



Ph.D. positions in Mechanical Engineering at Villanova University

There are two open Ph.D. positions fully funded in the Department of Mechanical Engineering at Villanova University. The positions start as early as Fall 2022. The successful applicants will work with Dr. David Cereceda in the Multiscale Modeling of Materials and Machine Learning (M⁴L) Laboratory on interdisciplinary research topics that involve Computational Mechanics, Multiscale Modeling of Materials and Machine Learning.

Qualifications - Position 1: first-principles calculations of structural materials

- Bachelor or Master's degree in Mechanical Engineering, Materials Science and Engineering, Physics, or related disciplines.
- Strong background in solid-state density-functional theory computations.
- Solid background in machine learning and deep learning.
- Willingness and motivation to work in a highly interdisciplinary field.
- Prior experience in mechanics, materials science, numerical modeling with FEM and High-Performance Computing is desirable but not required.

Qualifications - Position 2: Physics-informed machine learning models of bio-inspired materials

- Bachelor or Master's degree in Mechanical Engineering, Materials Science and Engineering, Physics, or related disciplines.
- Strong background in machine learning and deep learning.
- Strong background in Solid and Computational Mechanics.
- Willingness and motivation to work in a highly interdisciplinary field.
- Prior experience in mechanics, materials science, numerical modeling with FEM and High-Performance Computing is desirable but not required

How to apply

Interested candidates are invited to email Dr. David Cereceda (david.cereceda@villanova.edu) with her/his latest CV, a statement describing her/his research experience and interests, B.S. and M.S. transcripts, English test scores (foreign applicants) and the contact information for 3 references, all as email attachments in PDF format. This and any other specific inquiries should be addressed with “#Name: PhD applicant-Fall-2022” in the subject line. Interested candidates are encouraged to submit these materials to Dr. David Cereceda before submitting the online PhD application at Villanova University.

Deadline: Open until filled

About Villanova University

Since 1842, Villanova University’s intellectual tradition has been the cornerstone of an academic community in which students learn to think critically, act compassionately and succeed while serving others. There are more than 10,000 undergraduate, graduate and law students in the University’s six colleges—the College of Liberal Arts and Sciences, the Villanova School of Business, the College of Engineering, the College of Nursing, the College of Professional Studies and the Villanova University Charles Widger School of Law. Ranked among the nation’s top universities, U.S. News & World Report ranks Villanova as tied for the 46th best National University in the U.S. for 2021, Villanova supports its students’ intellectual growth and prepares them to become ethical leaders who create positive change everywhere life takes them. For more, visit www.villanova.edu.

About the Principal Investigator

Dr. David Cereceda is an Assistant Professor in the Department of Mechanical Engineering at Villanova University. Before joining Villanova, Dr. David Cereceda was a Postdoctoral Fellow with Prof. Lori Graham-Brady at Johns Hopkins University, within the Hopkins Extreme Materials Institute. His research at Hopkins is aimed at understanding the dynamic fragmentation of brittle materials under extreme loading conditions. Dr. David Cereceda received his Ph.D. in Nuclear Engineering from Polytechnic University of Madrid in 2015, under the guidance of Prof. Jaime Marian and Prof. José Manuel Perlado. His Ph.D. research, performed at Lawrence Livermore National Laboratory and University of California Los Angeles, was focused on the multiscale modeling of body-centered cubic metals like tungsten from atomistic to engineering scales. His current research focuses on facilitating the discovery, development, and deployment of next-generation structural and bio-inspired materials by creating and validating computational models that leverage physics-based and data-driven techniques.

Research website: <https://www.m4l-lab.com/>