

EDUCATION

Udacity - Data Analyst Nanodegree

SEPTEMBER 2015

University of Houston - Houston, TX, US

Ph.D, Chemistry (GPA: 3.6)

Anticipated graduation: MAY 2016

- Dissertation: *Ab initio* Calculations of Intramolecular Charge and Energy Transfer with Reduced Modes in Donor-bridge-acceptor Species
- Advisor: Dr. [Eric R. Bittner](#)

Xiamen University - Xiamen, Fujian, China

Bachelor of Science, Chemistry; Mathematics Minor

SEPTEMBER 2005 - JULY 2009

- Thesis: Study of Weak Interaction and Aromatic Carbon Atom in DREIDING Force Field

SKILLS

*Working knowledge*Python, Mathematica, R, HTML/CSS, D3.js, Octave, SQL, Vim, Linux, L^AT_EX, Q-Chem, Gaussian*Basic knowledge*

JavaScript, MongoDB, SAS, Hadoop, MATLAB, FORTRAN, C, various chemistry instruments

Languages

Fluent in English, Chinese and Taiwanese

PROJECT

EXPERIENCE

Udacity - [Data Analyst Nanodegree](#)

JANUARY - SEPTEMBER 2015

PISA Data Visualizationgithub.com/tcya/PISA-visualization

- Explored the relations between family possessions and student scores in the Programme for International Student Assessment (PISA) data using R and Python
- Visualized the analysis with interactions using D3.js and dimple.js

Identifying Fraud from Enron Emailgithub.com/tcya/Identify-Enron-Corporate-Fraud

- Investigated the Enron email corpus data with decision tree, Gaussian naive Bayesian, and k-means clustering machine learning techniques

Red Wine Studygithub.com/tcya/what-affects-red-wine-quality

- Modeled the influence of various chemicals to red wine quality on a wine [dataset](#) by linear regression with Lasso

Houston Map Data Wranglinggithub.com/tcya/houston-mapdata-wrangling

- Cleaned the map data on [openstreetmap](#) of the great Houston area (the file size > 500M)
- Analyzed the cleaned data with MongoDB queries

New York Subway Data Analysisgithub.com/tcya/new-york-subway-data-analysis

- Statistically tested the relation between the ridership of subway and weather in New York

A/B Testing

- Evaluated a hypothetical A/B test trying to reduce the number of frustrated students after enrollment on Udacity

Udacity - Intro to Hadoop and MapReduce

OCTOBER 2015

Forum Data Analysisgithub.com/tcya/udacity-forum-hadoop-analysis

- Programmed some MapReduce codes for Hadoop to analyze the posts in Udacity's forum.

INDEPENDENT
COURSEWORK

Udacity: 6 computer science courses (certificates available on my LinkedIn)
edX: 2 computer science courses (certificates available on my LinkedIn)

RESEARCH &
TEACHING
EXPERIENCE

University of Houston, Houston, TX

Research & Teaching Assistant

AUGUST 2010 - PRESENT

- Developed and coded in Mathematica a new theoretical molecular dynamics analysis scheme based on Lanczos algorithm and time-convolutionless master equation
- Benchmarked the scheme with a classical series of molecules and researched the dynamics
- Optimized the geometry of tripodal amine-Cu(I) complexes using density functional theory (DFT), to assist further research of their reactivity and stability
- Teach general and physical chemistry labs independently. Instruments used include UV/VIS, FT-IR, ESR, NMR, STM and XRD

Xiamen University, Xiamen, Fujian, China

Research Assistant

AUGUST 2009 - JUNE 2010

- Implemented FORTRAN programs for the point group and atom type recognition in AMBER and DREIDING force fields, as part of efficient QM/MM method development

PUBLICATIONS

Intramolecular Charge and Energy Transfer Rates with Reduced Modes: Comparison to Marcus Theory for Donor-Bridge-Acceptor Systems

Yang, Xunmo and Bittner, Eric. *The Journal of Physical Chemistry A*, 2014, 118(28), pp 5196-5203

Computing Intramolecular Charge and Energy Transfer Rates using Optimal Modes

Yang, Xunmo and Bittner, Eric. *The Journal of Chemical Physics*, 142, 244114 (2015)

Tripodal Amine Ligands for Accelerating Cu-Catalyzed Azide-Alkyne Cycloaddition: Efficiency and Stability against Oxidation and Dissociation

Zhu, Zhiling; Chen, Haoqing; Li, Siheng; Huang, Yongkai; Yang, Xunmo; Bittner, Eric; Cai, Chengzhi. (Submitted to *The Journal of Organic Chemistry*)

PATENT

Coriolis force experiment plate

No.: CN 2665845 Y

Issued: 12/22/2004