NRC/ASEE Postdoctoral fellowship at the US Naval Research Laboratory in Computational Mechanics
Location: Washington, DC, USA
NRL Code 6353:
Our work entails conducting basic and applied research in the field of computational mechanics supporting materials and engineering design. Research activities are aimed toward improving the predictive capability of multi-physics simulations through the use and development of in-house, open source, and commercial software. These research activities include developing the breadth of computational tools necessary to advance prediction reliability and investigate material characteristics and properties as well as component-scale structural and functional performance. The section collaborates with experimentalists to calibrate and validate models informed by experimental data for corroboration of theory as well as to transition research developments into software tools for design engineers.

Research description:
We seek eligible candidates over a broad range of expertise in computational solid or fluid mechanics and uncertainty quantification. Examples of research project areas may include
- Micromechanical modeling of metals through crystal plasticity
- Interrogating fundamental mechanisms of plasticity/deformation through molecular dynamics and discrete dislocation dynamics modeling
- Development of multiscale methods for modeling continuum scale damage evolution
- Simulation of material solidification processes and modeling process-structure-property relationships
- Development of uncertainty quantification methods for improving reliability of model-based predictions
- Development of reduced order and surrogate models through classical and machine learning techniques
- Modeling biomechanical response under high strain rate loading conditions

The specific research project to be pursued will be tailored according to the prospective candidate's field of expertise and availability of program funds.

Desired candidate description:
- US citizen or permanent resident
- Have earned a PhD in an area related to computational mechanics, numerical methods, or uncertainty quantification
- Proficiency in one of MATLAB or Python and one FORTRAN, C, or C++

Funding is available for up to 3 years, pending positive evaluation after an initial 1 year contract. The successful candidate will be exposed to a breadth of cutting-edge research facilities in a collaborative, interdisciplinary scientific environment. The postdoctoral fellowship program at NRL is administrated through ASEE, and the website below provides information on stipend and insurance.
Please submit the following information to kirubel.teferra@nrl.navy.mil
- Detailed CV
- Cover letter with a short description of your research experience and interests

For additional information:
https://nrl.asee.org/
https://www.nrl.navy.mil/mstd/
https://www.nrl.navy.mil