Vidhan Kashyap

+81 07093140363 **kashyapvidhan@gmail.com** **LinkedIn** **Github** **Website**
Address: Room 221, Satsukigaoka-kita, Suita, Osaka 565-0834, Japan

Education

Osaka University, Osaka, Japan **Apr 2025 - Mar 2027**
MSc. in Mechanical Engineering(Expected Mar 2027) -

Osaka University, Osaka, Japan **Oct 2023 - Mar 2025**
Research Student at Micro Thermal Engineering Laboratory -

Indian Institute of Technology, Kharagpur, India **Jun 2017 - Apr 2021**
B.Tech in Mechanical Engineering *3.0/4.0*

Academic Thesis and Projects

Nanoscale heat transfer in confined ionic solution for energy storage devices(Master's Thesis – In Progress)

- Conducting molecular dynamics simulations (LAMMPS) to study heat transfer in ionic systems within capacitors
- Analyzing the ion layering near electrodes, intermolecular interactions, and thermal transport properties.
- Developing methodologies for accurate evaluation of thermal properties in nanoscale confined systems

Thermal Management of High-Power PCB Assembly **Project**

- Performed conjugate heat transfer analysis of a GPU assembly with a 54W AGP chip and DDR modules.
- Implemented thermal modeling with two-resistor networks and thermal interface material contact resistances.
- Validated cooling performance by maintaining a steady-state peak junction temperature of 123.6°C.

2D Heat Equation Solver Using Physics-Informed Neural Networks(PINNs) **Blog**

- Built a PINN model (PyTorch) to solve the 2D heat equation by embedding PDE constraints into the loss function
- Benchmarked against finite difference methods, achieving comparable accuracy
- Evaluated convergence behavior and computational efficiency, highlighting advantages for irregular domains

Navier-Stokes equations solver using Gaussian neighbourhood **Source Code**

- Developed a 2D incompressible flow solver in C using finite difference schemes
- Extended solver to circular domains, enabling simulation of complex geometries without traditional meshing
- Achieved second-order accuracy and refined numerical stability using Gaussian-based iterative techniques

Pneumatic Clamp Motion Control System **Yushin Precision Equipment co., ltd.**

- Designed a smooth 90° rotational actuation system for using pneumatic piston and proportional valve
- Improved deceleration control strategy to minimize impact at mechanical limits
- Expanded system reliability by reducing mechanical shock and wear

Work Experience

Addverb Technologies Pvt. Ltd., Noida, India **Aug 2021 – Sep 2022**
Graduate Engineer Trainee -

- Enhanced issue resolution workflows through structured root cause analysis
- Commissioned a hybrid conveyor system using Siemens PLC controllers
- Optimized warehouse operations by applying task allocation algorithms to scheduling problems

Technical Skills

Programming Languages: Fortran, C++, Python, Julia, MATLAB
Simulation and Engineering Software: LAMMPS, ANSYS Icepak, SolidWorks, OVITO
Parallel Computing and Tools: MPI, Shell Scripting

Relevant Coursework

Coursework: Molecular Thermo-Fluid Engineering, Two-phase Flows, CFD, Nonequilibrium Statistical Mechaics, Statistical Mechanics, Optimization Methods, Statistical Learning Theory, Nonlinear Dynamic Systems

Achievements

- Recipient of MEXT Scholarship (2025)
- LeetCode rating: 1799 ; Specialist on Codeforces
- Bronze-level WorldQuant Challenge (2019)