Kevin Thomas Fernandez

(331)-259-6936 kevin4680thomas@gmail.com https://www.linkedin.com/in/ktf08/

EDUCATION

Virginia Tech **Aug 2022 – March 2025***

Master of Science in Aerospace Engineering *VA, USA*

Courses: *Data Analysis in Fluid Dynamics (5154), Computational Fluid Dynamics (5434G), Aerospace Materials & Modeling Techniques (5984), Advanced Aero/Hydrodynamics(5104)*

Dayananda Sagar College of Engineering **Aug 2017 – May 2021**

Bachelor of Engineering in Mechanical Engineering *KA, India*

Courses: *Mechanics of Materials, CAD Modeling & Analysis, FEM, Design of machine elements, Mechanical Vibrations*

EXPERIENCE

VT Airworthiness Center, Aerospace & Ocean Engineering,Virginia Tech **May 2023 – Present**

Airworthiness Analyst, Supervised by Dr. Robert Canfield *VA, USA*

- Developed a risk assessment engine for 3^{rd} parties on the ground in the event of aircraft failure over exposed population areas, employing Uniform and Gaussian distribution heat maps to enhance safer flight path planning
- Refactored legacy code within 5 months by correcting shelter factor probability, validating fatality risk assessment
- Restructured code for dynamic functions (PEP 8) using Python, JavaScript, and HTML, and conducted thorough regression testing by developing standalone scripts within 3 weeks, resulting in consistent new baselines

Aerospace & Ocean Engineering,Virginia Tech **Jan 2023 – Dec 2024**

Graduate Research Assistant, Advanced Aircraft De-icing techniques *VA, USA*

- Implemented experimental anti-icing and FEM (Abaqus) approaches using Piezo elements and vibration for atomization
- Fabricated super-hydrophobic surfaces, reducing roughness (R_a≈21%) as quantified by a 3D Surface Profiler(VK-X3000)
- Designed, built, and tested a supercooling , improving inner temperature to -11.2°C and expanding volume by 396%
- Conducted tolerance analysis for chamber components, utilizing CAD and precision 3D printing (Dremel systems)
- Performed FFT on PZT (6kHz–21.52kHz) using a laser vibrometer to determine resonance and optimize atomization
- Analyzed droplet impact dynamics with fast and X-ray imaging, enhancing technical understanding of anti-icing effects

Aerospace & Ocean Engineering,Virginia Tech **Aug 2023–Dec 2024**

Graduate Teaching Assistant *VA, USA*

- Guided 12 students in Aerospace Experimental Methods, technical documentation and MATLAB for precise analysis
- Mentored projects in modal analysis, aerodynamic experiments (wind, smoke, and water tunnels), and structural analysis, developing students' practical expertise

Bangalore Aircraft Industries Private Limited **Aug – Sep 2020**

Design Engineer Intern, Aircraft Design team *KA, India*

- Validated spar design via CAD modeling, mesh analysis (MSC Nastran & Patran), and Euler-Bernoulli Beam Theory

PROJECTS

Shock Impact Behavior of Metals | *Shock,Embeded Atom Method,Computational*

- Simulated shock impacts on FCC metals (5–20ang/ps) with LAMMPS, observing velocity and orientation effects
- Analyzed density and pressure ($\pm 6 * 10^5$) to identify fracture and deformation trends

VTOL Tri-Copter Analysis | *CATIA, ANSYS*

- Led a team of 4 to design and optimize the aerodynamics of a VTOL tri-copter CAD model producing better cruise
- Validated structural integrity, stress distribution, and bending analysis for robust mechanical design

TECHNICAL SKILLS

Design & Engineering: SolidWorks, Ansys Mechanical, Catia V5, Abaqus, Tecplot, Optical imaging, Adobe Illustrator
Programming Languages & Tools: Python, MATLAB, JavaScript, GIT
Documentation : LaTeX, Canva, MS Office (Word, Excel & PowerPoint), EndNote, Technical writing

Leadership / Extracurricular

76th & 77th Annual APS Division of Fluid Dynamics Conferences **2023, 2024**

Washington, DC & Salt Lake City, UT

- Presented "An Advanced Aircraft Deicing Analysis: Supercooled Liquid Dynamics under Ultrasonic Frequency and Surface Roughness Effects."

Presented for Future of Flight at Game Changer Week in VT Montgomery Exec Airport , Sept 2024
Member of Center for Research and Engineering in Aero/Hydrodynamic Technologies,2023-2025
Aerospace Research Assistant at Virginia Tech Stability Wind Tunnel,Oct – Nov 2022