotong University *Xi'an, China*

Research on future-oriented physical-layer wireless access and secure communication technologies.

- Designed a scheme for secret key agreement based on the preset pilot in physical layer (cf. [P1]).
- Set up the needed Matlab simulation environment based on the spatial channel model extension (SCME).

PUBLICATIONS

[J1] **Q. Yang**, H. M. Wang, D. W. K. Ng, and M. H. Lee, "NOMA in downlink SDMA with limited feedback: Performance analysis and optimization," *IEEE Journal on Selected Areas in Communications*, vol. 35, no. 10, pp. 2281–2294, Oct. 2017.

[J2] **Q. Yang**, H. M. Wang, Y. Zhang, and Z. Han, "Physical layer security in MIMO backscatter wireless systems," *IEEE Transactions on Wireless Communications*, vol. 15, no. 11, pp. 7547–7560, Nov. 2016.

[J3] H. M. Wang, **Q. Yang**, Z. Ding, and H. V. Poor, "Secure short-packet communications for mission-critical IoT applications," *IEEE Transactions on Wireless Communications*, vol. 18, no. 5, pp. 2565–2578, May 2019.

[J4] **Q. Yang**, H. M. Wang, and T. X. Zheng, "Delivery-secrecy tradeoff for cache-enabled stochastic networks: Content placement optimization," *IEEE Transactions on Vehicular Technology*, vol. 67, no. 11, pp. 11 309–11 313, Nov. 2018.

[J5] **Q. Yang**, H. M. Wang, T. X. Zheng, Z. Han, and M. H. Lee, "Wireless powered asynchronous backscatter networks with sporadic short packets: Performance analysis and optimization," *IEEE Internet of Things Journal*, vol. 5, no. 2, pp. 984–997, Apr. 2018.

[J6] H. M. Wang, X. Zhang, **Q. Yang**, and T. A. Tsiftsis, "Secure users oriented downlink MISO NOMA," *IEEE Journal of Selected Topics in Signal Processing*, vol. 13, no. 3, pp. 671–684, Jun. 2019.

[J7] H. M. Wang, K. W. Huang, **Q. Yang**, and Z. Han, "Joint source-relay secure precoding for MIMO relay networks with direct links," *IEEE Transactions on Communications*, vol. 65, no. 7, pp. 2781–2793, Jul. 2017.

[J8] T. X. Zheng, H. M. Wang, **Q. Yang**, and M. H. Lee, "Safeguarding decentralized wireless networks using full-duplex jamming receivers," *IEEE Transactions on Wireless Communications*, vol. 16, no. 1, pp. 278–292, Jan. 2017.

[J9] Y. Zhang, H. M. Wang, T. X. Zheng, and **Q. Yang**, "Energy-efficient transmission design in non-orthogonal multiple access," *IEEE Transactions on Vehicular Technology*, vol. 66, no. 3, pp. 2852–2857, Mar. 2017.

[J10] Y. Zhang, H. M. Wang, **Q. Yang**, and Z. Ding, "Secrecy sum rate maximization in non-orthogonal multiple access," *IEEE Communications Letters*, vol. 20, no. 5, pp. 930–933, May 2016.

[C1] **Q. Yang**, T. X. Zheng, H. M. Wang, H. Deng, Y. Zhang, X. Qiu, and P. Mu, "Outage performance of NOMA in downlink SDMA systems with limited feedback," in *Proc. IEEE Int. Conf. Communications (ICC)*, Paris, France, May 2017, pp. 1–6.

[C2] **Q. Yang**, Y. Zhang, H. M. Wang, and Z. Han, "Transmit optimization for secure MIMO RFID wireless communication," in *Proc. IEEE Int. Conf. Communications (ICC)*, Kuala Lumpur, Malaysia, May 2016, pp. 1–6.

[C3] T. X. Zheng, **Q. Yang**, K. Huang, H. Wang, Z. Wei, and J. Yuan, "Physical-layer secure transmissions in cache-enabled cooperative small cell networks," in *Proc. IEEE Global Communications Conf. (GLOBECOM)*, Dec. 2018, pp. 1–6.

