

KRISHNA KANT

CFD Engineer

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EXPERIENCE

Post-Doctoral Research Fellow

IFP Energies Nouvelles

October 2024 – Ongoing Paris, France

- Developing a model for non-equilibrium flash boiling using Converge CFD software.
- Conducting simulations and analysis to refine predictive capabilities and validate against experimental data.

Design Engineer

Takasago Fluidic System

February 2024 – August 2024 Nagoya, Japan

- Fabricated and tested microfluidic valves, ensuring performance and quality.
- Used SolidWorks and CAE software for valve part design and testing.
- Modified and rebuilt valves based on design updates or client requirements.

Sr. Development Engineer

S and I Engineering Solutions Pvt. Ltd.

June 2023 – October 2023 Bengaluru, India

- Developing methodology for solving various industrial problems using OpenFoam
- HVAC/Turbo-Machinery/Marine Engineering

RESEARCH PROJECTS

Ph.D. Thesis

Funding agency: MoE, Institution: IIT Hyderabad

Thesis title: Study of Droplet Dynamics of Power-Law Fluids at Various Density Ratios using Novel CLSVOF Solver

- Worked on the development of Coupled Level Set VOF solver to solve two-phase flow problem in OpenFoam framework.
- Advanced techniques for improvement in solver performance are explored like Dual Grid Method, Curvature Interpolation Technique, and Close Point Search method.
- Developed secondary atomization breakup model applicable to wide range of viscosity and density ratio for power-law fluids.

M.Tech. Thesis

Funding agency: MHRD, Institution: IIT Guwahati

Thesis title: Parallelization of Unstructured Grid CFD Solver
Worked on the development of code to solve the Navier-Stokes equation and the energy equation in parallel environment using MPI paradigm in AnuPravaha. Worked on various open-source software LIS, CGNS and METIS related to CFD.

EDUCATION

Ph.D. in Mechanical Engineering

Indian Institute of Technology Hyderabad

July 2017 – August 2024

CGPA: 8.29/10.0

M.Tech. in Mechanical Engineering

Indian Institute of Technology Guwahati

July 2014 – June 2016

CGPA: 7.60/10.0

B.Tech. in Mechanical Engineering

Lovely Professional University

July 2010 – June 2014

CGPA: 7.77/10.0

STRENGTHS

Hard-working

Multi-Tasking

Eye for Detail

C++

CFD

MATLAB

SolidWorks

OpenFoam

Converge

LANGUAGES

English



Japanese



REFEREES

Prof. Raja Banerjee

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Indian Institute of Technology Hyderabad
Kandi, Telangana – 502284

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PUBLICATIONS

Journal Articles

- K. Kant, S. Rajesh Reddy, and R. Banerjee, "Impact of fluid rheology and density ratio in droplet collision: A numerical investigation," *Journal of Fluids Engineering*, vol. 147, no. 4, p. 041 403, Nov. 2024. DOI: 10.1115/1.4066928.
 - K. Kant and R. Banerjee, "Effect of density ratios on droplet breakup for newtonian and power-law fluids," *International Journal of Multiphase Flow*, vol. 167, p. 104 561, 2023.
 - K. Kant and R. Banerjee, "Study of the secondary droplet breakup mechanism and regime map of newtonian and power law fluids at high liquid–gas density ratio," *Physics of Fluids*, vol. 34, no. 4, 2022.
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Conference Proceedings

- K. Kant and R. Banerjee, "Effect of non-newtonian rheology on bag breakup at different liquid to gas density ratios," in *ASTFE Digital Library*, Begel House Inc., 2022.
- K. Kant and R. Banerjee, "Numerical study on the breakup of non-newtonian/newtonian compound droplet," in *ASTFE Digital Library*, Begel House Inc., 2022.
- K. Kant and R. Banerjee, "Assessment of primary breakup of liquid sheet emanating from a pressure swirl atomizer for non-newtonian fluids," in *International Conference on Liquid Atomization and Spray Systems (ICLASS)*, vol. 1, 2021.
- K. Kant, M. Kumar, R. Reddy, R. Banerjee, N. Mangadoddy, and S. Vanka, "Numerical study of primary jet breakup in a simplex swirl atomizer using dual grid coupled level set vof method," ser. Gas Turbine India Conference, Dec. 2019, V002T04A005. DOI: 10.1115/GTINDIA2019-2411.
- E. Michael, S. K. Keerthi, K. Kant, P. Kolhe, R. Banerjee, and S. R. Chakravarthy, "Effect of liquid/gas density ratio on primary jet breakup of pressure swirl atomizer: Experimental and numerical study," ser. Gas Turbine India Conference, Dec. 2019, V002T04A011. DOI: 10.1115/GTINDIA2019-2513.