

Mingjun Ying

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EDUCATION

Chongqing University of Posts and Telecommunications Chongqing, China

Candidate for a Bachelor of Communication Engineering Sept. 2019 - Jun. 2023

Rank in college: 1/242 **GPA:** 3.75/4.00 **Average Score:** 89.95 **IELTS:** 7.0

Graduate Admissions: Tsinghua University (Rank: 2/121), CUHK, HKUST, Fudan University, etc.

Modules: Advanced Mathematics, Stochastic Mathematics, Linear Algebra, Digital and Logical Circuits, Data Structure, Fundamentals of Information Theory, Modern Communication Networks, Signal and system, Principles of Communication, Mobile Communication, Digital Signal Processing, Propagation and antenna of wireless communication.

RESEARCH EXPERIENCE

Frequency Allocation for 5G, Online Research Program University College London

Supervisor: Prof. Kai-Kit Wong (IEEE Fellow), UCL Jul. 2021 - Aug. 2021

Project: Research into theoretical and practical aspects of wireless communication systems with an emphasis on frequency and power allocation problems.

- Considered different frequency reuse schemes and various power allocation combinations;
- A near-optimal FLWF method was developed to reduce the computing complexity;
- The proposed SOWF algorithm obtains 29% higher capacity than the traditional SWF in sFFR.

Undergraduate Research Training Program Chongqing, China

Supervisor: Prof. Yongjun Xu (IEEE Senior Member), CQUPT Apr. 2021 - Apr. 2022

Project: Mainly focused on RIS-Enhanced communication and the algorithms for energy-efficient resource allocation problems.

- Proposed a joint radio resource and passive beamforming optimization scheme for a downlink RIS-assisted wireless powered communication network;
- Converted the original problem into a subtractive form via Dinkelabch's method and then applied a variable substitution approach to convert the non-convex problem into a convex one;
- Jointly optimized the active beamforming of the PS and the passive beamforming of the RIS, solve the closed-form solutions by using Lagrange dual method.

Analysis of Signals and Communication Systems Nanyang Technological University

Supervisor: Prof. Kah-Chan Teh (IEEE Senior Member), NTU Jan. 2021 - Feb. 2021

Project: Completed a task of the response of three paths wireless channels and the final report about "Analysis of Signals and Communication Systems" and won the only **Best Presenting Team**.

- Fully participated in the program, demonstrating excellent competencies.
- Presented in a group presentation applying valuable ideas and insights on the future of innovation and using the key concepts learned in the program.

PUBLICATIONS

- **Mingjun Ying** and Shuyu Wang. "Self-Optimizing Water-Filling Power Allocation: A Hybrid Fractional Frequency Reuse Way." *The 13th International Symposium on Communication Systems, Networks and Digital Signal Processing (CSNDSP)*. IEEE, 2022: 208-213. DOI: 10.1109/CSNDSP54353.2022.9908038.
- **Mingjun Ying** and Shuyu Wang. "Capacity Analysis and Hybrid Power Allocation for Multi-cell 5G Networks." *The 11th International Conference on Communications, Circuits and Systems (ICCCAS)*. IEEE, 2022: 192-197. DOI: 10.1109/ICCCAS55266.2022.9824531.
- **Mingjun Ying**, Jinpu Zhang, and Yongkang Qin. "Simulation and analysis of fractional frequency reuse power allocation for a 24-cell network." *International Conference on Signal Processing and Communication Technology (SPCT 2021)*. SPIE, 2022, 12178: 590-604. <http://dx.doi.org/10.1117/12.2631977>.
- Yongjun Xu, **Mingjun Ying**, Qianbin Chen, etc. "A Robust Energy Efficiency Optimization method for RIS-Assisted WPCNs." *Chinese patent*, CN113613273A, 2021-11-05.
- Yongjun Xu, **Mingjun Ying**, Jihua Zhou, etc. "A Robust Recourses Allocation Algorithm for RIS-Enhanced WPCNs." *Chinese patent*, CN113825159A, 2021-12-21.

CONFERENCE PRESENTATIONS

- The 11th International Conference on Communications, Circuits and Systems (ICCCAS), Singapore, May 2022, **Oral Presentation**, Capacity Analysis and Hybrid Power Allocation for Multi-cell 5G Networks.
- The 13th International Symposium on Communication Systems, Networks and Digital Signal Processing (CSNDSP), Porto Portugal, July 2022, **Oral Presentation**, Self-Optimizing Water-Filling Power Allocation: A Hybrid Fractional Frequency Reuse Way.

HONORS AND AWARDS

- National Scholarship (Only 42 Students of CQUPT will receive this scholarship in 2022);
- First-Class Scholarship of Chongqing University of Posts and Telecomm. (Top 1%);
- First Prize of the National English Translation Competition for College Students (Top 1%);
- First Prize of the Antenna System Design Competition of CQUPT (Top 1%);
- Advanced Individuals with Innovative Ability in Chongqing (Top 2%);
- Second Prize of the National College English Writing Competition (Top 2%);
- Second Prize of the "Datang Cup" Mobile Comm. 5G Technology Competition (Top 2%);
- Second Prize of the China Undergraduate Mathematical Contest in Modeling (Top 2.6%);
- Second Prize of the National English Competition for College Students (Top 3%);
- First Prize of the 11th MathorCup College Mathematical Contest in Modeling (Top 5%);
- Meritorious Winner of the Mathematical Contest in Modeling (Top 5%);

INTERNSHIP

Chengdu Hangxin Aviation Equipment Technology Co., Ltd. Chengdu, China
Department chief: Qingming Lu (Phone: +86 136-0803-4416) Aug. 2022 - Sept. 2022

- Worked as an engineer for developing automatic control algorithms. I was mainly responsible for the development of the positioning point algorithm for the equipment test.
- The algorithm is verified using MATLAB with a series of test data. Then, the VBA inheritance macro is used as a fixed operation, which is convenient for subsequent staff.

Hardware Technology and Application Association of CQUPT Chongqing, China
Department chief: Bowen Xu (Phone: +86 177-8387-5312) Jul. 2021 - Sept. 2021

- Worked as an Embedded system developer, designed, simulated, and made a game machine based on the STC89C52 microcontroller.
- More specifically, I was responsible for the development of programs for microcontrollers using C language and Keil software and the simulation deployed on Proteus.

EXTRACURRICULAR ACTIVITIES

- Served as the volunteer service leader of Chongqing Children's Library, organized volunteer service projects, and made overall arrangements over two years.
- Helped college students in English courses and tutored over 20 students to pass the College English Test (CET-4 & CET-6).
- Participated in the epidemic prevention work for my neighborhood during the epidemic period of Cov-19 and assisted community workers in recording relevant information in Nanchang.

SKILLS

Technical: MATLAB; C; Html5; SPSS; ENSP; Altium Designer; VISIO; LaTeX; Power Bi;

Language: Fluent in English; Proficient in Mandarin Chinese.

REFERENCES

Dr. Yongjun Xu

- Professor of CQUPT, IEEE Senior Member
- Email: xuyj@cqupt.edu.cn

Dr. Jiang Zhu

- Professor of CQUPT, IEEE Member
- Email: zhujiang@cqupt.edu.cn

Dr. Liuxin Chen

- Professor of CQUPT, Director of the Applied Mathematics Department
- Email: chenliux@cqupt.edu.cn