Dear Recruitment Team,

Currently, I’m pursuing a Master’s degree in Mechanical Engineering

My name is David Ologan, and I am currently a junior at MIT studying Mechanical Engineering with a minor in Computer Science. As an aspiring mechanical engineer, I am writing to express my interest in applying for an internship at Northrop Grumman in the summer of 2021. I firmly believe that my extensive work experience make me an excellent candidate for the responsibilities associated with the role. If given the opportunity, I would love to contribute to your organization.

Over this summer, I spent the entirety of my time working for the Deng Energy and Nanotechnology Lab in the mechanical engineering department at MIT. Although remote given the circumstances, I collaborated with other graduate and undergraduate students on furthering the development of PINN (Physics Informed Neural Networks) and their application to a variety of physical systems. The goal of the lab was to perform supervised learning tasks while respecting the laws of physics determined by general nonlinear differential equations. By implementing DeepXDE, a python based library developed by a fellow graduate student, I was able to study and apply it to the Inverse Lorenz System. While I was there, I also manipulated a variety of hyper parameters, and activation functions in order to minimize the effective training loss.

In addition to my research, over the last two years, I have also taught as a learning assistant for 6.a01 (Making with Technology). In the EECS (Electrical Engineering and Computer Science) department at MIT, I assist other undergraduate students with the design and fabrication of their own unique large scale brushless motor. Having taken the class myself a few years back, I am incredibly passionate about the opportunity to assist other students in bringing their designs to life. Instructing students about positional control, microcontrollers and electromagnet operation, I was able to help them manufacture and assemble parts, make sound design choices, and effectively program their microcontroller.

My passion for mechanical design, programming and research, motivate my excitement about the work you currently do at Northrop Grumman. I would greatly appreciate the opportunity to discuss this position with you in further detail. Please feel free to reach out to me at (917)-635-2734 or email me at [dologan@andrew.cmu.edu](mailto:dologan@andrew.cmu.edu). Thank you again for your time, and I look forward to hearing from you.

Best regards,

David Ologan