Mechatronics Engineer – Mechanical Design, Automation & Visualization

Location: (Tysons, VA next to Metro – Silver Line) | Type: Full-Time | Clearance: Must be a U.S. citizen and able to obtain a Secret-level security clearance | Travel: Up to 15%

About the Role

Abbott On Call is seeking a highly motivated and versatile Mechatronics Engineer to support mechanical design, software automation, and advanced visualization efforts for engineering projects. This role combines mechanical engineering fundamentals with software development, 3D modeling, digital simulation, and hands-on prototyping.

The ideal candidate is someone who enjoys learning new technologies, solving multidisciplinary engineering problems, and transforming engineering concepts into clear technical solutions. You will work closely with senior engineers, program managers, and government and industry customers to develop CAD models, engineering tools, simulations, animations, and technical demonstrations.

This position is well suited for an early-career engineer or experienced professional with a strong foundation in mechanical engineering and a passion for expanding their skills across software, electronics, and emerging technologies.

Key Responsibilities

- Develop and maintain 3D CAD models, assemblies, and engineering drawings using SolidWorks, Autodesk Inventor, AutoCAD, or comparable CAD software.
- Create technical visualizations, animations, and photorealistic renderings using Blender, Autodesk Fusion 360, or similar tools to support engineering analysis, proposals, and customer presentations.
- Develop scripts, automation tools, and engineering utilities to improve workflows and process efficiency using Python, VBA, C++, MATLAB, or other programming languages.
- Support mechanical prototyping and additive manufacturing workflows, including 3D printing, material selection, post-processing, and fit/function evaluation.
- Prepare engineering documentation, technical reports, presentations, and design packages using Microsoft Office tools.
- Interface directly with customers and engineering teams to gather requirements, communicate technical concepts, and incorporate feedback.
- Independently manage assigned tasks while contributing to a small, collaborative engineering team.

Required Qualifications

- Bachelor's degree in Mechanical, Aerospace, Electrical, Mechatronics, Robotics, Systems Engineering, or a related engineering discipline from an ABET-accredited (or equivalent) university.
- Strong mechanical engineering fundamentals and demonstrated experience with 3D CAD modeling through professional, academic, or personal projects.
- Ability and willingness to learn new engineering software tools, including CAD, simulation, visualization, or programming environments.
- Experience with at least one programming or scripting language (Python, VBA, C++, MATLAB, or similar); experience with additional languages is a plus.
- Strong problem-solving skills and the ability to learn new technologies.
- Ability to work independently, manage priorities, and deliver results on schedule with minimal supervision.
- Strong written and verbal communication skills.
- Ability to interface directly with customers and clearly explain technical concepts to both engineering and non-engineering audiences.
- U.S. citizenship and ability to obtain and maintain a U.S. government security clearance.

Preferred Qualifications

- Experience supporting U.S. Navy, Department of Defense (DoD), or other federal customers.
- Active or recent DoD security clearance (Secret or higher).
- Experience with CAD, visualization, and engineering software such as SolidWorks, Autodesk Inventor, AutoCAD, Blender, Fusion 360, or similar tools.
- Experience creating 3D animations, engineering/marketing visualizations, technical demonstrations, or proposal graphics.
- Familiarity with PLM/PDM systems, GD&T, and engineering drawing standards (ASME Y14.5).
- Experience with engineering analysis tools such as Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), MATLAB/Simulink, or motion simulation software.
- Experience with additive manufacturing and 3D printing technologies.
- Background in electrical engineering, including sensor integration, PCB design, wiring/harness design, and embedded systems (microcontrollers, firmware, Arduino, Raspberry Pi, or similar platforms).

Abbott On Call is proud to offer highly competitive salaries, a flexible work environment, and invaluable firsthand experience delivering mission-critical solutions for our customers. Our employees are our greatest asset, and our competitive benefit options are designed to support and protect our employees and their families. We offer robust Medical, Prescription, Dental, and Vision coverage, Life, Short-Term, and Long-Term Disability Insurance. We enable you to shape your financial future with a self-directed 401(k) and Tuition Reimbursement program. We promote a healthy work-life balance with flexible scheduling and PTO program. Apply to join our team and work alongside peers with unmatched expertise in a workplace environment that fosters learning and growth.