Postdoc in Computational Fracture Mechanics and Machine Learning in the Spearot Research Group at the University of Florida

Intended Start: June 2024
US Citizenship or US Permanent Residency Required

Qualifications:

- Ph.D. in Mechanical Engineering, Materials Science & Engineering, or related field.
- Experience in computational fracture mechanics, at atomistic, mesoscopic or continuum length scales.
- Experience in artificial intelligence, machine learning, neural networks, or other advanced data science techniques.
- Experience programming in C++ and Python.
- Strong critical thinking skills, ability to assimilate information from technical literature, and commitment to research integrity.

Responsibilities:

- Use atomistic simulations (molecular statics and molecular dynamics) to provide an atomic scale understanding of fracture that can help guide improvements to continuum scale failure and fracture models.
- Develop and use constitutive artificial neural networks to discover models for plastic yield and fracture in metallic materials.
- Interact scientifically with other members of the research team at the University of Florida and at the Air Force Research Laboratories.

Application Process:

- Send a cover letter expressing your interest and qualifications for the position, your CV, and information regarding your US citizenship or US Permanent Residency to dspearot@ufl.edu.
- Applications will be reviewed starting immediately. The position opportunity will remain open until filled.

Spearot Research Lab:

The mission of the Spearot Research Group is to discover and study fundamental mechanical and thermodynamic behaviors of materials via the advancement and use of atomistic and mesoscale simulation techniques. My research group specializes in the role of defects in materials, such as dislocations and grain boundaries, on thermodynamic and mechanical behaviors. We focus extensively on materials in extreme environments. This includes: (i) high strain rate or shock deformation in defense or space applications, and (ii) the role of irradiation induced defects on strength and ductility for development of advanced materials in safe nuclear energy applications. Understanding the fundamental behavior of defects provides routes to engineer materials with specific mechanical and thermodynamic behaviors in extreme environments.