Hi, I’m Kevin Thomas Fernandez, recently completed a Master’s in Aerospace Engineering at Virginia Tech with a specialization in fluid dynamics and fluid-structure interaction, particularly focusing on UAS safety. My background spans both Mechanical and Aerospace Engineering, and I excel in using computational tools like SolidWorks and MATLAB to design, model, and analyze complex mechanical systems. I've worked on projects ranging from anti-icing techniques to UAV safety protocols and have a proven track record in experimental research and CAD modeling.

What sets me apart is my ability to bridge technical expertise with effective communication helping teams collaborate better and reach goals more efficiently (10s story) . Additionally I’ve also applied my skills in business environments, where I developed safety solutions for UAVs and worked on marketable products. With solid technical and management skills, I drive innovation and ensure the synergy between research, design, and real-world applications.

From a very early age I've been a problem solver. I was that kid who would take apart anything so I could see how it worked—and then try to put it back together.

As you can imagine, it drove my parents nuts. But even though I tortured my family at times, the tinkering trait has served me well in my career.

After graduating from Virginia Tech, I was recruited into a Airworthiness Analyst job and got paid to take ensure saftey. It was like living the dream.

That job also made me realize I'm really good with difficult customers, and that's what helped me land my current analyst role.

While I love my job and have been successful in it, it has moved me away from the … floor. Now, the reason I'm so interested in this position is that it seems to provide a really great blend of one-on-one work with clients and hands-on problem solving.

1. Tell me about yourself and why you want to work for [Company].

Present:

"I am a graduate student in Aerospace Engineering at Virginia Tech, focusing on advanced aircraft de-icing methods and structural dynamics."

Past:

"My previous experiences include developing CAD models for eVTOLs, conducting wind tunnel experiments, and creating innovative solutions for aircraft design during my internships and research roles."

Future:

"I am excited about [Company’s] innovative projects in aerospace technologies. Your commitment to sustainability and cutting-edge design aligns perfectly with my career aspirations to contribute to the next generation of aerospace solutions."

2. Describe a time when you had to troubleshoot a complex technical issue in a project.

Situation: "In my cryogenic chamber design, I faced inconsistent temperature regulation during de-icing experiments."

Task: "I needed to identify and resolve the issue to ensure precise testing conditions."

Action: "Using MATLAB, I analyzed heat transfer mechanisms, redesigned the insulation system, and tested the setup under various conditions."

Result: "This reduced temperature fluctuations by 40%, ensuring accurate experimental data and advancing the project timeline."

3. Describe a time when you had to solve a complex problem in your field.

"In a project studying ultrasonic frequencies for de-icing, I faced challenges analyzing droplet behavior on superhydrophobic surfaces. I used high-speed imaging and data analysis tools to track kinetic energy scales and identify optimal surface properties. This improved the surface design by 25% in terms of efficiency."

4. Tell me about a project where you collaborated with a multidisciplinary team.

"In the 'BeVERLI' project, I worked with mechanical, software, and electrical engineers to study airflow over high-lift devices. Weekly team meetings and shared technical documents facilitated seamless communication, leading to successful data collection and enhanced understanding of subsonic flow dynamics."

5. Give an example of a time when you faced a tight deadline on a project.

"During my internship, I had two weeks to validate a spar design for a 60-passenger aircraft. I broke the task into CAD modeling, analytical validation, and peer review stages. Prioritizing critical tasks and managing my time effectively, I delivered the design within the deadline, meeting performance criteria."

6. Tell me about a situation where you had to adapt to a major design change during development.

"While designing an eVTOL aircraft, regulatory changes required a redesign of the fuselage layout. I quickly updated CAD models, revised battery placements, and revalidated performance metrics, completing the redesign without delaying the project timeline."

7. Describe a time when you used data analysis or simulation tools to solve a problem.

"In my research, I used Abaqus to simulate thermal stress in anti-icing coatings. By analyzing stress distributions, I identified optimal material compositions, improving the coating’s durability by 25% under extreme conditions."

8. Give an example of a time when you presented complex information to a non-technical audience.

"I presented my research on supercooled liquid dynamics to stakeholders unfamiliar with technical details. By using simplified visuals, analogies, and focusing on key outcomes, I ensured they understood the significance and practical applications of my work."

9. Describe a time when you had to lead a team through a challenging situation.

"Leading a team designing a VTOL tri-copter, we faced resource constraints that risked delays. I reallocated tasks, prioritized essential components, and motivated the team to stay focused. We successfully completed the project within the deadline, meeting all performance requirements."

10. Tell me about a situation where you identified a potential risk in a process.

"While working on a manufacturing analysis, I discovered a tolerance mismatch in a CAD design for a key component. I flagged the issue, revised the design, and revalidated it, preventing delays and ensuring a reliable manufacturing process."

11. Describe a time when you balanced competing priorities and tight deadlines.

"While managing multiple graduate research experiments and coursework, I used project management tools to prioritize tasks based on deadlines and complexity. By allocating specific time blocks for each activity, I successfully delivered on all commitments."

