

Shaun FEDRICK
Physics / Mechanical Engineer | Student

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To whom it may concern,

I am mechatronic masters student at the University of Pennsylvania. I finished my undergraduate degree in physics December 2020. I will have a Bachelors of Physics and a Masters of Mechanical Engineering by December 2021. Professionally, I have done research in fluid dynamics, investigating the effect of viscoelasticity on lubrication forces. I have also had various jobs that have involved an intense degree of coding, this includes my time as a Digital Scholar where I designed back end frameworks for websites that solved social justice issues.

With regard to my ability to meet the specific requirements of this job :

Fabrication and Design

I have worked on several projects that have required extensive use of 3D modeling softwares like Solid works and Fusion 360. For example, in my research of lubrication forces I had to use Solid Works to design the apparatuses I used for testing. Moreover, I have taken several classes on how to efficiently use 3D modelling programs, and have performed various implementations of 3D technologies. For instance, I analyzed the failure mode of a knee implant using a combination of comsol and Solid works. I will happily discuss more on my skills in an interview, but I hope you see that my formal training and professional experience with Solid works will make me a great fit for your organization.

Mechanical and Electrical design

As a physics major, I am required to have an intimate understanding of the laws of the universe. As a result, I have taken several hands on labs that have required me to design, create, and trouble shoot various complex sytems that peer into mechanical and eletrical properties of complex systems. I have done everything from making a rudimentary temperature control system to analyzing fourier optics.

Coding and Algorithm design

I have done a plethora of projects that have required an intense degree of coding. For my thesis on lubrication forces, I used Matlab to write image processing scripts that tracked the position of a falling sphere and simultaneously pulled velocity and acceleration to analyze forces on the sphere. I have also worked as a digital scholar. As a digital scholar, I was required to use Django, a python based web framework, to create interactive, beautiful websites. I have also taken a plethora of programming classes. To name a few of the classes, I have taken a Computational physics class, Robotic planning class, Numerical approximation classes, finite element class, and various foundational object oriented programming classes. I am proficient in Java, Python, C, and C++. I believe both my academic and professional experience will make me a great asset to your team.

I hope to discuss more with you in person over an interview. More information on my qualifications can be seen on my resume.

Thank you for your time,
Shaun Fedrick