Ziye (Zion) Deng

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EDUCATION

PhD in Mechanical Engineering   **August 2023 - Present**

Texas A&M University

    Major: Mechanical Engineering

Bachelor of Science in Mechanical Engineering   **September 2019 - June 2023**

China University of Geosciences, China

    Major: Mechanical Engineering (89.41/100, top 10%)
    Selected coursework: *C Language Programming, Engineering Fluid Mechanics, Mechanics of Materials, Mechanism Design Project, Metal Processing, Computational Mathematics, Electromechanical Drive Control, Robot Technology*

    Minor: Big Data Science and Technology
    Selected coursework: *Machine Learning, Object-Oriented Programming, Data Structure, Data Acquisition and Pre-processing, Big Data Storage and Management*

*China University of Geosciences is a national leading research university in China, one of the first group universities listed in the national "211" Project.

English Proficiency: IELTS: 7.0 (Listening: 8.0; Reading: 7.5; Speaking: 6.0; Writing: 6.0)
GRE: 326 (Verbal: 159(81st percentile); Math: 167 (87th percentile))

COMPUTER SKILLS

Programming: Python, C/C++, MATLAB (Passed the 2nd level Computer Proficiency Test)

Software: LAMMPS (Molecular Dynamics Simulation), Origin (Scientific Graphing), Tensorflow and Keras (Machine Learning)

RESEARCH EXPERIENCE

Experimental Research Project: Experimental synthesis and analysis of supercapacitor materials
- Collaboration project with Prof. Siyi Cheng at China University of Geosciences
- Synthesized new energy storage materials of supercapacitor with Metal-Organic Framework (MOF) structures
- Conducted electrochemical experiments (cyclic voltammetry (CV), galvanostatic charge/discharge (GCD), electrochemical impedance spectroscopy (EIS)) on the supercapacitor

Computational Research Project: Predicting and designing silicon-based anode battery materials
- Collaboration project with Prof. Shengfeng Yang from the Purdue School of Engineering at Indiana University Purdue University Indianapolis (IUPUI)
- Built atomistic models of silicon-based anode materials with complex microstructure
- Conducted molecular dynamics simulations (LAMMPS) to simulate the dynamic deformation of materials
- Designed reinforcement learning models to optimize the design of the microstructure to achieve better capacity for anode materials

Machine Learning Course Project: Building machine learning models
- Developed deep neural network (DNN) models by using Tensorflow and Keras libraries.
- Preprocessed the data from open-source datasets from University of California, Irvine (UCI) Open.
- Predicted the CO emission intensity using the developed DNN machine learning model

INTERNSHIP

Chery Automobile Co., Ltd.
- Work on Chery Products Development Process for automobile fuel system
- Involved in the manufacturing process of vehicles (stamping, welding, painting, assembling)
- Studied power battery pack and battery materials and finished two internship summary reports

AWARDS AND HONORS

University Awards
- 2021 Outstanding Undergraduate Student Scholarship (Top 3%)
- 2021 Foreign Studies Society National Talent Cup Reading Contest (1st Prize University wide)
- 2020 Foreign Studies Society National Talent Cup Speech Contest (2nd Prize University wide)
- 2022 National English Competition for College Students (2nd Prize University wide)
- 2020, 2021 University Talent Project Grant Program
- 2019 University Ambassador (Local High School Outreach) (3rd Prize University wide)

National Awards
- 3rd Prize in the Hubei Province, Word Master Cup National Student English Vocabulary Proficiency Competition (2021)
- 2nd Prize in the Hubei Province, 7th National Student Engineering Comprehensive Ability Competition (2021)