Yang Zhao

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Education

Imperial College London, London UK 2018 – Present

***MSc** Communications and Signal Processing, expected distinction*

University of Liverpool, Liverpool UK 2016 – 2018

***BEng** Communications and Electronics, with distinction*

Experience

China Mobile Group, Guangdong CN 2018

Summer Intern

- Deployed emergency response vehicles for incidents
- Maintained base stations
- Investigated the coverage of smartcells

China Mobile Group Design Institute, Guangdong CN 2017

Summer Intern

- Summarized business solutions of NB-IoT and FDD LTE
- Simulated FDD coverage of Guangdong Province with tower and cell distribution
- Measured LTE performance (RSRP, SINR, CSFB rates) for F and D bands in typical regions

Projects

Signal Optimization for Wireless Information and Power Transmission 2019 – Present

We investigated a novel harvester nonlinear model based on the Taylor expansion of diode *I–V* characteristics and performed a signal design on top of it. A superposition of modulated information and multisine power waveform is jointly optimized with the splitting ratio according to the CSI, power budget and rate constraint. Based on non-convex posynomial maximization, the iterative algorithms were demonstrated to benefit the rate-energy tradeoff especially for high SNR and multi-band transmissions. It may help trillions of low-power devices to get rid of batteries by efficiently utilizing the energy and information carried by RF signals.

Cross-Layer Optimization for 4G Broadband Wireless Communication Networks 2018

We proposed an adaptive low-complexity cross-layer design across the PHY and MAC layer to determine the data packet transmission order according to the traffic characteristics and CSI. PD and M-LWDF scheduling were combined with M-MWC and M-WF allocation for flexible traffic control. With a proper packet selecting strategy, the proposed algorithm was proved to increase the spectrum and power efficiency while significantly reduce the delay, outage, and packet drop rate. We also explore the performance on new services as haptic.

Courseworks

- Electronics: 3D scanner, digital clock, smart toy car
- Signal Processing: adaptive filter design, sparse signal recovery, FRI signal sampling and reproducing
- Computer Vision: image categorization by RF, digit generation by GAN
- Wireless Communication: spatiotemporal DS-CDMA, LTE SU-MIMO

Skills and Achievements

- Focus: wireless communication, signal processing, optimization, machine learning
- Strength: problem-solving, self-learning, team-working
- Programming: MATLAB, C, C++, Python
- Honor: university achievement award(2016), IET student prize(2018)

Last updated: August 15, 2019