

JIHYUK JEONG

LMFTEUS, Université de Sherbrooke, Québec, Canada

CETHIL, INSA Lyon, Lyon, France

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EDUCATION

Ph.D. Mechanical Engineering 09/2020 – Expected 04/2024

CFD modeling of the heat and mass transfer inside a refrigerated truck trailer

Université de Sherbrooke, Canada

Institut National des Sciences Appliquées de Lyon, France

M.Sc. Advanced Aeronautical Engineering 09/2017 – 09/2018

Imperial College London, United Kingdom

Distinction (4.00/4.00 Equivalent)

B.Eng. Mechanical Engineering 09/2012 – 05/2016

McGill University, Canada

3.42/4.00

PUBLICATIONS

- **Jeong, J.**, Poncet, S., Michel, B., & Bonjour, J. Combined Eulerian-Eulerian Multiphase Frost Model and Solidification and Melting Model to Predict the Performance of the Sub-Zero Eutectic Plates: A work in progress [Manuscript in preparation].
- **Jeong J.**, Poncet S., Michel B., Bonjour J. (2023, August). Numerical simulation of the frost formation on a flat plate cooled by a phase change material, *26th International Congress of Refrigeration (ICR23)* [WIPI Poster].
- **Jeong, J.**, Poncet, S., Michel, B., & Bonjour, J. (2022, April). Eulerian-Eulerian Multiphase Frost Model Based on Phase Change Driving Force. In *7th IIR International Conference on Sustainability and the Cold Chain*.
- **Jeong, J.**, Benchikh Le Hocine A. E., Croquer, S., Poncet, S., Michel, B., & Bonjour, J. (2022). Numerical analysis of the thermoaerodynamic behavior of air during the opening of the door of a refrigerated truck trailer equipped with cold plates. *Applied Thermal Engineering*, 206, 118057.
- **Jeong J.**, Benchikh Le Hocine A. E., Croquer S., Poncet S., Bonjour J., & Michel B. (2021, May). Numerical Simulation of the Heat Transfer in a Refrigerated Trailer Equipped with Eutectic Plates for Frozen Food Delivery. *18th International Refrigeration and Air Conditioning Conference*, Lafayette, USA.

RESEARCH EXPERIENCE

LMFTEUS, Université de Sherbrooke, Canada 09/2020 – 09/2021 & 09/2022 – Present

Ph.D. – CFD modeling of the heat and mass transfer in a refrigerated truck trailer

- Performed Computational Fluid Dynamics (CFD) simulation and analysis of the heat transfer inside a refrigerated truck trailer equipped with eutectic plates.

- Utilized the ANSYS CFX - URANS model to solve the conjugated heat transfer inside the trailer in 2D using $k - \omega$ Shear Stress Transport turbulence model for the door opening period.
- Developed a ANSYS FLUENT Eulerian-Eulerian multiphase model to predict the frost development on a eutectic system and integrated the solidification and melting model by a User-Defined-Function in C/C++ to investigate the heat transferred to the Phase Change Material (PCM).
- High Performance Computing (HPC) via MobaXterm was performed for all the simulations using the Calcul Quebec and Compute Canada.
- Data analysis was performed using CFD-POST, ANSYS FLUENT, and MATLAB.

CETHIL, INSA Lyon, France

09/2021 – 09/2022

Ph.D. – CFD modeling of the heat and mass transfer in a refrigerated truck trailer

- Performed and prepared the experimental investigation of the humidity diffusion during the infiltration period for a refrigerated truck trailer.
- Designed the experimental setup and the data acquisition system.
- Worked in close collaboration with the technicians in electrical and mechanical engineering to design and finalize the experimental setup.

Imperial College London, United Kingdom

05/2018 – 09/2018

M.Sc. Thesis - Data Driven Analysis and 3D Visualization of a Turbulent Bluff-Body Using Optimal Mode Decomposition

- Analyzed the experimental Particle Image Velocimetry (PIV) data containing 100 million data points to extract the dominant modes from the constant center of pressure locations by performing Optimal Mode Decomposition using MATLAB.
- Extracted 2D modes were processed and filtered then interpolated in the 3D cylindrical coordinate frame to create the 3D visualization of the dominant modes within the turbulent wake.

Aerodynamics Research Group, McGill University, Canada

05/2015 – 05/2016

Undergraduate Research Assistant

- Prepared and conducted aerodynamic experiments in the wind and water tunnels:
 - a) Force balance experiment of NACA0012 airfoil, delta and reverse delta wing.
 - b) Surface pressure measurement and smoke-wire flow visualization of the NACA0012 airfoil under the influence of the ground effect.
 - c) Dye-flow visualization of the delta wing with varying configurations.
- Modelled and analyzed the experiments using Excel, MATLAB, C++ and LabView.

Shockwave Physics Group, McGill University, Canada

05/2014 – 09/2014

Undergraduate Research Assistant

- Prepared and performed constant volume combustion experiment to identify the laminar burning velocities of methane and vinyl chloride.
- Created and inspected the ignition system and the PVC tube gas setup system.
- CEAgui was applied using Fortran to identify the stoichiometric ratio of vinyl chloride and air to be used for the experiment.

AWARDS

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| • Médaille du mérite Léonard de Vinci – Université de Sherbrooke | 2021 |
| • Bourse Eurêka de la Faculté de Génie – Université de Sherbrooke | 2021 |
| • NSERC Undergraduate Student Research Award – McGill University | 2016 |
| • NSERC Undergraduate Student Research Award – McGill University | 2014 |
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