YINING LI

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EDUCATION

Southeast University **Nanjing, China**
M.S. in Information and Communication Engineering, expected Jun. 2021 Aug. 2018 - Present
Major GPA: 93.57/100, Rank: 2/322
Thesis: Research on Receiver Design for Massive MIMO Grant-free Access
Advisors: Prof. **Wenjin Wang** and Prof. **Xiqi Gao**

Southeast University **Nanjing, China**
B.Eng. in Information Engineering, in Honor College *Aug. 2014 - Jun. 2018*
Special Class for the Gifted Young
Overall GPA: 90.03/100 , Rank: 5/76
Thesis: Research on Bandwidth-adjustable Asynchronous Frequency Division Multiple Access
Advisor: Prof. **Wenjin Wang**

ACADEMIC RESEARCH EXPERIENCE

Southeast University **Nanjing, China**
Research Assistant advised by Prof. Wenjing Wang and Prof. Xiqi Gao *Aug. 2018 - Present*
Working on the algorithm designs for the massive machine-type communication scienarios, with a focus on multiple-layers message passing based receiver design in grant-free massive MIMO systems:

- Developed a joint activity detection and channel estimation algorithm based on Bethe free energy minimization
- Exploited hybrid message passing algorithms to realize unified receiver including activity detection, channel estimation, multiple user detection, and decoding in sparse coding multiple access (SCMA) massive MIMO systems (cf. [C1])
- Investigated time delay and channel estimation with various pilot types in asynchronized grant-free MIMO systems

Vodafone Chair for Mobile Communications Systems **Dresden, Germany**
Advised by Dr. Xiaohang Song and Prof. Gerhard Fettweis *Aug. 2019- Jan. 2020*
Worked on channel estimation algorithm design in mmWave systems:

- Brought a new insight in understanding bilinear approximate message passing (BiG-AMP) and parametric bilinear approximate message passing (PBi-AMP) from Bethe free energy minimization
- Proposed joint space-time channel estimation for one-bit mmWave MIMO systems

Southeast University **Nanjing, China**
Research Assistant advised by Prof. Wenjin Wang *Nov. 2017 - Jun. 2018*
Worked on the waveforms design for the 5G systems, with a special focus on fast convolution multicarrier (FCMC) systems (cf. [J1]):

- Designed near optimal reconstruction filter banks for FCMC systems

- Proposed channel equalization algorithm based on minimum mean square error (MMSE) criterion, and reduced the computational complexity through exploiting asymptotic circular structure in the received signal model
- Developed channel estimation algorithm based on the designed pilot sequence

PUBLICATIONS AND SUBMITTED MANUSCRIPTS

[**J1**] **Yining Li**, Wenjin Wang, Jiaheng Wang, and Xiqi Gao."Fast-convolution multicarrier based frequency division multiple access", *Science China Information Sciences (SCIS)*, vol. 62, no. 8, Jul. 2018.

[**C1**] **Yining Li**, Wenjin Wang, Xiaohang Song, Xiqi Gao, Lei Wang, and Gerhard Fettweis. "Unified Iterative Receiver Design in Uplink Grant-free Massive MIMO SCMA Systems", IEEE Global Communications Conference (GLOBECOM), submitted, 2020

[**C2**] Jiaqi Fang, **Yining Li**, Changrong Yang, Wenjin Wang, Xiqi Gao. "Deep Learning Based Active User Detection for Uplink Grant-Free Access", IEEE International Conference on Communications in China (ICCC), accepted, 2020.

SELECTED AWARDS AND HONORS

National Scholarship for Graduate Students (top **0.2%** students nationwide) *Oct. 2019*
The First Class scholarship for Graduate Students (top **10%** students) *Sept. 2018, Sept. 2019*
China Post-graduate Mathematical Contest in Modeling: Honorable Mention *Oct. 2018*
President Scholarship (top **1%** students) *Sept. 2017*
National Undergraduate Electronic Design Competition: Honorable Mention *Oct. 2017*
Model Student of Academic Records (top **3%** students) *Sept. 2016, Sept. 2017*
China Undergraduate Mathematical Contest in Modeling: Honorable Mention *Oct. 2016*

TECHNICAL SKILLS AND LANGUAGES

Core Courses	Wireless Communication, Signal and Systems, Digital Signal Processing, Estimation and Detection, Linear Algebra, Convex Optimization, Stochastic Processes
Programming Languages	MATLAB, Python, C++
Tools and Frameworks	Git, LaTeX, PyTorch
Languages	English (fluent), Chinese (native speaker)