Lianjun (Ellie) Zheng

lianjun.zheng@duke.edu
+1 (919)-599-3341

5301 FFSC
124 Science Dr
Duke University
Durham, NC 27708

EDUCATION

Duke University, Durham, NC

Ph.D., Computational Chemistry expected 05/2019

Certificate in College Teaching expected 05/2019

Graduate Certificate in Nanoscience expected 05/2019

Peking University, Beijing, China

B.S., Chemistry 06/2013

RESEARCH EXPERIENCE

Department of Chemistry, Duke University, Durham, NC

Graduate Research Assistant, Adviser: Dr. David N. Beratan

- Introducing extra bias to the compounds filtering step in the property-optimizing ACSESS algorithm, a framework to develop diversity oriented molecular libraries, for rational design of chromophores. 2018 – present
- Investigating the mechanism of charge transports in self-assembled cyclic peptide nanotubes. 2017 – present
- Designed linear light absorbers based on the quantum-optical analogy. 2015 – 2017
- Explored the physics underpinning the orders of magnitude enhancement of polyene light absorption induced by electrostatic fields. 2015 – 2017
- Investigated the oscillator strength distributions in quantum models and in molecules to rationalize the low absorption in the UV/Vis spectral region in molecules. 2014 – 2015

College of Chemistry and Molecular Engineering, Peking University, Beijing, China

Undergraduate Research Assistant, Adviser: Dr. Kai Wu

- Synthesized highly ordered Sn_2O_3 nanowire and Ta_2O_5 nanotube arrays via template-assisted CVD and anodic oxidation. 2012 – 2013
- Improved a template-assisted method to synthesizing single crystalline nanowire arrays of high-aspect-ratio. 2011 – 2012

TEACHING EXPERIENCE

Duke Kunshan University, Kunshan, Jiangsu, China

Teaching Assistant, to be determined 09/2018 – 12/2018

Department of Chemistry, Duke University, Durham, NC

Teaching Assistant, Biophysical Chemistry 01/2018 – 05/2018

Course Development Assistant, Biophysical Chemistry 09/2017 – 12/2017

Teaching Assistant (peer reviewed), Biophysical Chemistry 01/2017 – 05/2017

Undergraduate Student Supervisor, Research Independent Study 09/2016 – 05/2017

Teaching Assistant, Modern Applications of Chemical Principles – Lab 01/2014 – 04/2014

Teaching Assistant, Core Concepts in Chemistry – Lab 09/2013 – 12/2013

COMPUTER SCIENCE EXPERIENCE

WheePin – A Web Application 06/2018 – present

Developing a web application that users could make posts that pinned to their current locations, using the Java Spring framework. A group project.

PhilistineHome – A Small Internet Forum 05/2018 – 06/2018

Built a small Internet forum where users could share their thoughts on anime, music, and life. Used by my friends and families (~10 users).

Athena – An iOS App 10/2017 – 12/2017

Project for the *Mobile App Development* course at Duke (**Grade: A+**)

Wrote an iOS app called "Athena" using Swift, which helps the users find sport players with matched skill levels and schedule games.
Available at the Duke App Store.

"Baby" Command Shell using C++ 10/2016 – 12/2016

Project for the *Programming, Data structure & Algorithms in C++* course at Duke (**Grade: A+**)

Wrote a C++ program package that has the basic Linux shell functions, free of warnings and memory leak, coded defensively.

GPU Optimization for Stencil-Based Hemodynamics Simulation 10/2015 – 12/2015

Group project for the *Parallel Computing* course, collaborated with Dr. Amanda Randles's lab at Duke University (**Grade: A+**)

Exploited and analyzed parallelism in the stencil-based computational model of blood flow simulation using GPU. Achieved a speedup up to 20.

TECHNICAL SKILLS

Computational Chemistry

NWChem, Gaussian (quantum mechanics)

NAMD, VMD (molecular dynamics)

Mathematica, Origin, Latex

Programming

C/C++, Python, Swift, Unix shell script

HTML/CSS, iOS app development

Git

Data Science

Machine learning

(using Python pandas and scikit-learn)

Parallel Computing

OpenMP, CilkPlus, TBB, MPI, CUDA

(based on C/C++)

Materials Science

Chemical vapor deposition

Scanning electron microscopy

X-Ray diffraction

Languages

Chinese (native)

English (full professional proficiency)

Japanese (limited working proficiency)

AWARDS

Duke Kunshan University, Jiangsu, China

Graduate Teaching Fellowship Award (2018)

Duke University, Durham, NC

Graduate Travel Award (2016)

GPNano Fellowship (2014)

Peking University, Beijing, China

Honors Students (2012)

Pan Gu Scholarship (2012)

Academic Excellence Award (2011)

Wusi Scholarship (2010&2011)

Excellent Freshmen (2009)

PUBLICATIONS & CONFERENCES

L. Zheng, N. F. Polizzi, A. R. Dave, A. Migliore, D. N. Beratan. Where Is the Electronic Oscillator Strength? Mapping Oscillator Strength across Molecular Absorption Spectra. *J. Phys. Chem. A.*, **2016**, 120 (11), 1933.

J. Shang, B. Huang, J. Yu, Y. Wang, H. Song, J. Dai, C. Chen, **L. Zheng**, K. Wu, et al. Morphological Evolution of In_2O_3 Crystallites by Metallothermal Reaction Growth: A Unified Elucidation. *J. Clust Sci.*, **2017**, 28 (5), 2733.

L. Zheng, A. Migliore, D. N. Beratan. Significant Enhancement of Polyene Light Absorption Induced by Electrostatic Fields. In preparation.

L. Zheng, S. Roy, O. Silberbush, A. Migliore, N. Ashkenasy, D. N. Beratan. The Enormous Influence of Side Chain Flexibility on Intermolecular Proton Transfer in Self-Assembled Peptide Nanotubes. In preparation.

L. Zheng, A. Migliore, D. N. Beratan. Significant Enhancement of Polyene Light Absorption Induced by Electrostatic Fields. Presented at the third Annual Duke Chemistry Graduate Research Symposium, *Duke University, Durham, NC* (September, 2017).

L. Zheng, A. Migliore, D. N. Beratan. Significant Enhancement of Polyene Light Absorption Induced by Electrostatic Fields. Presented at the American Conference on Theoretical Chemistry, *Boston University, Boston, MA* (July, 2017).

L. Zheng, N. F. Polizzi, A. R. Dave, A. Migliore, D. N. Beratan. Where Is the Electronic Oscillator Strength in Molecules? Toward Strategies for Oscillator Strength Focusing. Presented at the Gordon Research Conferences: Solar Energy Conversion, *Hong Kong University of Science and Technology, Hong Kong, China* (July, 2016).

L. Zheng, N. F. Polizzi, A. R. Dave, A. Migliore, D. N. Beratan. Investigations of Oscillator Strength Focusing. Presented at the annual meeting of the Southeast Theoretical Chemistry Association, *University of Central Florida, Orlando, FL* (May, 2015)