# LEI LI

Email: leili.applygrad@outlook.com ◇ Phone: +086 13051560585
Website: https://sites.google.com/site/leili2018apply/

## EDUCATION

**Beijing Institute of Technology (BIT)** Sept. 2014 - Mar. 2017
*M.S. in Information and Communication Engineering* *GPA: 3.56/4.0 (86.4/100)*

**National Tsing Hua University (NTHU)** Feb. 2015 - June 2015
*Exchange Student, Institute of Communications Engineering* *GPA: 3.85/4.0 (91/100)*

**Beijing Jiaotong University (BJTU)** Sept. 2010 - June 2014
*B.E. in Communication Engineering* *GPA: 3.7/4.0 (88.5/100)*

## PUBLICATIONS

1. **Lei Li**, Jianqiang Chen, Chengcai Li *et al.*, "Balancing energy efficiency and user rate fairness in multicell networks," in *Proc. 2016 IEEE WPMC*, Shenzhen, China, Nov. 2016, pp. 136-141.
2. Niwei Wang, **Lei Li**, Jianqiang Chen *et al.*, "The ADMM-based beamforming design with per-antenna power constraints," in *Proc. 2016 IEEE WPMC*, Shenzhen, China, Nov. 2016, pp. 492-496.
3. Bin Li, **Lei Li**, Dongxuan He *et al.*, "Energy efficient secure transmission in massive MIMO systems with pilot attack," in *Proc. 2016 IEEE WCSP*, Yangzhou, China, Oct. 2016, pp. 1-5.
4. Ce Sun, **Lei Li**, Jianqiang Chen *et al.*, "System-level performance estimation of SCMA," in *Proc.2016 IEEE ICCS*, Shenzhen, China, Dec. 2016, pp. 1-5.
5. Ming Feng, Yu Zeng, Kaiyu Zhou *et al.*, "Adaptive screen modulation schemes for mobile device employing optical camera communication," in *Proc. 2014 IEEE ICUFN*, Shanghai, China, July 2014, pp. 52-54.

## PROJECTS AND RESEARCH EXPERIENCE

**Fairness Guaranteed Energy Efficiency (EE) Optimization** Feb. 2016 - Oct. 2016

- Designed algorithms to improve EE while reduce the inequalities of service among users.
- Proposed a central algorithm via convex approximation to balance EE and user rate fairness for multicell multiple-input and single-output (MISO) downlink communication and proved its convergence.
- Proposed a distributed balancing algorithm by minimizing minimum mean square error (MMSE), and extended it to the multiple-input and multiple-output (MIMO) case.
- The approaches improved the ratio of max-min user rate by 4 - 5 orders of magnitude with minor EE lose.

**Low Complexity Beamforming Design** Feb. 2016 - Oct. 2016

- Designed a transmission beamforming algorithm to maximize the uplink capacity of a system with multiple users and single base station.
- Proposed an iterative beamforming strategy via problem reformulation and alternating direction method of multipliers (ADMM).
- The algorithm lowered complexity from $O\left(N^6\right)$ to $O\left(N^{2.4}\right)$ with almost no capacity loss.

**Simulation Platform Development for IoT** Aug. 2014 - Dec. 2014 & July 2015 - Jan. 2016
*Intern* *Beijing Huawei Digital Technologies Co., Ltd*

- Developed modules of topology establishment and cell selection for a platform to simulate LTE based vehicle-to-vehicle (V2V) communication.
- Optimized interfaces of parameter input and data output by exploiting the function template and operator overloading.
- Constructed the resource pool via bi-direction cyclic lists to accelerate the resource allocation.

**Visible Light Communication (VLC) App Development** Aug. 2013 - June 2014
*Intern* *China Telecom Corporation Limited Beijing Research Institute*

· Optimized the user interface of a VLC Android App and tuned it to fit different smartphones.
· Designed experiments and tested the transmission performance of the App under various ambient light condition.

**Touching Multimedia Board for Renju** Sept. 2012 - Sept. 2013
*Program Member* *National Undergraduate Training Program for Innovation, BJTU*

*Outstanding Award in the 4th Innovational Work Election on Electronics and Information Design for College Students, Chinese Institute of Electronics*

· Researched the touch sensitive submodule of the board and drew the PCB.
· Designed the communication circuit linking the touch sensitive submodule and central control unit.

## EXCHANGE EXPERIENCE AT NTHU

*Wireless Communication and Signal Processing Lab* *Spring Semester 2015*

· Learnt the fundamentals of convex optimization, supervised by Prof. Chong-Yung Chi.
· Assisted to simulate convex-optimization-based algorithms, which were published in Prof. Chi's graduate-level textbook, Chong-Yung Chi, W.-H. Li, and C.-H. Lin, *Convex Optimization for Signal Processing and Communications: From Fundamentals to Applications*, CRC Press, Boca Raton, FL, 2017.
· Got A+ and A in *Adaptive Signal Processing* and *Digital Communications*, respectively.

## PATENTS

1. Zesong Fei, **Lei Li**, Man Dai *et al.*, A user association and power allocation method for cache-enabled wireless heterogeneous networks, China, CN201610425840, Nov. 2016.
2. Xin Chen, Houjin Chen, Yimeng Xing, **Lei Li** *et al.*, Electronic chess board, China, CN2013200699407, Feb. 2013.

## SELECTED HONORS AND AWARDS

| | |
|---|---|
| National Endeavor Scholarship | 2012 & 2013 |
| Second Class Scholarship of BIT | 2014 & 2015 |
| Second Class Scholarship of BJTU | 2012 & 2013 |
| Merit Student of BJTU | 2013 |
| Second Prize in Electronic Design Contest at BJTU | 2013 |

## ACTIVITIES AND SERVICES

| | |
|---|---|
| Teaching Assistant: Experimental Course of Principle of Digital Communication | May 2016 |
| President of Class Siyuan 1001 (Honor Class of Science), BJTU | Sept. 2013 - June 2014 |
| Commissary in Charge of Studies of Class Siyuan 1001, BJTU | Sept. 2012 - June 2013 |

## SKILLS

Familiar with C/C++ (Microsoft Visual Studio), MATLAB, LATEX.
Experience in C (Proteus, Protel, AVR Studio, IAR EWARM, Keil uVision, Quartus II), Java (Eclipse).

## ENGLISH

TOEFL IBT: 103 (29+24+22+28)

GRE: 332.5, verbal: 163 (93%), quantitative: 166 (91%), analytical writing: 3.5 (42%)