HARSHAVARDHAN KONKA

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SUMMARY

Highly skilled Computational Fluid Dynamics (CFD) Engineer with expertise in Aerodynamics, multiphase flows, and hands-on experience in the design, optimization, and testing of aerodynamic systems. Proven track record in simulation-based design, aeromechanical systems development, and propulsion-airframe integration. Adept at using high-fidelity CFD tools such as OpenFoam and Ansys Fluent. Skilled in CAD software including SolidWorks and CATIA V5, with proficiency in programming languages like Python and MATLAB. Passionate about driving innovation in aerospace engineering and contributing to the design, analysis, and improvement of advanced systems.

SKILLS

- CFD Tools: OpenFOAM, Ansys Fluent/Workbench, Paraview, Ensight
- HPC and Parallel Computing
- Programming Languages: Python, MATLAB
- CAD Software: SolidWorks, CATIA V5
- Aerodynamics: Propulsion-airframe integration, drag and lift optimization
- Technical Writing: Specifications, reports, engineering documentation
- Cross-Functional Collaboration: Effective teamwork with interdisciplinary engineering teams

EXPERIENCE

06/2021 to Current **PhD Researcher – Computational Fluid Dynamics (CFD)**

Deakin University – Geelong, VIC

- Conducted advanced research into aerosol dynamics and virus transmission using Computational Fluid Dynamics (CFD), running large-scale simulations on High-Performance Computing (HPC) clusters to model the dispersion and evaporation of respiratory particles.
- Developed and implemented a composite fluid model using OpenFOAM and Ansys Fluent, leveraging HPC systems to simulate complex multiphase flow and Large Eddy Simulation (LES) for external flow at high computational speed and efficiency.
- Utilized a fully coupled Eulerian-Lagrangian model to investigate aerosol dispersion under varying environmental conditions, ensuring high fidelity results through efficient use of parallel computing resources on HPC.
- Utilized CFD simulations to optimize air distribution in closed environments, enhancing the efficiency of flow control systems, and

providing insights into the mitigation of airborne disease transmission.
- Used the BLO model to simulate aerosol size distributions in the respiratory tract, contributing valuable data for understanding the spread of infectious pathogens.

10/2022 to 12/2022 **Integration and Test Engineer**

Applied EV - Software Defined Machines – Melbourne, VIC

- Designed and implemented testing and integration procedures for a mission management framework, ensuring seamless integration of new and existing components, as per project requirements.
- Developed and executed test procedures to validate all system requirements, mapping requirements to test cases to ensure thorough coverage and compliance.
- Coordinated and scheduled testing efforts between various system groups, facilitating efficient cross-functional collaboration to meet project timelines.
- Conducted vehicle testing in accordance with SAE standards, identifying and documenting defects using JIRA, and supporting the correction and implementation process.
- Delivered presentations and progress reports to engineering management, communicating testing outcomes and design integration results.
- Provided testing support for User Acceptance Testing (UAT) to ensure all components met final operational requirements before deployment.

02/2021 to 03/2021 **Junior Design Engineer**

SAVIC Motorcycles – Melbourne, VIC

- Designed key components for the C-series café racer motorcycle using SolidWorks, focusing on optimizing mechanical performance and aero integration.
- Conducted assembly operations and interference checks to ensure optimal integration and safety across all motorcycle parts.

01/2020 to 01/2021 **CFD Engineer**

ABScube Engineering – Melbourne, VIC

- Design and analyzed the aerodynamic systems for a boxfish-inspired model, optimizing drag reduction and vehicle performance using CFD tools such as Ansys Fluent and OpenFOAM.

06/2017 to 02/2018 **Design & Aerodynamics Engineer**

RMIT Formula SAE – Melbourne, VIC

- Designed and tested aerodynamic components such as the rear wing for the Formula SAE vehicle, using SolidWorks and conducting CFD simulations in Ansys Fluent.

EDUCATION

09/2024 **PhD in Computational Fluid Dynamics**
Deakin University – Geelong, VIC

01/2017 **Master of Engineering in International Automotive Engineering**
RMIT University – Melbourne, VIC

01/2013 **Bachelor of Engineering in Mechanical Engineering**
Anna University – Chennai

WEBSITES, PORTFOLIOS, PROFILES

- https://www.linkedin.com/in/harshavardhan-konka/

CERTIFICATIONSAWARDS

- Certified SolidWorks Professional
- Python Programming Certification
- Deakin University Postgraduate Research Scholarship

PROJECTS

- **Numerical Investigation of Airflow in Shipping Containers**: Modeled airflow using CFD to optimize air distribution and environmental control in shipping container farms.
- **NVH Analysis of Audi R8 (BIW):** Conducted vibration and stress analysis of the Body-in-White structure, identifying structural weaknesses and proposing design modifications.
- **Design and Fabrication of Aerial Surveillance Vehicle**: Led the design and analysis of a quadrotor prototype, simulating aerodynamic forces and optimizing material selection for lightweight structural integrity.

CERTIFICATIONS

- CFD foundation course from FlowThermoLab.
- Ansys fluent beginners to advanced level from FlowThermoLab.
- OpenFOAM for Beginners from FlowThermoLab.
- MultiphaseFlow workshop from FlowThermoLab.