

Computational Imaging and Predictive Sciences Team – Dr. Villa

*Center for Optimization, Inversion, Machine Learning,
and Uncertainty for Complex Systems (OPTIMUS)
Oden Institute for Computational Engineering & Sciences*

We are looking for a postdoctoral researcher to join our dynamic research team focused on computational imaging and predictive sciences. By combining engineering, mathematical modeling, and scientific computing our goal is to accelerate biomedical innovation and help resolve major challenges in medicine and public health, including early detection of cancers and improved treatment outcomes. Current projects involve 1) advancing emerging biomedical imaging modalities to address essential needs in clinical medicine and basic biomedical science; 2) optimizing the design of medical imaging instruments to improve diagnostic or screening performance; 3) supporting informed clinical decision-making for patient-specific treatment regimes.

This position is funded by an NIH Research grant aiming at “Advancing three-dimensional preclinical dynamic contrast-enhanced photoacoustic computed tomography via quantitative image reconstruction.” Photoacoustic computed tomography is an emerging medical imaging modality that combines strong optical contrast with the high spatial resolution of ultrasonic detection. The project goal is to develop novel large-scale optimization-based image reconstruction methods that, by enabling accurate measurements of tumor perfusion, can facilitate the assessment of new anti-cancer drugs and advance current state-of-care. The successful candidate will join a transdisciplinary multi-institutional team (UIUC, GATech, University of Wisconsin, and one industrial partner) and closely collaborate with members of Computational Imaging Science Laboratory led by Dr. Anastasio at UIUC.

Applicants should have a strong background in numerical linear algebra, optimization, mathematical modeling, and partial differential equations; excellent written and verbal communication skills; and solid computational and programming skills (in particular, python and GPU accelerated frameworks such as jax, pytorch, cupy). Expertise in inverse problems, imaging science, and optical and acoustic imaging modalities is not required but highly desired.

Self-motivated and independent applicants are encouraged to apply for the position by submitting the following items:

1. Cover letter (**1 page** maximum)
2. Curriculum vitae
3. Research statement highlighting their expertise, experience, and interests (**2 pages** maximum)
4. Copy of highest degree transcripts (unofficial transcripts are acceptable for the initial application)
5. A list of three reference letter writers.

This position is for 12 months renewable for additional years (up to three years) contingent on performance and funding. Salary and stipends are commensurable with experience and granting standards at the Oden Institute and The University of Texas at Austin. The position is available immediately.

All application materials should be sent electronically to:

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