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
Université de Sherbrooke, Canada

Ph.D. Thermique-Energétique 09/2020 – Expected 04/2024
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. (2023, August). Numerical simulation of the frost formation on a flat plate cooled by a phase change material, *26th International Congress of Refrigeration (ICR23)*.
- **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 thermoaeraulic 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

- Conducted Computational Fluid Dynamics (CFD) simulations and analyzed heat transfer dynamics within a refrigerated truck trailer equipped with eutectic plates.
- Employed the ANSYS CFX - URANS model to resolve conjugated heat transfer within the trailer in a 2D framework, employing the $k-\omega$ Shear Stress Transport turbulence model during the door opening phase.

- Devised an ANSYS FLUENT Eulerian-Eulerian multiphase model to forecast frost development on a eutectic system. Integrated a solidification and melting model via a User-Defined-Function in C/C++ to explore heat transfer interactions with the Phase Change Material (PCM).
- Leveraged High-Performance Computing (HPC) through MobaXterm for all simulations, utilizing resources from Calcul Quebec and Compute Canada.

CETHIL, INSA Lyon, France 09/2021 – 09/2022
Ph.D. – CFD modeling of the heat and mass transfer in a refrigerated truck trailer

- Executed and organized experimental investigations into humidity diffusion during the infiltration period for a refrigerated truck trailer.
- Developed the experimental setup and implemented the data acquisition system.
- Collaborated closely with electrical and mechanical engineering technicians to design and refine 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

- Examined experimental Particle Image Velocimetry (PIV) data comprising 100 million data points to isolate the primary modes from consistent center of pressure locations, employing Optimal Mode Decomposition through MATLAB
- Processed and filtered the extracted 2D modes, subsequently interpolating them within a 3D cylindrical coordinate framework to generate a three-dimensional representation of the dominant modes within the turbulent wake.
- Leveraged High-Performance Computing (HPC), utilizing resources from Imperail College London's HPC cluster.

Aerodynamics Research Group, McGill University, Canada 05/2015 – 05/2016
Undergraduate Research Assistant

- Organized and executed aerodynamic experiments within wind and water tunnels, including:
  a) Force balance experiments involving the NACA0012 airfoil, delta, and reverse delta wing.
  b) Conducted surface pressure measurements and smoke-wire flow visualizations of the NACA0012 airfoil under the influence of the ground effect.
  c) Implemented dye-flow visualizations of the delta wing with different configurations.
- Analyzed and modeled the experimental data using Excel, MATLAB, C++, and LabView.

Shockwave Physics Group, McGill University, Canada 05/2014 – 09/2014
Undergraduate Research Assistant

- Organized and conducted constant volume combustion experiments aimed at determining the laminar burning velocities of methane and vinyl chloride.
- Developed and examined the ignition system along with the PVC tube gas setup system.

- Employed Fortran-based CEAgui to ascertain the stoichiometric ratio of vinyl chloride and air required for the experiment.

AWARDS

- 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