Job Description

Multiple openings are available for fully funded Ph.D. students at the Mechanical Engineering Department of the University of Kansas (KU) under the supervision of Assistant Professor Dr. Shiguang Deng.

Candidates with strong interests in leveraging artificial intelligence and scientific machine learning to advance engineering design and computational mechanics for the innovation of material-structure systems are encouraged to apply. Candidates with experience in topology optimization, reduced-order models, finite element analysis, microstructure reconstruction, uncertainty quantification, digital twin, and machine learning are especially desirable for the positions.

Qualifications

- B.S. degree in mechanical engineering, engineering mechanics, civil engineering, aerospace engineering, or related fields (M.S. degree is preferred).
- Experience in using CAE software, e.g., Abaqus, Ansys, Nastran, and/or Altair.
- Experience in developing computational mechanics and/or machine learning codes.
- Proficiency in programming languages: MATLAB, Python, JAX, and/or C++.
- Publication record in international journals (first-authored publication is preferred).
- Good communication skills.

About the University of Kansas

Founded in 1865, KU is the state's flagship university, an R1 institution, a member of the esteemed Association of American Universities (AAU) and has consistently ranked among the top 50 public universities in the United States. In a commitment to innovation and research, KU invests $340 million annually in research and development, placing it among the top 70 in the nation, as reported by the National Science Foundation. KU has one of the most successful college basketball programs in the nation, winning four NCAA national championships. The city of Lawrence, home to KU, has been recognized by the American Institute for Economic Research as one of the top 10 College Towns. Lawrence offers a convenient public transit system, including an Amtrak train station and free buses on campus, as well as commuting to nearby Greater Kansas City in about 30 minutes. Home to 2.5 million people, Kansas City is a vibrant metro in the heart of the Midwest and will be a host city for the FIFA World Cup in 2026.

About the PI

Dr. Deng received his Ph.D. in Mechanical Engineering from the University of Wisconsin-Madison. Before joining KU, he was a research associate at Northwestern University. His research mainly focuses on engineering design, computational mechanics, optimization, and machine learning. His work has been published in *Computational Mechanics*, *Structural and Multidisciplinary Optimization*, *Computers & Structures*, *Journal of Mechanical Design*, *International Journal for Numerical Methods in Engineering,* and multiple conference proceedings.

Application Documents

To apply, please combine the following files into **one PDF file** and send to Dr. Deng at sdeng@ku.edu with the email title of "PhD position application from YOUR NAME": resume/CV (including expected graduation date, education, GPA, GRE/TOFEL scores, a list of publications/projects/presentation/posters), transcripts, one-page cover letter describing your research background and future interests in our lab, and names and contacts of three professional references. The positions are open until filled.