

# Yue Hu

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## EDUCATION

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<b>Colorado School of Mines (CSM)</b>	Anticipated Graduation: December 2017
PhD in Chemical Engineering	<b>GPA: 3.93/4.0</b>
M.S. in Chemical Engineering	
<b>Dissertation:</b> Measurements and Modeling of Gas Hydrate Formation in Inhibited Systems	
<b>University of Missouri-Columbia (MU)</b>	January 2011 – December 2012
BS in Chemical Engineering	<b>GPA: 3.89/4.0</b>
<b>East China University of Science Technology (ECUST)</b>	September 2008 – January 2011
BS in Polymer Material Engineering	<b>GPA: 3.38/4.0</b>

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## RELEVANT WORK AND RESEARCH EXPERIENCE

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<b>Deepstar<sup>®</sup> - Joint Industry Technology Development for Deepwater Research</b>	<b>Golden, CO</b>
Research Assistant	May 2014 – Present
<ul style="list-style-type: none"><li>• Designed and set up unique system with maximum working pressure of 30,000 psia (~200 MPa) to measure 150+ hydrate phase equilibrium points.</li><li>• Investigated thermodynamic models (Pitzer, Bromley, Debye-Hückel, eNRTL, UNIFAC) for the estimation of mean ionic activity coefficient for aqueous electrolyte solutions.</li><li>• Developed a simple and robust correlation (Hu-Lee-Sum Correlation) of hydrate stability conditions to be incorporated in Aspen Tech for industry application.</li><li>• Created a user-friendly tool for oil and gas industries to apply the developed correlation for accurate prediction of hydrate phase equilibria in high salinity systems with deviation &lt; 2 K.</li><li>• Prepared monthly report and quarterly presentation to over 100 Deepstar<sup>®</sup> members from Anadarko, BP, Chevron, and nine other companies.</li><li>• Granted “the 2017 ASME Best Paper Lubinski Award” for paper OTC-27913-MS entitled “Hydrate Management for Systems with High Salinity Brines at Ultra-High Pressures.”</li></ul>	
<b>Wood Group – World’s Energy Service Company</b>	<b>Perth, Australia</b>
Intern, Flow Assurance Department	May 2017 – July 2017
<ul style="list-style-type: none"><li>• Performed sensitivity multiphase simulation in OLGA with 700+ cases for governing surge scenarios during pressurized wet flowline restart.</li><li>• Provided high level calculations of hydrate plug transport to evaluate potential risks of hydrate remediation via single sided depressurization.</li><li>• Prepared operating guidelines and hydrate remediation strategies to client (Woodside Energy Limited) for safe and economic oil and gas production following water breakthrough.</li></ul>	

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## TECHNICAL SKILLS AND PROFESSIONAL COMPETENCIES

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### Software and Programming:

- Programming language: Visual Basic for Application (VBA)
- Engineering Tools: MATLAB, Mathematica, COMSOL, AutoCAD, Visio and LabVIEW
- Flow Assurance Software: PVTsim, Multiflash, DBR Hydrate, HydraFlash, and CSMGem
- Process/ Dynamics Multiphase Flow Simulations: OLGA, Aspen Plus, Aspen HYSYS, PIPSIM
- Microsoft Office: Word, Excel, Access, PowerPoint, Outlook and Publisher
- Molecular Simulations: Gromacs

**Laboratory and Field:** Ultra-high pressure autoclave cell, high pressure micro differential scanning calorimetry ( $\mu$ DSC), high pressure rheometer, Brunauer, Emmett and Teller (BET) instrument.

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**LEADERSHIP AND TEAMWORK**


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**Teaching Assistant, Undergraduate Courses****Colorado School of Mines**

Fluid Dynamics &amp; Introduction to Thermodynamics

January 2016 – May 2016

- Taught 150+ students for courses on Fluid Dynamics and Introduction to Thermodynamics.
- Designed COMSOL (simulation software) tutorial for students and trained them on learning COMSOL.

**Project Team Leader, Horizontal Wells, Reservoir and Production****Colorado School of Mines**

Evaluation of Various Options of Well Completion

October 2014 – December 2014

- Predicted variation of wellbore pressure with production rate through PIPSIM.
- Optimized production rate with choices of well completion and number of wells in the drainage area.
- Evaluated net present values (NPV) and expected monetary value (EMV) for three kinds of well completions for economic consideration.

**Project Team Leader, AIChE National Student Design Competition 2013****University of Missouri**

Comparison of Bio-mass to Bio-oils Reactor Systems

September 2012 – December 2012

- Designed and drew block flow diagram (BFD) and process flow diagram (PFD).
- Simulated process of converting biomass and coal to liquid fuel through Aspen Plus.
- Optimized the process through heat integration and modification of flash separators.
- Analyzed capital cost, annualized utility cost and net present value for maximum profit.

**Team Leader, World Expo 2010****Shanghai, China**

Expo 2010 Volunteers

June 2010 – August 2010

- Led team of 20 volunteers to provide guidance and translation service to over 2,000 visitors from 200+ countries every day.
  - Awarded the prize of Star Volunteer and was invited to present my experience to 1,000 students in World Expo Volunteer Conference.
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**SELECTED PUBLICATIONS**

- **Hu, Y.**, Lee, K., Lee, B. R., Sum, A. K., Insight into increased stability of methane hydrates at high pressure from phase equilibrium data and molecular structure. *Fluid Phase Equilibria*, 450 (2017): 24-29.
  - **Hu, Y.**, Lee, K., Lee, B. R., Sum, A. K., Gas Hydrate Formation from High Concentration KCl Brines at Ultra-High Pressures, *Journal of Industrial and Engineering Chemistry*, 50 (2017): 142-146.
  - **Hu, Y.**, Makogon, T. Y., Karanjkar, P., Lee, K. H., Lee, B. R., Sum, A. K., Gas Hydrates Phase Equilibria and Formation from High Concentration NaCl Brines up to 200 MPa. *Journal of Chemical & Engineering Data*. 62 (2017): 1910-1918.
  - **Hu, Y.**, Makogon, T. Y., Karanjkar, P., Lee, K. H., Lee, B. R., Sum, A. K., Gas Hydrates Phase Equilibrium with CaBr<sub>2</sub> and CaBr<sub>2</sub> + MEG at Ultra-High Pressures, *Journal of Natural Gas Engineering*. 2 (2017): 42-49.
  - **Hu, Y.**, Makogon, T. Y., Karanjkar, P., Lee, K. H., Lee, B. R., Sum, A. K., Gas Hydrates Phase Equilibria for Structure I and II Hydrates with Chloride Salts at High Salt Concentrations and up to 200 MPa. *The Journal of Chemical Thermodynamics*, (2017).
  - **Hu, Y.**, Lee, K., Lee, B. R., Sum, A. K., Universal Correlation for Gas Hydrates Suppression Temperature of Inhibited Systems: I. Single Salts. *AIChE Journal*, 63 (2017): 5111-5124.
  - **Hu, Y.**, Lee, K., Lee, B. R., Sum, A. K., Phase Equilibrium Data of Methane Hydrates in Mixed Brines Solutions, *Journal of Natural Gas Science & Engineering*, 46 (2017): 750-755.
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**HONORS AND PROFESSIONAL AFFILIATIONS**2017 Graduate Continuance **Fellowship**2016 Chevron Chemical Engineering **Scholarship**

American Institute of Chemical Engineers (AIChE)

Membership in Engineering **Honor Society** (Tau Beta Pi)MU **Outstanding Junior** in Chemical Engineering (designated)