

# DOLAANA KHOVALYG

401 E. Chalmers St. Apartment 606, Champaign, IL, 61820 217.417.6350 khovalyg@illinois.edu

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## EDUCATION

**DOCTOR OF PHILOSOPHY IN MECHANICAL ENGINEERING, GPA: 3.8/4.0** **June 2014-Dec 2016 (Expected)**  
*University of Illinois at Urbana-Champaign, IL, USA*  
Advisor: Prof. Anthony M. Jacobi

**CANDIDATE OF TECHNICAL SCIENCES (C. Sc.)** **Oct 2010-Dec 2013**  
*University of Information Technologies, Mechanics and Optics (ITMO University), St-Petersburg, Russia*  
Specialization: **Thermophysics and Thermal Engineering**  
Advisor: Prof. Alexander V. Baranenko

**MASTER OF SCIENCE IN MECHANICAL ENGINEERING, GPA: 5.0/5.0, (with highest honors)** **Sept 2005-June 2007**  
*Moscow Power Engineering Institute (MPEI), Moscow, Russia*

**BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING, GPA: 4.9/5.0, (with highest honors)** **Sept 2001-June 2005**  
*Moscow Power Engineering Institute (MPEI), Moscow, Russia*  
Specialization: **Low Temperature Physics and Engineering**

## HONORS & AWARDS

**GYSS@one-north Singapore Challenge: "Sustainable and Livable Cities"** - One of the 8 finalists worldwide **Jan 2016**

**Fulbright** Visiting Graduate Student Scholarship **June 2011**

## RESEARCH EXPERIENCE

**Graduate Research Assistant** **June 2014-Present**  
*Department of Mechanical Science & Engineering, University of Illinois at Urbana-Champaign, IL, USA*  
*Air-Conditioning & Refrigeration Center (ACRC)*

- Investigate flow boiling instabilities in microchannel heat exchangers (MCHXs); model the two-phase flow maldistribution between parallel channels; thermodynamically analyze two-phase flow transition patterns
- Experimentally study the 3D topology and dynamics of flow structures behind static mixers (vortex generators) using 3D particle image velocimetry (V3V PIV)
- Assist in writing a funded research proposal on stability of MCHXs (\$45,000/year)

**Senior Research Engineer** **Oct 2013-June 2014**  
*Laboratory of Innovative Thermal Technologies, ITMO University, St-Petersburg, Russia*

- Established an experimental facility to study condensation of natural refrigerants in compact heat exchangers
- Educated 2 graduate students in data collection and analysis; guided their research thesis
- Engaged foreign scientists to collaborate with ITMO University and organized their visits

**Visiting Scholar (Fulbright Fellow)** **Aug 2011-Sept 2013**  
*Department of Mechanical Science & Engineering, University of Illinois at Urbana-Champaign, IL, USA*  
*Air-Conditioning & Refrigeration Center (ACRC)*

- Designed and executed an experimental apparatus to investigate convective in-tube boiling of refrigerants
- Visualized the morphology of two-phase flow in 500  $\mu\text{m}$  rectangular microchannels and defined flow regimes
- Developed a statistical data reduction technique, based on transient pressure drop measurements, to analyze maldistribution between parallel channels having non-uniform heat flux

**Research Intern** **Jan 2007-Mar 2007**  
*Industrial scale bakery "Rus-Bakery", Yoshkar Ola, Russia*

- Analyzed 3 technologies and conditions for long term storage of frozen semi-baked bakery products
- Experimentally studied "shock freezing" technologies to increase the life span of baked products
- Designed a refrigeration system for shock freezing of semi-baked bakery products (34 tons/day)

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## PROFESSIONAL EXPERIENCE

### Project Manager in HVAC&R

July 2010–June 2011

*Baltic Master LLC, Moscow, Russia*

- Approached prospective customers using cold calling technique, visited 2 specialized domestic and international exhibitions, participated and presented in 2 professional conferences
- Provided turnkey solutions for 8 small and industrial size clients by drawing proposals (dairy, meat and fish production facilities, distribution centers, and supermarkets)
- Defended a \$200,000 proposal for *BP Moscow*, developed the budget and technical solution, concluded the contract, and supervised the project
- Assisted in establishing the development strategy of the Industrial Refrigeration department

### Project Engineer in HVAC&R

Sept 2006–July 2010

*New Line LLC, Moscow, Russia*

- Designed HVAC systems for cold storage and processing facilities, distribution centers, industrial kitchens, supermarkets, and office buildings in accordance with the federal construction norms
- Technically supervised a \$550,000 project (*McDonald's* thermally controlled distribution center) from contract stage to execution: designed the system, coordinated equipment order and delivery, supervised assembly and start-up
- Represented the company at 6 specialized annual exhibitions and technically consulted customers
- Negotiated with vendors on compressor racks, heat exchangers, and cold doors, and achieved 22% cost reduction

### Intern

Mar 2006–Sept 2006

*R&D Enterprise Zvezda, Moscow, Russia*

- Tested the portable on-board oxygen-generation system for pilots in the pressure chamber
- Assisted in trials with the life-support system for astronauts and pilots

## UNIVERSITY SERVICE

**Member,** *Engineers Volunteering in STEM Education (ENVISION)*

June 2016–Present

**President,** *Graduate Students in Mechanical Engineering (GraMS)*

Sept 2015– Sept 2016

**Officer-Professional Development Subcommittee**

Sept 2015 - Aug 2016

*The Dean of Engineering Graduate Student Advisory Committee (EGSAC)*

## PROFESSIONAL MEMBERSHIPS

- International Academy of Refrigeration (**IAR**)
- International Institute of Ammonia Refrigeration (**IIAR**)
- American Society of Mechanical Engineers (**ASME**)
- Society of Women Engineers (**SWE**)
- American Society of Heating, Refrigerating, and Air-Conditioning Engineers (**ASHRAE**)

## SKILLS

**Core Leadership Skills:** Vision of team members role | Lead by example | Delegate tasks | Clear communication | Deliver results on time | Customized personal approach | Positive attitude

**Core Technical & Research Skills:** Experimental System Design | Data Mining | Instrumentation Calibration | Data Acquisition | Uncertainty Analysis | Random Data Analysis | Scientific Data Interpretation & Presentation

**Software:** ANSYS | EES | LabVIEW | MATLAB | AutoCAD | LaTeX

**Languages:** English | Russian