Opportunity Title: Uncertainty Quantification for Aircraft Certification by Analysis
Opportunity Reference Code: 0133-NPP-MAR26-ARC-Aero

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0133-NPP-MAR26-ARC-Aero

How to Apply All applications must be submitted in Zintellect

Please visit the NASA Postdoctoral Program website for application instructions and requirements: How to Apply | NASA Postdoctoral Program (orau.org)

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 3/1/2026 6:00:59 PM Eastern Time Zone

Description **About the NASA Postdoctoral Program**

The NASA Postdoctoral Program (NPP) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

We have an opening for a Postdoctoral Researcher in Uncertainty Quantification (UQ) for simulation-based analysis and design of aerospace vehicles.

Uncertainty quantification is a critical technology for enabling the use of high-fidelity simulations in aircraft certification to reduce reliance on flight testing. The selected candidate will research, develop and apply state-of-the-art nonintrusive statistical methods, including but not limited to dense and sparse quadratures, random sampling and Bayesian statistics to data obtained from high-fidelity, computational fluid dynamics and multidisciplinary simulations. The goal is to affordably characterize the uncertainty in output quantities of interest, for example, aerodynamic performance coefficients, range, and acoustic signatures, due to various input uncertainties, such as operating and meteorological conditions, and aircraft shape. Primary areas of interest are estimating and controlling numerical and model-form errors to improve credibility of numerical predictions, handling discontinuities, such as shocks, that may cause multimodal probability densities, and reducing computational cost of many-query UQ methods such that they can be applied routinely in conjunction with high-fidelity simulations. Promising cost reduction strategies include

but are not limited to multi-level and multi-fidelity approximations, and the use of output gradients.

The selected candidate must have a PhD degree in engineering, physics, statistics, or related field; have experience programming in the Unix/Linux environment using Python, Java, and C/C++; have experience with high-performance computing, parallel programming, and/or GPU programming. This position is in the Computational Aerosciences Branch within the NASA Advanced Supercomputing (NAS) Division.

Field of Science: Aeronautics

Advisors:

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Qualifications

PhD degree in engineering, physics, statistics, or related field

Experience programming in the Unix/Linux environment using Python, Java, and C/C++

Experience with high-performance computing, parallel programming and/or GPU programming

Point of Contact Mikeala

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.