

## EDUCATION

**University of Houston** - Houston, TX, US

*Ph.D, Chemistry (GPA: 3.6)*

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*

JULY 2009

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

**Udacity** - [Machine Learning Engineer Nanodegree](#)

FEBRUARY 2016

**Udacity** - [Data Analyst Nanodegree](#)

SEPTEMBER 2015

## WORK HISTORY

**Google**, Mountain View, CA

*Software Engineer*

JAN 2017 - PRESENT

- Analyze large scale data for better user experience in Ads

**University of Houston**, Houston, TX

*Post Doctoral Fellow*

SEPTEMBER 2016 - NOVEMBER 2016

- Identified electron transfer coordinates in Donor-Bridge-Acceptor systems using mode projection analysis

**University of Houston**, Houston, TX

*Research & Teaching Assistant*

AUGUST 2010 - MAY 2016

- 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
- Taught general and physical chemistry labs independently. Instruments used include UV/VIS, FT-IR, ESR, NMR, STM and XRD

## SKILLS

### Working Knowledge

Python, Mathematica, R, HTML/CSS, D3.js, Octave/MATLAB, SQL, TensorFlow, SAS, Vim, Linux,  $\LaTeX$ , Q-Chem, Gaussian, various chemistry instruments

### Basic Knowledge

JavaScript, OpenCV, MongoDB, Hadoop, HBase, Pig, Hive, Spark, Splunk, FORTRAN, C, Haskell

### Languages

Fluent in English, Chinese. Proficient in Taiwanese.

## PROJECT

[Pseudo-hologram Video Maker](#)

MAY 2016

## EXPERIENCE

- [Deployed](#) an OpenCV-based program online for pseudo-hologram video conversion using Flask

[English Letter Recognition](#)

FEBRUARY 2016

- Trained a 6 layer convolutional neural network with 95% accuracy on [notMNIST](#) dataset using TensorFlow

#### Clustering of Vervet Monkey's Alarms

FEBRUARY 2016

- Verified the classical discovery of three types of alarms in vervet monkey by hierarchical, k-means and partitioning around medoids (PAM) clustering, achieved at least 75% classification accuracy
- Built an AdaBoost model with 99% prediction accuracy

#### Train a Smartcab to Drive

JANUARY 2016

- Taught toy smartcab traffic laws and best routing strategy with Q-learning. The driving agent was able to consistently reach the destination within allotted time with 95% success rate

#### Forum Data Analysis

OCTOBER 2015

- Analyzed the posts on Udacity's forum using Hadoop MapReduce codes

#### PISA Data Visualization

SEPTEMBER 2015

- 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

#### Increased-by-one Single Tape Turing Machine

JUNE 2015

- Implemented an increased-by-one single tape Turing machine program with only HTML/CSS, inspired by a [discussion](#) of the Turing completeness of HTML/CSS

#### Houston Map Data Wrangling

MAY 2015

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

#### *The Essential Hayek Translation*

MARCH 2016

- Translated *The Essential Hayek* voluntarily to Chinese

#### CERTIFICATES

##### SAS Certified Base Programmer for SAS 9 Credential

11 computer science courses on edX, Coursera and Udacity (certificates available on my [LinkedIn](#))

#### PUBLICATIONS

##### Identifying electron transfer coordinates in donor-bridge-acceptor systems using mode projection analysis

Xunmo Yang, Theo Keane, Milan Delor, Anthony J. H. M. Meijer, Julia Weinstein & Eric R. Bittner. *Nature Communications*, 2017, 8, 14554

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

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

##### Computing Intramolecular Charge and Energy Transfer Rates using Optimal Modes

Xunmo Yang and Eric Bittner. *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

Zhiling Zhu, Haoqing Chen, Siheng Li, Xunmo Yang, Eric Bittner, Chengzhi Cai. *Catalysis Science & Technology*, 2017, 7, 2474-2485

#### PATENT

##### Coriolis force experiment plate

No.: CN 2665845 Y

Issued: 12/22/2004