Meng, Changyu（孟 昶宇）

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EDUCATIONAL BACKGROUND

- Arizona State University, Tempe, AZ, the United States — Oct. 2019 - present
  - Ph.D. student in Mechanical Engineering
- Institute of Mechanics, Chinese Academy of Sciences, Beijing, China — Sept. 2016 - Jun. 2019
  - M.S. in Engineering Mechanics, GPA: 3.38/4.0, National Scholarship
- Wuhan University of Technology (WHUT), Hubei, China — Sept. 2012 - Jun. 2016
  - B.E. in Naval Architecture & Ocean Engineering, GPA: 3.64/4.0, Outstanding Graduate

RESEARCH INTERESTS

- Nonlocal particle-based simulation methods
- Micromechanical properties of engineering materials
- Fracture mechanics
- Algorithm and theory of computational solid mechanics
- Mechanics of adhesion and contacting

RESEARCH ACTIVITIES

- **Multi-scale Study on Dynamic Mechanical Behavior of Polymer/Metal Interface (2015 -2019)**
  - Studied the crucial influence of dihedral angle on the failure process of Cu/Polyethylene/Cu (CPC) structure
  - Quantitatively analyzed the bridging and entanglement effects of linear PE chains
  - Characterized the damage initiation and the failure mode using thermal/mechanical methods
  - Analyzed the contributions of loading rate and thickness to the system's overall failure process
  - Purposed a phase diagram indicting the failure mode of the CPC interface
- **Micro-Mesoscopic Simulation of the Polyurethane/Substrate Materials System (2018-2019)**
  - Reproduced the physical properties of thermoplastic polyurethane (TPU) by MD simulations
  - Systematically collected the relating literatures and simplified the complex heterogeneous materials (PU) mechanical problem
  - Realized the IBI coarse-grain procedure of methanol, propane, poly(ethylene oxide) etc. to verify the method (using *VOTCA*)
  - Developed TPU's coarse-grained potential function and reproduced the phase separation behavior
- **Thermal Decomposition Behavior and Mechanical Properties of Polyethylene (2017)**
  - Created molecular structures of long PE linear and branched chains (using *moltemplate*)
  - Collected the evolution of carbon atoms during reaction using self-developed Python code

TECHNICAL SKILLS

- **C, Python**, MATLAB
- Molecular dynamics & particle simulation (LAMMPS)
- Mathematical modeling
- Finite Element simulations

- Linux/Windows, Bash shell
- SOLIDWORKS, AutoCAD

HONORS & AWARDS

- 2012, Merit Student in WHUT (Top 17%)
- 2013, National Encouragement Scholarship in WHUT
- 2014, First-Class Prize of School Scholarship in WHUT
- 2014, Third-Class Prize in 7th Mathematical Modeling Invitational Contest of Central China
- 2016, Outstanding Graduate in WHUT
- 2017, Merit Student in UCAS
- 2018, National Scholarship in UCAS

PUBLICATIONS

- **Changyu Meng**, Lijuan Liao*, Chenguang Huang (2018). Study on failure mechanism of Cu-polyethylene-Cu sandwich structure by molecular dynamics simulation. *Computational Materials Science*. 154: 315-324.
- Lijuan Liao*, **Changyu Meng**, Chenguang Huang (2018). Thermal decomposition behaviour of polyethylene in oxygen-free and low oxygen content circumstances by reactive molecular dynamic simulation. *Molecular Simulation*. 44(12): 954-964.
- Lijuan Liao*, Chenguang Huang, **Changyu Meng** (2018). Study on mechanical properties of polyethylene with chain branching in atomic scale by molecular dynamics simulation. *Molecular Simulation*. 44(12): 1016-1024.
- Lijuan Liao*, **Changyu Meng**, Chenguang Huang (2018). Molecular Dynamics Simulations on the Tensile Deformation and Failure of a Polyethylene/Copper Interface. *Proceedings of the ASME 2018 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference.*

HOBBIES

- Reading scientific novels, mystery novels, Kung Fu novels, etc., basically all kinds of novels
- Singing pop songs (have attended the Choir of WHUT as an undergraduate)
- Running and climbing mountains (have completed a half marathon before)
- Playing the chromatic harmonica
- Programming using novel computer languages like Python, Go etc. and maintaining my personal blog