| Curriculum Vitae

Email: nkim@wcu.edu

- fluid dynamics   • heat transfer   • computational fluid

Directed Student Learning at Western Carolina University:

Aug. 2024 - present

Supervised Teaching, "Forced Air Cooling (FAC) calculation modeling software," Engineering and Technology. (August 2024 - Present).
Advised: Joshua Harris, Gaven Scruggs, Evan Tressel
Undergraduate Honors Project, "Improvement of the design of an automatic water dispenser," Engineering and Technology. (September 2024 - December 2024).
Advised: Luke Stafford

July 2024 - present

Objective: Develop a least-squared finite element model to analyze non-isothermal flows of generalized Newtonian fluids. The method of manufactured solutions will be used to verify the accuracy of the numerical model systematically.

Supported by College of Engineering and Technology, Western Carolina University
Collaboration with Dr. Henson and Dr. Harris in the College of Engineering and Technology, Western Carolina University
Objective: Model hydrodynamics to calculate the efficiency of an energy-harvesting device
Task: Computational modeli0 Tcmo Tcm 10.8 (rm[(n)9]TJ0 3s21r72 Tc -0.0027l mo)15-rc.2 (tiv)1 th9 (e)3.3 (: M)

1. _____ and J.N. Reddy. "Least-squares finite element analysis of three-dimensional natural convection of generalized Newtonian fluids in a cavity." *International Journal for Numerical Methods in Fluids* 93, no. 4 (2021): 1292-1307. doi:10.1002/fld.4929
2. Reddy, J.N., _____, and Matthew Martinez. "A dual mesh control domain method for the solution of nonlinear Poisson's equation and the Navier–Stokes equations for incompressible fluids." *Physics of Fluids* 32, no. 9 (2020): 093608. doi:10.1063/5.0026274
3. Peer Shafeeq Shajudeen, Songyuan Tang, Anuj Chaudhry, _____, J.N. Reddy, Ennio Tasciotti, and Raffaella Righetti. "Modeling and analysis of ultrasound elastographic axial strains for spine fracture identification." *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 67, no.5 (2020): 898-909. doi:10.1109/TUFFC.2019.2956730
4. _____ and J.N. Reddy. "3-D least-squares finite element analysis of flows of generalized Newtonian fluids." *Journal of Non-Newtonian Fluid Mechanics* 266 (2019): 143-159.
5. _____ and J.N. Reddy. "Least-squares finite element analysis of flow of a generalized Newtonian fluid past a circular cylinder." *Mechanics of Advanced Materials and Structures* 25, no.14 (2018): 1186-1196.
6. Songyuan Tang, Eric P. Sabonghy, Anuj Chaudhry, Peer Shafeeq Shajudeen, Md Tauhidul Islam, _____, Fernando J. Cabrera, J.N. Reddy, Ennio Tasciotti, and Raffaella Righetti. "A model-

"Impact of Classroom Demonstrations and Surveys on Higher-level Learning."
Oral presentation at *2017 American Society for Engineering Education* (ASEE) *Annual Conference & Exposition*, June 25-28, 2017, Columbus Convention Center, Columbus, Ohio.

"A spectral/hp least-squares finite element analysis of the Carreau–Yasuda fluids."
Oral presentation at *53rd Annual Technical Meeting of the Society of Engineering Science* (SES), October 2-5, 2016, College Park Marriott Hotel & Conference Center, Hyattsville, Maryland.

Committee Member, Chancellor's Travel Fund Committee, WCU	Aug. 2024 - present
Committee Member, Peer Review of Teaching and Materials Committee, WCU	Aug. 2024 - present
Committee Member, SET Curriculum Committee, WCU	Aug. 2023 – present
Academic advising of SET students, WCU	Aug. 2023 – present
Reviewer, Journal Article, Physics of Fluids	April 2024

American Society for Engineering Education (ASEE) member	2023-present