Yuan Zhuang

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Résumé

Summary

A fifth year PhD student in computational chemistry interested in becoming a software developer. With more than five years of research in programming, numerical optimization, algorithm design and data analysis. Besides the research project in Monte Carlo simulation, several handy softwares are written to make a easier and happier life(see http://projects.yzhuang.com/#projects for a complete list):

- *EasyShoppingList.* Used **Android Studio** to build an Android application that can automatically generate and save the shopping list by predefined frequencies. It is available for free at Google Play.
- *TwoEatOne.* Used **Java** and **Processing** to build a board game which origins from a folk game of my hometown. It is also ported to *Google Play* by using **Android studio**.
- *pyClusterAnalysis.* Used **Python** to analyzes the shape and size of the clusters.
- *MultithreadRun.* Used **C** and **Multithreading library** to build a wrapper program that makes single–thread job multithread. Especially designing for the HPC environment.

Education

2011–2016 **Ph.D.(Expected) in Chemistry**, *Duke University*, Durham, NC, USA.

2007–2011 **B.Sc. of Chemical Physics**, *University of Science and Technology of China*, Hefei, Anhui, China.

Experience

2011-now **Research Assitant in Dr. Patrick Charbonneau's Lab**, *Duke University*.

Applied comprehensive mathematics, physics and computer science skills, including Monte Carlo simulation, statistical mechanics and numerical optimization, to study complex colloidal systems. Below are the highlights of this project:

- *Determination of the phase diagram of microphase former* Applied several state-of-art Monte Carlo simulation methods in **C** to simulate a continuous space model that generalizes a number of microphase forming systems. The first free energy based phase diagram is obtained from high precision computer simulations.
- *Theoretical study of a microphase former* Applied density functional theory to study the microphase forming model. Used **C** to perform the simulation and **Matlab**, **Mathematica** and **Linux shell** to analyze the data.

2009-2011 **Research Assitant in Dr. Zhonghuai Hou's Lab**, *USTC*.

Applied partial differential equation solver to the complex chemical reaction system. Wrote **FORTRAN** code to solve the partial differential equations.

Programming Skills

Languages C, Java, Python, shell script, HTML, CSS, Processing, FORTRAN, Matlab, Mathmatica, Octave, Ruby

RoR

Misc Android Studio, Eclipse, LaTeX, Multithreading, Emacs

Conference and Presentations

March, 2015 **APS March Meeting 2015**, San Antonio, TX.

Title: Free Energy–Based Monte Carlo Determination of a Model Microphase Former

Publication

- **Yuan Zhuang, Kai Zhang and Patrick Charbonneau**, *Phase Behavior of an Equlibrium Continuous Space Microphase Forming Model*, *Physical Review Letters*, **116**, 098301 (2016).

Languages

Native Mandarin Chinese

Fluent English