[P1] W. Wang and **Q. Yang**, "A point-to-point secret key agreement method based on the preset pilot in physical layer," Chinese Patent 2 015 107 773 556, Dec. 7, 2018.

(... and 10 more collaborated conference papers.)

INDUSTRIAL EXPERIENCE

Undergraduate Research Training and Practice Innovation Fund *Jun. 2012 – Jun. 2013*
Hardware Practice Program *XJTU, Xi'an, China*

Development of an energy-saving lamp controller for classrooms or factories based on body localization.

- The scene images can be captured using the pre-existing camera in the classroom or factory. A testbed is developed where the OV7670 camera chip is adopted for a proof-of-principle.
- Designed image processing and body localization algorithms, and wrote the program logic of the lamp controller.
- Implemented the algorithms on the STM32F103RBT6 singlechip loaded on the testbed.

National College Student Innovation and Entrepreneurship Training Program *Jun. 2012 – Jun. 2013*
Software Practice Program *Shaanxi Wisdeem Tech. Co., Ltd. & XJTU, Xi'an, China*

Development of a learning resource sharing platform named "Cloud Education".

- Designed the platform based on the Discuz! forum. The corresponding programs of web and mobile versions are implemented by the PHP and Android computer languages, respectively.
- Functions like download/upload files, user and credit managements are implemented.

Ministry of Education Key Lab for Intelligent Networks and Network Security *Jul. 2011 – Aug. 2011*
Summer Internship *XJTU, Xi'an, China*

Research on the dynamic behavior analysis of malicious codes in the host computer.

- Classified the existing 1,188 samples of malicious codes according to their run-time behaviors.
- Developed a sandbox system based on VMware to automatically analyze the behavior of any given program.
- Established an independent website as the front end to show the structured report of the analysis.

HONORS & AWARDS

China Graduate National Scholarship 2017, MOE of the P. R. China. *Nov. 2017*
⋆ *Obtained the honor from Ministry of Education (MOE) of the P. R. China. The highest honor for the most excellent graduate students in recognition of academic performance in China (top 0.2% nationwide).*

Chiang Chen Scholarship 2014 and 2015, Chiang Chen Industrial Charity Foundation *Sep. 2015 and Sep. 2016*
⋆ *Awarded for two consecutive years. To excellent graduate students in the Chinese Mainland (240 awards nationwide).*

China National Scholarship 2011, 2012, and 2013, MOE of the P. R. China. *Dec. 2011, 2012, and 2013*
⋆ *Obtained the honor for three consecutive years from Ministry of Education (MOE) of the P. R. China. The highest honor for the most excellent undergraduate students in recognition of academic performance in China (top 0.2% nationwide).*

Second Prize in 2013 NUEDC TI Cup, P. R. China *Jun. 2013*
The National Undergraduate Electronics Design Contest (NUEDC) TI Cup with five-school league in Shaanxi.

Second Prize in Shaanxi Area of CUMCM 2012, CSIAM, P. R. China *Dec. 2012*
The annual Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM) co-organized by China Society for Industrial and Applied Mathematics (CSIAM).

Honorable Mention Award of 2012 Interdisciplinary Contest in Modeling (ICM), COMAP *Apr. 2012*
An international contest promoting the use of interdisciplinary tools to explore environmental issues held by the Consortium for Mathematics and Its Applications (COMAP) (approx. top 20% participants worldwide).

TECHNICAL SKILLS

Mathematics Skills	Numerical Analysis, Matrix Analysis, Convex Optimization, Stochastic Geometry.
Software Skills	C/C++, C#, Java/Android, Python; PHP, ASP, JSP, MySQL; Matlab, LaTeX, LabVIEW.
Hardware Skills	MCS-51/STM32/MSP430 Singlechip, VHDL/VerilogHDL Language, CPLD/DSP/FPGA.