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Senior R&D Engineer in Solid and Structural Mechanics

About Karagozian and Case, Inc. (K&C)

K&C is an internationally recognized science and engineering consulting firm founded in 1945 with a focus on creating custom engineered solutions for extreme environments. K&C's mission is to engineer specialized solutions and products for the defense, space, energy, security, construction, and manufacturing industries. K&C's rapidly growing practice areas include: 1) applied research and testing, 2) modeling, simulation, and analysis, 3) product and software development, 4) protective design engineering, and 5) threat vulnerability assessments.

Career Opportunity

K&C is seeking an experienced senior R&D engineer for its modeling and simulation group. The ideal candidate has an advanced degree in a relevant field and has since demonstrated achievements in solid and structural mechanics, has a strong background in numerical methods, is an experienced developer and user of high performance computational codes, and is interested in developing and validating material constitutive models for a wide range of multi-physics problems. The selected candidate will join a dynamic team of talented engineers, physicists, computer scientists, and experimentalists to solve challenging problems involving extreme environments, including blast, impact, shock, and fluid-structure interaction.

Job Duties

- Develop computational models for materials and structures subject to extreme environments up to and beyond failure. Deploy them to support projects that range in duration from a week to multiple years, depending on their scope.
- Formulate and develop numerical algorithms for advanced material constitutive models and integrate them into in-house and commercial finite element and Meshfree codes.
- Use material characterization and phenomenology data to calibrate material parameters for use in large-scale computations.
- Report results in documents, reports, and briefings.
- Present results of computations to customers, at conferences, and at in-house seminars.
- Prepare technical input for proposals related to novel numerical methods and algorithms.
- Develop parameter identification methods for complex constitutive models.
- Mentor and advise peers.

Candidate Requirements

- Ph.D., or a minimum M.S. with 5+ years in R&D, in a directly relevant Engineering or Physical Science discipline. Coursework in plasticity, continuum mechanics, structural mechanics, the finite element method, and computational mechanics. A minor, or at least coursework, in applied math or computer science is preferred.
- Experience modeling damage evolution and failure of at least two of the following materials: metals, composites, ceramics, elastomers, geomaterials, biomaterials.
- Demonstrated programming skills in Fortran 90 and/or C++ is required.
- Experience in both Linux and Windows operating systems and high-performance computing infrastructure.
- Experience with more than one finite element code.
- Publications demonstrating development and use of novel computational methods for materials and structures.
- U.S. Citizenship is required.
- Ability to attain security clearance.

Karagozian & Case, Inc.

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