

Vineet Mukim

CFD | Multiphysics Modeling & Simulation | Programming

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Summary

- R&D engineer with 8+ years of experience in solving multiphysics problems using computational (FVM, FEM), analytical & experimental techniques
- Proficient in CAD, scientific programming, mathematical modeling, numerical simulations, computer vision, optimization and machine learning (ML) applications
- Hands-on experience in fluid-thermal dynamics (laminar, turbulent CFD), solid mechanics (linear, non-linear, modal), and electromagnetics analysis

Work Experience

- Dec 2020 – Present **Research Fellow, University of Stavanger, Norway**
- Developed novel optical method to measure interfacial tension & viscosity using capillary waves
 - Performed parallelized transient multiphase simulations with dynamic mesh motion (FSI)
 - Conducted rheological tests on Newtonian & non-Newtonian fluids for analysis
 - Achieved 3D reconstruction of tiny axisymmetric disturbances on interface using forward & inverse geometric optics and image processing
- Aug 2016 – Nov 2020 **Research Engineer, Oneirix Labs, India**
- Participated in problem identification & planning of multidisciplinary projects
 - Collaborated on multiple research & product development tasks simultaneously
 - Performed model setup, geometry cleanup, meshing, & post-processing
 - Developed software tools for analysis, visualization & parametric optimization
 - Built test-benches & electronic circuits, performed experiments, documented findings
 - Led team of engineers & mentored interns
- Sep 2015 – Jun 2016 **Mechanical Engineer, Dar Al-Handasah, India**
- Prepared schematic layouts, reviewed drawings, estimated costs for various building services
 - Designed HVAC, plumbing, fire-fighting systems for large-scale residential & commercial projects

Education

- Dec 2020 – Present **Ph.D. Multiphase Fluid Dynamics, University of Stavanger, Norway**
- Jul 2012 – Jun 2015 **M.Tech. Thermal & Fluids Engineering (9.27/10), IIT Bombay, India**
- Jul 2007 – Jun 2011 **B.E. Mechanical Engineering (74.4%), University of Pune, India**

Skills

- CAE Ansys, Comsol, Openfoam, Salome, Femm, Paraview, Tecplot
- CAD/Visualization Solidworks, Autocad, Freecad, Inkscape, Gimp
- Programming/OS Python, Matlab, C, C++, Shell, Raspberry Pi, Arduino, Windows, Linux
- Interests Quantum Computing, Team Sports, Swimming, Weightlifting

Projects

- Thermosiphon pseudo-fluid boiling and condensation simulation, parametric optimization
- Energy Regenerator simultaneous heat & mass transport, thermo-hydraulic analysis
- DC Motor Aging physics-based fully coupled model, electromagnetic & thermal simulations
- ECG Annotator deep learning (CNN) based image segmentation to detect cardiomyopathy
- Brake Squeal Analysis complex eigenvalue analysis, GUI development
- Point Cloud Fitting fitting primitive geometric shapes with constrained optimization
- Material Testing multiaxial, HW & SW improvements, hyperelastic characterization