PENGTIAN LOU

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EDUCATION

Columbia University, New York, NY
Master of Science in Chemical Engineering Expected Jan 2024

- Courses: Data Analysis, Mathematical Methods in Chemical Engineering, thermodynamics, Chemical Kinetics & Transport Phenomena

University of Leicester, Leicester, Leicestershire
Bachelor of Applied Chemistry Jun 2021

- GPA:3.79/4, First Class Honour

PROFESSIONAL EXPERIENCE

Online Research Seminar Supervised by Professor of UCLA, Jinan, Shandong Aug 2021 - Oct 2021
Research on Atomistic Modeling of Materials

- Wrote sliding window algorithm(99.6% accuracy) to simulate the melting point of aluminum by Lammps; found a melting point value(934.837K) close to the true value(933K) after multiple simulations and error analysis
- Led communications with team members, then formulated 3 methods of refitting parameters of Lammps function to correct melting point error
- Applied inverse-fit potential function parameters including genetic algorithm, MCTS, and Q-learning to improve previous potential function and obtained simulation value(with error value less than 0.2%)

University of Leicester, Leicester, Leicestershire Oct 2020 - Jun 2021
Study on Methylation Process of Tertiary Amines

- Counted common methylation reagents by Excel, then weighted methylation efficiency, literature frequency, price, and other factors of each reagent; screened out dimethyl carbonate, dimethyl sulfate, and iodide methane at final
- Chose acetone and iodomethane as optimal solvent and methylation reagent for producing quaternary ammonium salts after experiments; obtained yield results with 99.9% and 96.7% respectively of methylation of trimethylamine and triethylamine

PROJECTS

Dalian University of Technology, Panjin, Liaoning Mar 2019 - Apr 2020
Project on Catalytic Methylation of Methanol and Amines

- Designed and developed synthesis ways and tried to synthesize 6 new transition metal complexes based on scheme
- Arranged daily experiments and data analysis for team members, then communicated and analyzed the experimental results of the day every night; proposed new ideas and concluded a brief summary of currently used catalysts once a week
- Wrote codes in Python to plot the data and observed the distribution of data to compare the difference in yield under different conditions
- Analyzed data and found the most suitable catalyst for reactions of amines and methanol with a 99.8% conversion rate and 98.8% yield, and attained a patent from China National Intellectual Property Administration

LEADERSHIP AND ACTIVITIES

Dalian University of Technology, Drama Troupe Member Sep 2017 - Present

- Arranged and participated in a two hours' major music drama performance named Murder in Hanging Garden

University of Leicester, Tutor of Peer Counseling Sep 2018 - May 2019

- Created pellucid frameworks to explain inorganic chemistry, organic chemistry, and physical chemistry to students ranked lower in grade once a week
- Raised average score of students by 5.35 points at end of the second semester

TECHNICAL SKILLS

- Programming Languages: Python, C
- Microsoft Excel