Curriculum Vitae

Langqi Xing (Michael)

Education:

Bachelor of Science in Chemical Engineering, University of California, Santa Barbara 09/2018-12/2022
Doctor of Philosophy in Mechanical Engineering, Northeastern University 01/2023-present
Undergrad GPA: 3.7 (College of Engineering Honor & Deans Honor)

Research Experience:

Graduate Research Assistant, Northeastern Professor Xiaoyu Tang's Multiphase Lab 1/2023-present

- ✧ Designed and constructed 3-D microfluidics channel mold
- ✧ Fabricated PDMS chip with both 3-D printing and soft lithography techniques
- ✧ Performed diffusiophoresis experiments to direct fluorescent polystyrene particles into certain spots

Undergraduate Research Assistant, UCSB Professor Alban Sauret's Fluid Lab 12/2020-12/2022

- ✧ Measured and calculated the velocity profiles of the capillary flows of suspensions with different pressures, time scales, and length scales
- ✧ Analyzed fiber counting and direction on ImageJ and Matlab software
- ✧ Analyzed granular flow experiments with custom-made routine on Matlab software Manipulated the rheometer and performed systematic measurements varying the gap between the two parallel plates and the composition of the suspensions
- ✧ Used an inclined plane to probe the macroscopic effects of particle-particle adhesion with grains of various cohesion numbers and water percentages in different angles
- ✧ Prepared model suspensions made of polystyrene particles and a neutrally buoyant continuous phase made of water/PEG/salt and investigated rheological behavior of suspensions confined between two parallel plates
- ✧ Performed entrainment experiments of fibers with different diameters and lengths on rod substrates with different diameters in silicon oil suspensions under various velocities

Research Assistant, C-Thru global project, UCSB Professor Phillip Christopher and Eric Masanet Group 11/2021-present

- ✧ Quantified the energy and emissions footprints of global chemical supply chains and identify technologies for rapid decarbonization
- ✧ Conducted literature reviews to identify data on existing and emerging process technologies
- ✧ Helped construct, test, and refine mass and energy balance models of chemical process systems, and develop technology databases

Undergraduate Research Assistant, UCSB Professor Eric McFarland's Energy Lab 12/2020-06/2021

- ✧ Calculations for heat conduction and convection in filament reactors
- ✧ COMSOL Multiphysics Simulations to construct models of heat conduction and convection in filament reactors with different materials and analyze with temperature graphs
- ✧ COMSOL Multiphysics Simulations to calculate heat transfer in two solids of material iron

Project Leader, UCSB Professor Todd Squires' ChE 126 Soft Matter Course 03/2021-06/2021

- ✧ Designed a novel non-scrub window cleaner for skyscrapers
- ✧ Used soft matter concepts to clean dust with diameter ranging from 1 to 100 μm
- ✧ Used water as a solvent, with various surfactants, acidic components, hydrophobic coating agents, and foam stabilizers.
- ✧ Specified the ingredients, yield strength and viscosity ranges in the cleaner

Team Leader, UCSB Professor Scott Shell's ChE 110A Course 12/2019-03/2020

- ✧ Designed an automobile gas turbine engine that optimizes the efficiency and economics of hybrid electric gas turbine technology
- ✧ Used MATLAB software to plot the contour map of efficiency and cost vs. distance relationship
- ✧ Used COMSOL software to build the model of Simple Brayton Cycle and Modified Brayton Cycle
- ✧ Used Thermodynamic Principles and Reaction Engineering Principles to calculate standard heat of formation, fuel to air ratio, energy density, adiabatic temperature, and thermal efficiency

Publications:

- ✧ Deposition and alignment of fiber suspensions by dip coating.
  D.-H. Jeong, **L. Xing,** M. Ka Ho Lee, N. Vani, A. Sauret.
  Journal of Colloid and Interface Science (IF:9.965), Published (June 2023)
- ✧ Particulate suspension coating of capillary tubes.
  D.-H. Jeong, **L. Xing,** J.-B. Boutin, A. Sauret.
  Journal of Soft Matter (IF:4.046), Published (October 2022)

Internships:

R&D Trainee, Digital Transformation Summer Intern, PepsiCo 07/2021-09/2021

- ✧ Understood ingredient type landscape in the specification system and collected existing specifications of the selected type of ingredient
- ✧ Leveraged AI techniques such as EXCEL, Python Modules, and Power BI to abstract universal parameters and requirements for specific ingredients that are commonly used in PepsiCo
- ✧ Enabled product developers a knowledge-based ingredient specification baseline for a new ingredient spec for their innovations

Marketing Data Analyst & Digital Platform Developer, Chemical Market Facing Intern, ExxonMobil 07/2021-07/2021

- ✧ Analyzed polymer VistaMax physical and chemical properties with data
- ✧ Built and maintained Exxon Mobil WeChat Service Platform and contacted suppliers

Research and Physician Assistant, Nanjing Drum Tower Hospital 07/2018-09/2018
07/2019-09/2019
07/2020-09/2020

- ✧ Operated cruciate ligament reconstruction surgery on animals
- ✧ Conducted experiments like intra-articular injection and used Micro CT to analyze the tibia of the mouse to confirm whether the mouse had osteoporosis
- ✧ Performed ALP Staining and observed osteoblast in bone cells
- ✧ Collected Mouse DNA data & did DNA sequencing experiments
- ✧ Translated professional papers about orthopedics diseases into English, published them in overseas hospital journals

Research Associate, Jiangsu Kangyuan Pharmaceutical co. LTD 09/2019-01/2020

- ✧ Used HPLC (high-performance liquid chromatography) to analyze the purity of "Compound Nanxing Pain Paste", which is an effective medicine in the treatment of osteoarthritis of cold dampness and blood stasis
- ✧ Tested the medicine function by analyzing its physical and chemical properties with mass spectrums

Award:

Champion of FRC Robotic Challenge, World Adolescent Robot Contest 12/2016

Extra-Curricular Experience:

Vice President, Outreach Chair & Treasurer, American Institute of Chemical Engineers 09/2018-09/2021

- ✧ Hosted many activities like Restoration Project in Goleta which enabled honor students to do volunteer work and protect the environment by planting California grass in wastelands
- ✧ Managed the money and material supply of the organization

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Langqi Xing (Michael)

Member, UCSB Robotics Club 09/2019-present

- ✧ Designed movable elevator robots which can elevate bricks to get scores and participated in VEX Competition in 2020
- ✧ Writing codes on the modules that the sponsor provided to enable controllers to operate robots' engines and mechanical components, such as mechanical arms and air pump gears

Major Courses:

Separation Processes, Transport Processes, Chemical Engineering Analytic Methods, Chemical Engineering Thermodynamics, Chemical Reaction Engineering, Process Control, Soft Materials and Formulated Products, Physical Chemistry, Multi-Variable Calculus, Linear Algebra, Differential Equations, Chemical Engineering Lab, Organic Chemistry and General Chemistry with Lab, Basic Physics with Lab

Skills:

Proficient | Robotics, Programming (MATLAB, ImageJ), Aspen Plus & Hysys, AutoCAD, SOLIDWORKS, COMSOL Multiphysics, Power BI, English, Mandarin (Chinese)

Intermediate | Python, C++, Chemistry & Physics Experiments, Operation of Medical Devices