Yang **Dai**

247 Presidents Lane, Quincy, Massachusetts, 02169, US

(+1) 510-363-6334 | daiy@mit.edu | www.yangdai.info | superyang713 | yangdai713

Experience

Massachusetts Institute of Technology *Cambridge, Massachusetts*

Postdoctoral Fellow *Jun. 2017 - Exp. Jun. 2019*

- Studied interaction between molecular hydrogen and modified Nickel/Gold surface alloy with numeric and analytical tools.
- Explained and matched experimental observations to theoretical models using fitted statistical simulations and analytic solutions.
- Transitioned data analysis method from conventional Excel-like spreadsheet to Python and SQL database with popular scientific and ML libraries, such as Numpy, Pandas, Keras, and PySpark for improved automation and result reproducibility.
- Daily use of Linux Shell and Python scripts for data processing and analysis.
- Automated simple work tasks with programming, such as creating a custom docker image for consistent working envrionment across the whole research group, and building an online status monitor for lab instruments.
- Presented research results to general as well as expert audiences through seminars, conferences, talks, and posters.

University of Utah *Salt Lake City, Utah*

Research Assistant *Aug. 2011 - May. 2017*

- Made major contribution to the development of in-house software, which is used for data acquisition and system control.
- Created data analysis libraries in Python for processing and analyzing large datasets generated from a surface science instrument.
- Developed a novel techinique to extract information from spectroscopic data that lead to uncovering unknown nanoparticle size effect.
- Designed and fabricated a sophisticated surface science apparatus from the ground up, as a result of a collaboration with 7 other research institutes.

Projects

Python Package for Research Data Processing and Analysis

Source Code: www.github.com/superyang713/LabCode

- Wrote a Python Library for preprocessing, modeling, and visualizing data collected from various surface science instruments.
- Created algorithms to calculate surface coverage of Gold Nickel Alloy after literature search.

Full Stack Web App Development

Demo: www.yangdaitech.com Source Code: www.github.com/superyang713/ETL

- Identified a potentially profitable niche in the education market and decided to make a web app for English teaching and learning.
- With limited budget, adopted serverless technology as the most suitable method for app deployment.
- Ultilized various AWS services, such as API Gateway, Lambda, DynamoDB, and Cognito.
- Self-learned ReactJS framework and various Javascript modules for front-end development.

Skills

Languages	Python, C++, JavaScript, SQL, Shell Scripts, CSS, HTML
Analytics Tools	Numpy, Pandas, Matplotlib, Scipy, PySpark, Scikit-Learn, Keras, Tensorflow
Other Tools	Git, Jupyter Notebook, Docker, Serverless, React, Django
Certification	AWS Solution Architect - Associate

Education

University of Utah *Salt Lake City, Utah*

Ph.D. in Physical Chemistry *Sep. 2011 - May. 2017*

- Thesis: Electronic Characterization Of Size-Selected Platinum Clusters and Modification Through Atomic Layer Deposition.

California State University, East Bay *Hayward, California*

Bachelor of Science in Chemistry *Sep. 2007 - Jun. 2011*