



Smart Human-centered Infrastructure, Embedded sensing & Life-course Dynamics

August 14, 2026.

Postdoctoral Scholar - SHIELD Lab at UCF

The [SHIELD Lab](#) in the Department of Civil and Environmental Engineering at the University of Central Florida (UCF) is seeking a motivated Postdoctoral Scholar through UCF's Preeminent Postdoctoral Program (P3) to conduct research at the intersection of structural dynamics and sensing, human-centered intelligent infrastructure, signal processing, machine learning, and data science.

The successful candidate will work with [Dr. Yohanna M. Cruz](#) on the development of sensing and computational frameworks to characterize human mobility and behavior, with a particular focus on individuals with physical and cognitive impairments. The research will explore how the built environment can serve as a source of information to better understand mobility patterns, identify changes in behavior and potentially unsafe events, and support safer and more independent living. Approaches may integrate vibration-based and multimodal sensing, structural dynamics, signal processing, sensor fusion, machine learning, and data-driven modeling, with the broader goal of advancing human-centered intelligent infrastructure, smart cities, and resilient communities.

The postdoctoral scholar will have the opportunity to play an active role in shaping a growing research program, collaborate with researchers across engineering, health, rehabilitation, and other interdisciplinary fields, mentor graduate and undergraduate researchers, lead peer-reviewed publications, present research at national and international conferences, and contribute to the development of competitive research proposals.

Responsibilities

- Conduct independent and collaborative research aligned with the research mission of the [SHIELD Lab](#).
- Design and conduct experimental studies involving structural and human-centered sensing.
- Develop and implement computational frameworks for processing and analyzing vibration, sensor, mobility, and multimodal data.



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- Develop reproducible research workflows and maintain well-documented research code and datasets.
- Lead and contribute to manuscripts for peer-reviewed journals and conference proceedings.
- Present research findings at national and international conferences and professional meetings.
- Contribute to research proposals, technical reports, and other scholarly products.
- Mentor graduate and undergraduate researchers.
- Collaborate with interdisciplinary research partners at UCF and other institutions.

Minimum Qualifications

- Ph.D. in Civil Engineering, Structural Engineering, Mechanical Engineering, Electrical Engineering, Biomedical Engineering, or a closely related field, with demonstrated expertise relevant to structural dynamics, sensing, signal processing, or data-driven analysis of physical systems.
- Strong programming skills in Python, including experience with scientific computing and data analysis.
- Strong quantitative, analytical, and problem-solving skills.
- Demonstrated ability to conduct independent research and contribute to peer-reviewed publications.
- Strong scientific writing and communication skills.
- Ability and interest in working collaboratively within an interdisciplinary research environment.

Preferred Qualifications

Experience in one or more of the following areas is particularly desirable:

- Experience working with human-subject, mobility, rehabilitation, biomechanical, or health-related data, including experiments involving human participants and familiarity with IRB protocols and procedures.
- Experience working in interdisciplinary research environments, particularly across engineering, health, rehabilitation, or related fields.



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Research Environment

The [SHIELD Lab](#) is a growing research group currently housed at the University of Central Florida. The successful candidate will have the opportunity to help shape emerging research directions within the lab, develop an independent research profile, establish interdisciplinary collaborations, mentor students, and contribute to the growth of a new research program at UCF.

The position is supported through UCF's Preeminent Postdoctoral Program (P3), which provides additional opportunities and resources for the scholar's professional development.

Start Date Spring 2027

Appointment Duration Two years, with possibility of renewal subject to funding and satisfactory performance.

Application Review Review of applications will begin immediately and continue until the position is filled.

Application Materials

Applicants should submit:

- A curriculum vitae (CV).
- Contact information for two professional references.
- One representative peer-reviewed publication.

Interested candidates should email their application materials directly to [Dr. Yohanna M. Cruz](#) at yohanna.macruz@ucf.edu. **Email subject:** Postdoctoral Scholar Application – SHIELD Lab

Note: An official UCF application will also be required once the position is posted through the university's recruitment system.