12. Describe a time when you had to balance multiple priorities and tight deadlines in a project.

"During my research assistantship, I managed teaching duties, experimental setups, and data analysis. I prioritized tasks using a calendar-based system, delegated non-critical tasks, and met all deadlines without compromising quality."

13. Give an example of a time when you had to learn a new software, tool, or methodology to complete a project.

"I had to learn Abaqus for simulating thermal stresses in a short time. I completed online tutorials, applied the tool to simple test cases, and quickly gained proficiency, enabling me to deliver accurate results for my project."

14. Give an example of a time when you had to learn a new concept or technology quickly to complete a task.

"I learned Python scripting to integrate .kml file generation for Google Earth into legacy code. By studying online resources and practicing intensively, I developed the script within two weeks, enhancing the project’s visualization capabilities."

15. Tell me about a time when you faced failure or a setback in a project.

"An initial attempt to create superhydrophobic surfaces for de-icing experiments failed due to adhesion issues. I revisited the process, consulted with experts, and refined the fabrication method. The improved technique yielded successful results, and I learned the importance of iterative problem-solving."

16. Describe a situation where you contributed to improving a process or system.

"During a wind tunnel study, I automated the data logging process using Python, reducing analysis time by 30% and improving efficiency."

17. Why are you the best candidate for this position?

"My combination of technical expertise, hands-on research experience, and collaborative skills makes me uniquely suited for this role. I have a proven ability to tackle complex problems and deliver results that align with [Company’s] mission."

18. Why do you want to work for [Company]?

"I am inspired by [Company’s] innovative projects in aerospace technology, particularly [specific area]. The opportunity to contribute to such impactful work aligns perfectly with my skills and passion for advancing the aerospace industry."

19. How does this position fit into your career goals?

"This role offers the perfect opportunity to apply my expertise in aerospace systems and advance my goal of driving innovation in the field. It aligns with my ambition to contribute to transformative aerospace solutions."

20. What is your top strength, and how will you leverage it in this position?

"My top strength is analytical problem-solving. For instance, I optimized experimental setups in my research to address inefficiencies and deliver impactful results. I will apply the same skills to solve challenges and contribute to [Company’s] success."

21. Describe a time when you had to work with a difficult team member. What actions did you take to resolve the situation to encourage the team's ongoing progress?\*

During a research project focused on anti-icing, one experienced team member consistently worked alone, talked down, and dismissed others' ideas, which created tension and slowed progress.

As the junior in the team, I felt responsible for keeping the project on track and maintaining a positive, collaborative atmosphere. To get more work done and efficiently.

I initiated a one-on-one conversation with the team member to understand their perspective better. It turned out they were struggling with miscommunication, a heavy workload, felt they did not need help and did not consider another’s work load or did not understand what it meant to work together. I reassured them that their input was valuable and worked with the team to adjust our meeting structure so everyone had dedicated time to share ideas. We also reallocated tasks to better match everyone’s strengths and schedules. This allowed newer members to enter the space, gather information, and work easily.

The team members became more engaged and cooperative, and the group dynamic significantly improved. We made significant progress on the project on time, and the collaboration ended positively with a shared sense of accomplishment.

22. Describe an activity in which you took a leadership role. How did you lead and what did you do to overcome the challenges of leadership?\*

In my final year of my Bachelor's degree, I led a team of four on our capstone engineering project, where we redesigned and improved the production line for a 40 HP tractor. Our focus was on implementing Lean manufacturing principles, standard operating procedures (SOPs), and optimizing the shop floor layout to reduce lead time and improve efficiency.

It was a multidisciplinary effort involving design, workflow optimization, testing, and worker ergonomics, along with seamless integration with existing systems. My responsibilities included managing timelines, assigning tasks, and ensuring all aspects of the project worked in sync.

One of the early challenges we faced was miscommunication and unclear expectations, partly due to the team's diverse working styles and technical strengths. In addition to overseeing technical progress, I also managed on-site coordination, including travel, tracking daily milestones, and keeping documentation up to date.

To address the misalignment, I organized a team meeting to clarify roles, reset expectations, and introduce a shared project tracker with weekly checkpoints. I also held one-on-one check-ins to help resolve individual roadblocks and rebalance workloads where needed. I fostered a collaborative environment by encouraging open communication and making sure every team member’s input was valued during key decisions.

As a result, our team became more cohesive and efficient. We completed the project successfully — even incorporating additional testing — and received positive feedback on our final presentation. The experience significantly enhanced my leadership skills, particularly in balancing structure with adaptability and empathy.

23. Please describe (at a high level, identify the critical items) the steps and process in which you are familiar for hardware development (from requirements to production)?

This includes defining system needs (e.g., vibration-based anti-icing performance, temperature control), conceptualizing solutions using CAD and FEM tools like Abaqus and SolidWorks, and fabricating prototypes via 3D printing and surface treatment techniques. I’ve conducted rigorous experimental testing using FFT, laser vibrometry, and optical/X-ray imaging to validate performance, followed by iterative refinement. I also perform tolerance analysis, risk assessments, and ensure the design is optimized for manufacturability and operational reliability.