

# Open Postdoctoral Position in Shell Structures and FEniCS

A one-year postdoctoral position is available in the Computational Physics and Mechanics Lab (CPML) at Vanderbilt University, focusing on the mechanics of shell structures using the FEniCS software package.

## Position Overview

This postdoc will be funded through NASA and NSF projects and will be responsible for developing computational models of fracture in plates and shells. We are particularly interested in candidates who have:

- **Experience with FEniCS:** Proven ability to implement and customise finite element methods using FEniCS, especially for structural analysis.
- **Deep understanding of shell elements:** Strong knowledge of the mechanics of shell structures, including mixed finite elements and complex loading conditions.

The postdoc will collaborate closely with other CPML team members to test and validate the FEniCS implementation. The postdoc is expected to mentor graduate students and authors to journal publications and present findings at conferences.

## Candidate Profile

The ideal candidate would have the following qualifications:

- **PhD in Computational Mechanics, Applied Mathematics, or a related field**
- Strong programming skills, particularly in Python and C++
- A good understanding of version control using Git and Github.
- Proven research experience in finite element analysis and shell structures
- Familiarity with high-performance computing and parallel computing is a plus
- Excellent communication skills and a collaborative mindset

## Application Process

To apply for this position, please submit the following documents:

- Curriculum vitae (max. three pages)
- A cover letter detailing your experience with FEniCS and shell structures, and how it aligns with this position (max. two pages)
- Please share a link to a project you have done with FEniCS through your GitHub profile.

Please send your application via email to [Dr. Abhinav Gupta](mailto:Dr.Abhinav.Gupta) at [abhinav.gupta@vanderbilt.edu](mailto:abhinav.gupta@vanderbilt.edu) with the subject line "Application for Postdoctoral Position - Shell Structures and FEniCS." Applications will be reviewed on a rolling basis until the position is filled.

## About CPML

The Computational Physics and Mechanics Lab at Vanderbilt University specialises in the computational modelling of complex engineering and geological structural systems, with a focus on investigating fracture and failure mechanics. We aim to push the boundaries of current numerical modelling techniques through the integration of advanced finite element methods, space-time adaptive algorithms and high-performance computing. The lab members value collaboration, innovation, and a commitment to high-quality research.