

William Joseph Koehrsen
address • email address • phone number

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UTC Aerospace Systems
Four Coliseum Centre 2730 West Tyvola Road
Charlotte, North Carolina 28217

Dear UTC Aerospace Systems Hiring Manager,

I am a senior aerospace and mechanical engineering major at Case Western Reserve University writing to apply to the position of Manufacturing Engineer Intern for the Summer 2017 term. I believe my working experience, participation in team-based engineering competitions, and education make me an ideal candidate for this opening. I am enthusiastic about the opportunity to contribute to UTC Aerospace System's position at the technological frontier of the aerospace and defense field.

As an individual fascinated by anything that moves, and in particular, by machines that fly, I have been fortunate enough to have completed internships with both the Air Force Research Lab (AFRL) and the National Aeronautics and Space Administration (NASA). At the AFRL, I was given the responsibility of designing and overseeing the fabrication of an experimental test article designed to supplement wind tunnel testing. In less than ten weeks, I completed a complete design of the equipment using Solidworks CAD software, and submitted the drawings to the manufacturing engineers. In the months since, I have been able to consult with the technicians and follow along as my design is constructed with the goal of being put to use this year. Moreover, I was able to complete several compressible Computational Fluid Dynamics (CFD) studies at the AFRL and I presented my work at two professional conferences. As an engineer, it was immensely rewarding both to see a project I had worked on be implemented in the real world, and to contribute novel research to the field of aerospace engineering. My current internship at NASA Marshall Space Flight Center has further reinforced my desire to work in the aerospace field. As a member of the Control, Navigation, and Mission Analysis Branch, I was able to perform validation of the Guidance and Control MATLAB/Simulink model for the Near Earth Asteroid (NEA) Scout satellite. My primary responsibilities were to develop MATLAB scripts to simulate and test phases of the concept of operations and then analyze the resulting data to ensure that the Attitude Control System would perform nominally. I made extensive use of Microsoft Excel (including VBA), Python, the R programming language, and MATLAB to analyze and visualize the data from the tests. Moreover, I was involved in several side projects, including hardware and sensor testing, for which I designed several components in Solidworks which were then 3-D printed. NEA Scout is scheduled to fly on the Space Launch System (SLS) Exploration-Mission 1, and I could not be more thrilled to have the chance to watch another project that I played a part in perform in the real world.

When it comes to my educational career, I have attempted to wring as much as possible out of my time at CWRU. In addition to my dual undergrad degrees in aerospace and mechanical engineering, I have been accepted into the Master's Degree program in Aerospace Engineering and will begin taking graduate courses in Fall 2017. As indicated by my academic record, I excel in the classroom, but rather than studying arduously for the sake of high marks, I am motivated by opportunities to apply my coursework. This has come both through internships and through numerous team-based engineering competitions at CWRU. I am most devoted to the Baja rally car team where a group of students completely designs, fabricates, and races a rally car in eight months. Other engineering involvements include the NASA Robotic Mining Competition team and the Case Rocket team. These teams offer fulfilling projects because they demonstrate the entire engineering design process from initial conception to usable product. I believe this rewarding work is what I would be able to do at UTC Aerospace Systems, and I thank you for taking the time to consider my application.

Regards,
William Koehrsen