

Shenghan Jin

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EDUCATION

PhD in Mechanical Engineering

University of Illinois, Urbana-Champaign, expected May 2017 (GPA: 3.76/4.00)

Certificate in Entrepreneurship and Management

University of Illinois, Urbana-Champaign, May 2014

Certificate in Business for Non-Business Graduate Students

University of Illinois, Urbana-Champaign, December 2013

MS in Mechanical Engineering

University of Illinois, Urbana-Champaign, August 2012 (GPA: 4.00/4.00)

BS in Energy Engineering

Zhejiang University, China, June 2010 (GPA: 82.32/100)

HONRS AND AWARDS

2nd prize of the second **National Undergraduate Social Practice and Science Contest on Energy Saving and Emission Reduction**, September 2009

- The highest level undergraduate contest on the broad area of energy in China

Second Prize of Research and Innovation Scholarship, 2008-2009

Third Prize of Excellent Undergraduate Scholarship, 2008-2009

Excellent Cadre of Students, 2007-2008

RESEARCH EXPERIENCE

Graduate Research Assistant, January 2014 – Present

Air Conditioning and Refrigeration Center, University of Illinois, Urbana-Champaign, IL, USA

Advisor: Dr. Predrag S. Hrnjak

- Research project for PhD degree. Developed a new method to simultaneously measure heat transfer and provide flow visualization, providing a mechanistic approach for flow boiling in plate heat exchangers.

- Simulated for optimal design and sizing of plate heat exchangers. Results are applied to reduce the energy consumption of thermal systems, such as air-conditioning, refrigeration and heat pumps.

Graduate Research Assistant, January 2011 – July 2012

Air Conditioning and Refrigeration Center, University of Illinois, Urbana-Champaign, IL, USA

Advisor: Dr. Predrag S. Hrnjak

- Research project for MS degree. Experimentally measured the mass distribution of refrigerant and lubricant in each component of an automotive air-conditioning system.

- Developed and validated a model for optimal system charge, an important trade-off between system efficiency and longevity. Published 4 papers in journals and conference proceedings on this topic.

Undergraduate Research Assistant, June 2009 – June 2010

Institute of Refrigeration and Cryogenics, Zhejiang University, Hangzhou, China

Advisor: Dr. Ke Tang

- Conducted research on oscillatory flow heat transfer with application on thermoacoustic engine and pulse tube refrigerator. Continued research up to present. Published 3 journal papers on this topic.

- Conducted thermal analysis on photovoltaic-photothermal combined heat pump system. Coupled heat pump system and PV system to enhance the efficiency of solar energy utilization.

- Responsibility included prototyping and simulation to optimize operating conditions.

Research Project Leader, **National Undergraduate Research Competition**, June 2009 – September 2009

Zhejiang University, Hangzhou, China

Advisor: Dr. Tao Jin, Dr. Ke Tang

- Team leader of six senior undergraduate students in the development of a hybrid electric vehicle that uses liquid nitrogen as an alternative source of energy. Responsible for design and prototype, coordination of teammates and presentation in contest.

- Won the 2nd prize of the **Second National Undergraduate Social Practice and Science Contest on Energy Saving and Emission Reduction**. The highest level undergraduate contest on the broad area of energy in China.

Research Project Member, Student Research Training Program, June 2008 – July 2009

Zhejiang University, Hangzhou, China

- Investigated air quality of student's dormitory by experiment and survey. Lab tested air collected from different dorms. Detected harmful gas content. Designed questionnaire and surveyed 200 people.
- Provided suggestions for air quality improvement based on the results. Recorded Excellence in the 11th Student Research Training Program.

WORK EXPERIENCE

Secretary, Voting Member, June 2014 – Present

ASHRAE Technical Committee 8.4 (Air-to-refrigerant heat exchanger), USA

- Monitored ASHRAE research projects. Reviewed and voted on research proposals and work statements.
- Organized and documented semiannual ASHRAE technical committee meetings (Section 8.4). Coordinated with committee chair, vice chair and corresponding members. Processed honors and awards nomination.

Commercialization Analyst, May 2014 – May 2015

Office of Technology Management, University of Illinois, Urbana-Champaign, IL, USA

- Responsibilities included screening new technology disclosures, evaluating their intellectual property (IP) potential and commercial value, conducting competitive analysis and market research.
- Screenings focused on engineering inventions, including mechanical, electrical, optical and clean energy applications.

Research Engineer, August 2012 – January 2014

Creative Thermal Solutions Inc., Urbana, IL, USA

- Research projects covered development of steam heat pump systems, automotive A/C systems and residential A/C control systems.
- Responsibilities included lab testing, data analysis, programming, system design, numerical simulation and troubleshooting. Provided senior engineers and customers technical analysis of thermal and fluid science and control strategy.

English Teacher, August of 2006, 2007 and 2008

Intensive Summer English Training Camp, Jinhua, China

- Gave daily intensive English training (5 lectures and 4 oral tests) to a class of 35 high school students
- Coached 2 students to win the first place of camp-wise English speech competition.

Intern Journalist, July 2007

Jinhua Daily, Jinhua, China

- Conducted interviews and wrote stories for the largest local newspaper, Jinhua Daily, with a daily circulation over 150,000.
- Developed basic writing and communication skills as a reporter. Published 14 stories covering environment issues, education, lawsuits, etc.

PUBLICATIONS

- **Jin, S.** and Hrnjak, P., "A method to combine local heat transfer and flow visualization of flow boiling in frame-and-plate heat exchanger", 16th International Refrigeration and Air Conditioning Conference at Purdue, July 11-14, 2016.
- **Jin, S.** and Hrnjak, P., "Effect of end plates on heat transfer of plate heat exchanger", 16th International Refrigeration and Air Conditioning Conference at Purdue, July 11-14, 2016
- **Jin, S.** and Hrnjak, P., "Refrigerant and lubricant charge in air condition heat exchangers: Experimentally validated model." International Journal of Refrigeration 67 (2016): 395-407.
- K. Tang, Y. Feng, T. Jin, **S.H. Jin**, M. Li and R. Yang, "Effect of Gedeon streaming on thermal efficiency of a travelling-wave thermoacoustic engine", Applied Energy (2016) (in process)
- K. Tang, Y. Feng, T. Jin, **S.H. Jin**, M. Li, "Performance comparison and analysis of jet pumps with rectangular and circular taper channels for thermoacoustic engine", Applied Energy (2015), pp. 305-313. DOI information: 10.1016/j.apenergy.2015.03.092
- **Jin, S.** and Hrnjak, P., "An Experimentally Validated Model for Predicting Refrigerant and Lubricant Inventory in MAC Heat Exchangers," SAE Int. J. Passeng. Cars - Mech. Syst. 7(2):2014, doi:10.4271/2014-01-0694.
- **Jin, S.** and Hrnjak, P., "Refrigerant and Lubricant Distribution in MAC System," SAE Int. J. Passeng. Cars -Mech. Syst. 6(2):2013, doi:10.4271/2013-01-1496.
- Tang K., Zhang Y., Lin X.G., **Jin S.H.**, Jin T., "Hydrodynamic and thermal development of compressible oscillatory flow inside circular channel". Cryogenics, 2011, 51(3), 139-14.
- TANG Ke, **JIN Sheng-han**, DU Qiang, JIN Tao, "Analysis on a photovoltaic-integrated solar-assisted heat", Energy Engineering, 5, 2010