Yajing Zhao

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Education

Massachusetts Institute of Technology (MIT), Cambridge, MA, USA

06/22 (*exp.*) **Ph.D. in Mechanical Engineering**, GPA: 4.8/5.0
Major: Energy Science & Thermofluid Engineering Minor: Computation and Data Science
Thesis: *Scalable Nanostructured Surfaces for Condensation Heat Transfer Enhancement in Steam Power Plants*, advised by Prof. Evelyn N. Wang

06/18 **S.M. in Mechanical Engineering**, GPA: 4.7/5.0
Thesis: *Dropwise Condensation of Water and Low Surface Tension Fluids on Structured Surfaces*, advised by Prof. Evelyn N. Wang

Xi'an Jiaotong University (XJTU), Xi'an, Shaanxi, China

06/16 **B.E. in Energy and Power Engineering**, GPA: 91.7/100.0, Class Rank: 1/37

06/12 Special Class for the Gifted Young of China, GPA: 91.5/100.0

Academic and Industrial Experiences

- Capillary-Driven Water Condensation on Hierarchical Porous Structures — MIT, 10/18-present
  - Modeled the heat and mass transfer process with a parametric optimization to guide surface designs.
  - Experimentally fabricating hydrophobic polymer membranes and porous metal wicks of well-controlled geometry by various techniques including electro-spinning, diffusion bonding, and sintering.
  - Building an experimental setup to demonstrate the enhanced heat transfer performance of the designed surface.
- Dropwise Condensation Heat Transfer Enhancement *via* Surface Design — MIT, 07/16-09/18
  - Experimentally investigated the effects of surface geometry on dropwise condensation of water.
  - Designed and fabricated micro/nanoscale structured surfaces including superhydrophobic surfaces and lubricant-infused surfaces for repellency and heat transfer enhancement of water, refrigerants, and natural gas hydrocarbons.
- Thermoeconomic Analysis and Optimization on Geothermal Systems — XJTU, 10/13-06/16
  - Designed two organic Rankine cycle systems to harness geothermal energy based on simulation.
  - Performed thermoeconomic analysis and optimization on the developed systems.

Publications

⋆ **Yajing Zhao**, Jiangfeng Wang. Comprehensive analysis and parametric optimization of a CCP (combined cooling and power) system driven by geothermal source, *Energy* 97, 470-487, 2016.

⋆ **Yajing Zhao**, Jiangfeng Wang, Liyan Cao, Yu Wang. Exergoeconomic analysis and optimization of a flash-binary geothermal power system, *Applied Energy* 179, 159-170, 2016.

⋆ **Yajing Zhao**, Daniel Preston, Zhengmao Lu, Lenan Zhang, John Queeney, Evelyn Wang. Effects of millimetric geometric features on dropwise condensation under different vapor conditions, *Int. J. Heat Mass Transfer* 119, 931-938, 2018.

⋆ Daniel J. Preston, Zhengmao Lu, Youngsup Song, **Yajing Zhao**, Kyle Wilke, Dion Antao, Marcel Louis, Evelyn Wang. Heat Transfer Enhancement During Water and Hydrocarbon Condensation on Lubricant Infused Surfaces, *Sci. Rep.* 8, 1-9, 2018.

⋆ Daniel Preston, Kyle Wilke, Zhengmao Lu, Samuel Cruz, **Yajing Zhao**, Laura Becerra, Evelyn Wang. Gravitationlly Driven Wicking for Enhanced Condensation Heat Transfer, *Langmuir* 34, 4658-4664, 2018.

⋆ Kyle Wilke, Dion Antao, Samuel Cruz, Ryuichi Iwata, **Yajing Zhao**, Arny Leroy, Daniel Preston, Evelyn Wang. Polymer infused porous surfaces (PIPS) for robust, thermally conductive, self-healing coatings for dropwise condensation, *ACS Nano*, 14, 11, 14878–14886, 2020.

⋆ Yangying Zhu, Heena Mutha, **Yajing Zhao**, Evelyn Wang. Manipulating Water and Heat with Nano-engineered Surfaces in: Norris P., Friedersdorf L. (eds) Women in Nanotechnology. Springer, 85-99, 2020.

Leadership Roles and Extracurricular Activities

- Environmental Health and Safety representative for the Device Reseach Lab — MIT, 01/17-present
- Professional development chair for MIT MEGAWomen — MIT, 03/18-present
- Committee member of the MIT Women's Advisory Group — MIT, 08/18-06/19
- Orientation Chair for MIT Graduate Association of Mechanical Engineers (GAME) — MIT, 03/18-03/19
- Team member of the MIT Intramurals GAME Tennis Team — MIT, 10/16-03/20

Computer Skills

Proficient in:	MATLAB, Origin, LabVIEW, Microsoft Office
Familiar with:	COMSOL Multiphysics, SolidWorks, LaTeX, Python, C, C++

Language Skills

Chinese (Native), English (Fluent)