

Kathleen Yang

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Education

Massachusetts Institute of Technology	2019 – Present
EECS Ph.D. student; Advisor: Muriel Médard	GPA: 5.0/5.0
California Institute of Technology	2015 – 2019
B.Sc. Electrical Engineering	GPA: 3.9/4.0

Work Experience

Analog Devices

Design Engineering Intern Summer 2019

- Implemented digital up converters in Matlab
- Decreased peak to average power ratio using crest factor reduction
- Compared crest factor reduction results with and without digital up conversion

Lexmark

Tech/Connectivity HW Group Co-op Summer 2018

- Developed embedded C code to optimize power consumption of the user interface
- Reduced power consumption of user interface hardware by 16%
- Confirmed results using an oscilloscope and power meter

Research Experience

MIT and Battelle Joint Research Project

Modulation and Coding in the Wideband Regime Current

- Developed a modulation scheme combining frequency shift keying and pulse position modulation that achieves capacity without channel state information overhead in the wideband regime
- Implemented a compressed sensing receiver to decrease the amount of required hardware
- Evaluated the capacity and probability of error through Matlab simulations

Caltech

Summer Undergraduate Research Fellowships Summer 2016, 2017

- Synthesized and fabricated graphene and graphene related glaucoma pressure sensors
- Analyzed performance and properties of graphene and sensors using Raman spectra

Skills

Programming languages: Matlab, Mathematica, Python, x86 assembly, C, LabView

Software: Altium, KiCad, SolidWorks

Signal processing and communications: Channel block codes (Hamming, BCH, etc.), Source coding (Huffman, Arithmetic), Modulation/demodulation (QAM, PSK, etc.), Compressed sensing (OMP Recovery, Random Matrices), Information theory, Probability, Computer networks

Electrical test equipment: Oscilloscope, Power meter, Signal generator

Relevant Publications

K. Yang, R. G. L. D'Oliveira, S. Salamatian and M. Médard, "Wideband Time Frequency Coding," 2020 IEEE 31st Annual International Symposium on Personal, Indoor and Mobile Radio Communications, London, United Kingdom, 2020, pp. 1-6.