Sebastian Baldini

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To Whom It May Concern,

I am interested in applying for the Integration and Test Engineering Internship at Draper as my mix of undergraduate and graduate robotics courses along with work and research experience I feel makes me a good fit for this position. I am currently a senior Robotics Engineering major at Worcester Polytechnic Institute and will be graduating with my Bachelors degree in May of 2025 followed by masters in December of 2026.

Through my degree I have had a great amount of experience integrating with and programming many different types of systems including robotics arms, autonomous drones, and soft robots. Currently I am the lead developer on my senior project within the PEAR lab at WPI under Professor Nitin Sanket. The project involves programming a drone to intercept a thrown projectile out of the air. This project has had me working on dynamics simulations for the drone along with different forms of trajectory generation and verification with integration with ROS-2. Additionally, this year I have been performing research on conductive TPU filaments as part of the Soft Robotics Lab under Professor Cadgas Onal. In this lab I am exploring the use of these materials for encoding the body of soft robotics, as to provide feedback to the control loop directly from the flexion of the body without using any hard sensors that would interfere with the motion of a soft robot.

Beyond my research, my graduate courses and work experience at Sig Sauer have been great learning experiences that I hope to apply at Draper. I will be graduating with my bachelor's degree at the end of this year and will be halfway through my master's degree in robotics engineering as well. The courses have taken during this year, including graduate level dynamics and computer vision courses have improved my level of understanding of both the subjects along with teamwork and integration as both were required for those courses. During my time as the Remote Weapon Systems Intern at Sig Sauer last summer I got to get hands on with a much larger and more complex system than what I have been able to do in my courses. I worked on electrical and mechanical design for their systems, particularly designing parts that would be able to survive in harsh conditions and under high loads. Finally, while I was there, I worked on a software package that improved upon the high-speed camera tracking software that was in use from Phantom Cameras. My solution directly integrated with the workflow and scripts that are used by teams within Sig while providing data with a higher degree of precision as the previous solution outputted purely in integers whereas my tool provided a more accurate floating-point output.

I firmly believe these experiences have equipped me to be an excellent fit for this position and would love the opportunity to further discuss what I can bring to the role. Thank you for your time and consideration. I look forward to speaking with you in the near future.

Sincerely,

Sebastian Baldini