Kathleen Yang

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EDUCATION

Massachusetts Institute of Technology 2019 – Present
Electrical engineering graduate student; Advisor: Muriel Médard

California Institute of Technology 2015 – 2019
Bachelor of Science in Electrical Engineering GPA: 3.9/4.0
Advanced Classes:

Principles of Microprocessor Systems, Microprocessor Systems Laboratory
Signal-Processing Systems and Transforms, Introduction to Signal Processing, Computational Signal Processing
Communication Theory, Information Theory
Feedback and Control Circuits
Electromagnetic Engineering

TA Experience:

- Electronic System Prototyping Fall 2018
- Signal-Processing Systems and Transforms Fall 2018
- Introduction to Digital Logic and Embedded Systems Spring 2018

RESEARCH AND EXPERIENCE

Analog Devices Design Engineering Intern Summer 2019

- Implemented digital up converters and crest factor reduction in Matlab
- Developed Matlab code comparing crest factor reduction results before and after digital up conversion

Summer co-op at Lexmark – Tech/Connectivity HW group 2018

- Developed embedded C code placing the user interface microcontroller in low power modes.
- Measured the power draw of the op panel (the user interface panel) on the 5/3.3V lines and wall power.
- Reduced wall power consumption of op-panel by 16%.

Teaching/lab assistant for Introduction to Digital Logic and Embedded Systems, Caltech 2018

- Assisted students with bugs in code and explained concepts. Graded the homework and final code.
- Soldered the boards used for the class.

Summer Undergraduate Research Fellowship (SURF), Caltech 2017

- Fabricated a graphene-based device: graphene on top of a silicon nitride membrane suspended between silicon for a pressure sensor.
- Analyzed the Raman spectra of the graphene on the device at a stressed and non-stressed state. The graphene and silicon nitride membrane were deformed using the pressure difference between a water droplet inside a sealed cavity and the surrounding atmosphere.
- Analyzed the relationship between the shift of the Raman spectrum and the deformation of the graphene.
- Analytically modeled the effect of the deformation of graphene over silicon nitride membrane on the peak shift of the Raman spectra of graphene.

Summer Undergraduate Research Fellowship (SURF), Caltech 2016

- Synthesized graphene nanoribbons using plasma-enhanced chemical vapor deposition with different precursors: dichlorobenzene, dibromobenzene, dibromonapthalene.
- Characterized the graphene nanoribbons using Raman spectroscopy.
- Analyzed the growth rate of the graphene nanoribbons using the Raman spectra data.

Summer Intern at the Center of Applied Energy Research, University of Kentucky 2015

- Refined the process of creating carbon-based electrodes from activated carbon.
- Synthesized and dialyzed carbon dot solutions.
- Performed hydrothermal reactions of carbon monoliths and nitrogen-doped carbons.

SKILLS

Software: Matlab, Mathematica, Assembly (Intel 80188 & AVR), Python, C, Altium, SolidWorks, LabView

Laboratory: Raman spectroscopy, plasma-enhanced chemical vapor deposition, atomic force microscopy, photolithography, oscilloscopes

HONORS AND AWARDS

- Tau Beta Pi engineering honor society member 2018
- Soli Deo Gloria SURF Fellow 2017
- Doris S. Perpall SURF Speaking Competition Finalist 2016
- Robert K. and Alice L. Roney SURF Fellow 2016

ACTIVITIES

- Helped organize sexual awareness events for Health Education Advisory League 2015 – 2017
- Co-organized athletic events for Avery House 2016 - 2018
- Secretary and Treasurer for DDR club 2016 - 2019
- Member of Society of Women Engineers 2015 - 2019

PUBLICATIONS

1. Kathleen L. Yang, Jeong Oen Lee, Hyuck Choo, and Fuqian Yang. Can Raman Shift Be Used To Characterize the Mechanical Property of Graphene? The Journal of Physical Chemistry C 2018 122 (42), 24467-24474. DOI: 10.1021/acs.jpcc.8b07996
2. Chen-Chih Hsu, Jacob D. Bagley, Marcus L. Teague, Wei-Shiuan Tseng, Kathleen L. Yang, Yiran Zhang, Yiliang Li, Yilun Li, James M. Tour, N.-C. Yeh, High-yield single-step catalytic growth of graphene nanostripes by plasma enhanced chemical vapor deposition, Carbon, Volume 129, April 2018, Pages 527-536, ISSN 0008-6223, https://doi.org/10.1016/j.carbon.2017.12.058.
3. Wei Sun, Kathleen Yang, Fuqian Yang, Formation of self-organized surface structures on poly(methyl methacrylate) films: effect of two contacting metallic wires, Journal of Polymer Research 22 (2015) 90: DOI10.1007/s10965-015-0739-x