

Huize Li

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SUMMARY

1. Actively seeking a full time position starting from the Spring of 2017
 2. 5+ years' hands-on experience in thermal system instrumentation, design of experiment and data acquisition/processing
 3. 4+ years' experience in CFD: Commercial (Fluent and Icepak) and in-house (Python, MATLAB and C++)
 4. Deep understanding of thermodynamics, heat transfer and fluid mechanics with 15 relevant publications
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EDUCATION

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| 8/11 – 2/17 | Ph.D. Mechanical Engineering | University of Illinois at Urbana-Champaign, IL | GPA: 3.93/4.0 |
| | <ul style="list-style-type: none">• 10+ thermofluid courses and 5 scientific computing/computer science courses | | |
| 8/07 – 7/11 | B.S. Mechanical Engineering | Shanghai Jiao Tong University, China | Rank: 1/124 |
| | <ul style="list-style-type: none">• Well-rounded in mechanical design, manufacturing, control and thermofluid | | |
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WORKING EXPERIENCE

- 5/16 – 8/16 **Thermal/Aero Intern – Tesla Motors, Palo Alto, CA**
- Developed a dynamic vehicle HVAC system model with high fidelity in Simulink
 - Generated simulation results to guide the decision-making of heat exchanger sizing and vehicle thermal control
 - Obtained deep understanding of the vehicle thermal architecture including control, coolant routing and etc.
 - Collaborated efficiently with cross-functional teams including powertrain, battery and mechanical design
 - Gained experience in vendor engagement, product design, DFM, DFA, tolerance analysis and failure analysis
- 5/13 – 8/13 **Mechanical Engineer Intern – Mitsubishi Electric Research Laboratories, Cambridge, MA**
- Built finite volume models of heat exchangers and semi empirical models of compressor and expansion devices
 - Developed a residential HVAC system model and performed dynamic system simulations (Modelica)
- 8/11–Present **Research Assistant – University of Illinois at Urbana Champaign., Urbana, IL**
- Facility construction: Built a complete facility for HVAC system testing, including piping, wiring, wind tunnel design, fan/blower selection and control, instrumentations (temperature and pressure) and data acquisition
 - Simulation: Developed 1D high fidelity microchannel heat exchanger model (MATLAB) and performed 2D/ 3D CFD simulation (Fluent) for single/two-phase fluid distribution in microchannel heat exchangers
 - Experiment: Analyzed heat exchanger performance by quantitatively processing infrared images and high speed videos of the working fluid; proposed a new heat exchanger design (heat transfer efficiency increased by 5%)
 - Project management: Managed three 2-years' research contract projects with minimal supervision; coordinated with and reported biannually to corporate sponsors; supervised 4 graduate and 3 undergraduate students
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COURSE PROJECTS

- 5/15 – 12/15 **Smart Ergonomic Chair**
- 3D modeling and rapid prototyping: Modeled an ergonomic chair with adjustable lumbar supports and multiple bio sensors in 3D (PTC Creo); 3D printed sensor housing for special packaging requirement
 - Algorithm development: Developed a machine learning algorithm to automatically categorize users' undesirable postures based on sensor readings and implemented it into a processor
 - Project management: Defined product functions and design specifications; led and collaborated with 2 mechanical engineers and 2 electrical engineers to meet an aggressive timeline
- 8/11 – 8/15 **Computational Fluid Dynamic Projects**
- Commercial software (Fluent and Icepak): drag calculation, transient convective heat transfer in complex geometries and design of heat sinks for electronic cooling
 - Coding (Python, MATLAB and C++): Finite Difference Method and Finite Volume Method: 2D unsteady flow, conduction, convection, etc.; proficient with various discretization schemes and solvers. Finite Element Method: familiar with higher-order FEM assembly and least-squares

