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To
[Company Contact],
[Company]

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Application For [Position]

Dear [Company Contact],

I would like to express my interest in the [Position]position at [Company]. I am currently enrolled as a Master's Student in Computer Engineering at Virginia Tech in an Accelerated Master's Program. I graduated with my Bachelors in 2025 where I double majored in Electrical and Computer Engineering. My interests in exploring the fields of [FocusOne]and [FocusTwo]combined with my experience in both research and industry, I believe will make me a well-suited candidate for this role at [Company].

For my Master's thesis, I am developing both the software and hardware to test multi-task reinforcement learning algorithms on robotic manipulators. My software deliverables include building a custom ROS2 description package, a Gazebo physics simulation package, a computer vision module, and a motion planning package. On the hardware side, I am working with a 6-axis robotic arm, which involves skills such as soldering, PCB design and assembly, and CAD. This hands-on experience has equipped me well for the [Position]role at [Company], as i have developed a strong background in robotics, machine learning, C++, Python, and ROS.

Previously, I worked at NASA's Marshall Space Flight Center as a Thrust Vector Control Intern. During my time at Marshall, I worked on their new "Active Inertial Load Simulator (AILS)" which was designed to simulate inertial loads on the Mars Ascent Vehicle's thrust vector control system using linear actuators to simulate these loads. In support of this project I modeled the characteristics of the load simulating electro-mechanical actuator using Python, MATLAB, and LabView. After modeling the actuator I developed control algorithms allow the AILS to simulate loads in a closed-loop system.

I also have experience with digital signal processing. While working on test equipment with Jacobs I was required to take force measurements from a load cell and displacement measurements from an LVDT with minimal noise – in order to accomplish this I designed and integrated a 3^{rd}-order IIR filter. Additionally, I currently work as a Graduate Teaching Assistant at my university aiding professors in teaching fundamental concepts in linear system theory with a focus on practical applications for embedded systems, this includes Laplace and Z-Transforms, stability analysis, and filter design and application.

I have also worked in the research field, currently on my Master's thesis and previously at the Grenoble Electrical Engineering Lab (G2ELab) in France. At the G2ELab I worked with researchers to develop control systems for grid-forming inverters, with the goal of preventing France's future electrical grid infrastructure problem. There I was able to learn the fundamentals of applied control systems and eventually integrated my control system designs into Hardware-In-Loop simulations. Furthermore, I had the privilege of collaborating with talented Engineers and Scientists in a dynamic research environment – a valuable experience I am eager to continue at [Company].

I am excited about the opportunity to contribute to the work/research happening at [Company], and I believe that my background experience and passion for much fo the same work being done by [Company]engineers makes me a strong fit for this role. I look forward to the opportunity to discuss how my background and experiences align with the goals of your team.

Thank you for your consideration.

Very Respectfully,

Hunter Ellis