



GLOBAL ENGINEERING & MATERIALS, INC.

Engineering and Innovative Solutions

GEM Princeton NJ Opportunity

Senior Research Engineer

Global Engineering and Materials, Inc. (GEM) is looking for candidates to fill a position of a Senior Research Engineer. The ideal candidate will have demonstrated experience in most of the following fields: fracture and damage mechanics, multiscale and multi-physics modeling and simulation, in-depth computational methods and applied mathematics. The candidate should also demonstrate (1) strong technical knowledge and experience in the design of solution modules and novel approaches; and (2) strong communication skills inside and outside the company. In-depth experience in commercial FEM customization, and GUI design and implementation is a plus.

Job Duties:

- Develop user-defined material models and elements to efficiently and accurately capture the material and failure sequence of metallic, composite, and hybrid structures under static, dynamic, and fatigue loading.
- Design customized coupling interfaces for multi-physics simulations of complex systems.
- Develop proof-of-concept systems utilizing commercial-off-the-shelf components.
- Perform testing and develop and maintain documentation for GEM's software products from an end-user perspective.

Position Requirements:

- Advanced degree with 5+ year working experience in computational mechanics and software development.
- Extensive experience in FEM pre and post processing and using commercial finite element tools such as ABAQUS, ABAQUS-CAE.
- Experience in developing user-defined modules for commercial FEM software.
- Proficiency in FORTRAN, C/C++, Python and other scripting languages, object-oriented design, familiarity with common software development, testing/QA/bug management, and software training procedures.
- Expertise in Computational Mechanics, Fracture Mechanics, and Composite Mechanics and capable of conducting independent research and development work.
- Excellent written and verbal communication skills, highly motivated, good team worker to accomplish group objectives, and willing to take a leadership and mentorship in developing both technology and commercial markets.

Global Engineering and Materials, Inc. (<http://www.gem-innovation.com>) is a high-tech firm and provides its clients with innovative research and development, consulting services and multi-physics software tool development. Qualified applicants are invited to send a detailed Vitae with the name, address and phone number of 3 references via [Email \(contact@gem-innovation.com\)](mailto:contact@gem-innovation.com).

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