AWARDS

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| 2014 | Best Student Paper Award | 15th International Refrigeration and Air-Conditioning Conference |
| 2014 | Grant-In-Aid Fellowship | American Society of Heating, Refrigerating and Air-Conditioning Engineers |
| 2013 | Russell S. Springer Award | Society of Automotive Engineers |
| 2013 | Excellence in Oral Presentation | Society of Automotive Engineers |
| 2011 | Outstanding Graduate Award | Shanghai Municipal People's Government of the P. R. China |
| 2009, 2010 | National Academic Scholarship | Ministry of Education of the P. R. China |

PUBLICATIONS

1. Li, H. and Hrnjak, P.S., Modeling of bubble dynamics in single diabatic microchannel, *Int. J. Heat Mass Transfer*, under review
2. Li, H. and Hrnjak, P.S., Quantification of liquid refrigerant distribution in parallel flow microchannel heat exchanger using infrared thermography, *Appl. Therm. Eng.* 78 (2015): 410-418.
3. Li, H. and Hrnjak, P.S., An experimentally validated model for microchannel heat exchanger incorporating lubricant effect", *Int. Refrig.*, 2015, doi:10.1016/j.ijrefrig.2013.09.037.
4. Li, H. and Hrnjak, P.S., An Infrared Thermography Based Method for Quantification of Liquid Refrigerant Distribution in Parallel Flow Microchannel Heat Exchanger, *SAE Int. J. Mater. Manf.* 8(3): 603-608, 2015, doi:10.4271/2015-01-0357.
5. Li, H. and Hrnjak, P.S., Effect of Lubricant on Two-phase Refrigerant Distribution in Microchannel Evaporator, *SAE Int. J. Mater. Manf.* 6(3):567-575, 2013, doi:10.4271/2013-01-1508.
6. Li, H. and Hrnjak, P.S., Visualization and Analysis of Periodic Reverse Flow in an Automobile Microchannel Evaporator, *SAE Technical Paper 2016-01-0252*, 2016, doi:10.4271/2016-01-0252.
7. Li, H. and Hrnjak, P.S., Lubricant Effect on Performance of R134a MAC Microchannel Evaporators, *SAE Technical Paper 2014-01-0692*, 2014, doi:10.4271/2014-01-0692.
8. Li, H. and Hrnjak, P.S., Effect of Flow Regime in the Horizontal Inlet Header on Refrigerant-Oil Mixture Distribution in a MAC Microchannel Evaporator, *SAE Technical Paper 2014-01-0701*, 2014, doi:10.4271/2014-01-0701.
9. Li, H., and Hrnjak, P.S., An experimentally validated model for microchannel heat exchanger incorporating lubricant effect, in: *Proceedings of 15th International Refrigeration and Air Conditioning Conference at Purdue*, Paper # 2148, 2014.
10. Li, H., and Hrnjak, P.S., Quantification of Liquid Refrigerant Distribution in Parallel Flow Microchannel Heat Exchanger Using Infrared Thermography, in: *Proceedings of 15th International Refrigeration and Air Conditioning Conference at Purdue*, Paper # 2147, 2014.
11. Li, H., and Hrnjak, P.S., 2014. Experimental and Modeling Study of Lubricant Effect on Refrigerant Distribution in Microchannel Evaporators. ACRC Report TR-309. University of Illinois at Urbana-Champaign.
12. Zou, Y., Li, H., and Hrnjak, P.S., R134a and PAG Oil Maldistribution and Its Impact On Microchannel Heat Exchanger Performance, *ASHRAE Transactions* 120.1 (2014).
13. Zou, Y., Li, H., and Hrnjak, P.S., Lubricant Impact on R134a Distribution and Microchannel Heat Exchanger Performance, *SAE Technical Paper 2014-01-0706*, 2014, doi:10.4271/2014-01-0706.
14. Li, H., Wang, Q., Wang, C., and Zhai, X., 2011. Building integrated solar cooling system. Chinese Patent CN 101936617 A, filed September 10, 2010, and issued January 10, 2011.
15. Wang, Q., Li, H., Wang, C., and Zhai, X., 2011. Movable integrated solar powered cold drink vending machine. Chinese Patent CN 101930636 A, filed September 10, 2010, and issued December 29, 2010.