

Sayali Ravindra Kedari

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SKILLS

- **Programming:** Python (numpy, pandas, scipy, sympy, scikit-learn, tkinter, Pyro), C++, Julia, C, MATLAB
- **FEA:** Abaqus
- **CAD:** CATIA V5, SOLIDWORKS
- **OS:** Linux, Windows
- **Technologies:** Git

EXPERIENCE

Graduate Researcher, Vemaganti Research Group, University of Cincinnati

2016 – present

- Developing probabilistic machine learning approaches for modeling and predicting the thermal and viscoelastic behavior of polymers.
- Developed optimal design of stress relaxation experiments to maximize information gained about the viscoelastic model parameters.
- Employed Bayesian framework using Python, PyTorch, and message passing interface (MPI) for calibration and validation of viscoelastic material models for soft biological materials and polymers in applications such as computer-aided surgery and soft robotics.
- Simulated the nonlinear material response based on hyperelastic models for solids under different loads using Python, MATLAB.
- Implemented the parallel finite difference method with domain decomposition to solve the Poisson problem using C++, MPI.

Graduate Research Assistant, UC Simulation Center/Procter & Gamble

Aug 2018 – present

- Collaborating with interdisciplinary teams to drive and outline process design and optimization guidelines for P&G products.
- Performed finite element analysis (FEA) for optimizing and improving production turnovers of baby care products using Abaqus, Siemens Teamcenter, Solid Edge, and Fortran.
- Employed physics-based predictive design and developed a digital twin to resolve complex flow, thermal and mechanical challenges faced for feminine and baby care products using Python and MATLAB.

Instructor and Graduate Teaching Assistant, University of Cincinnati

Aug 2016 – Aug 2018

- Instructed large enrollment (60 students) lab sessions of Applied Computational Methods.
- Assisted in teaching the courses of Applied Computational Methods, Solid Mechanics, Finite Element Method (FEM).
- Supervised students for the class projects based on Ansys, Abaqus and MATLAB.

Graduate Teaching Assistant, University of Kansas

Sept 2014 – May 2016

- Instructed large enrollment (70 students) lab sessions of Physics and Digital Computational Methods.
- Tutored the students with learning differences for courses of Physics and Intermediate Mathematics.

EDUCATION

University of Cincinnati (UC), Cincinnati, Ohio, US

Doctor of Philosophy (PhD) candidate in Mechanical Engineering, GPA 3.76/4.0

Expected Feb 2022

Advisor : Prof. Kumar Vemaganti, PhD

Research focus : Computational mechanics, numerical analysis, uncertainty quantification, machine learning

University of Kansas (KU), Lawrence, Kansas, US

Master of Science in Mechanical Engineering, GPA 3.84/4.0

2016

Thesis : Finite element analysis for heat conduction in solids and for deviatoric stress tensor in incompressible fluids

University of Pune, Pune, India

Bachelor of Engineering in Mechanical Engineering, first class with distinction

2014

CONFERENCES & WORKSHOPS

- **Virtual Grace Hopper Celebration (vGHC)**, AnitaB.org, 2021
- **16th U.S. National Congress on Computational Mechanics (USNCCM)**, 2021
- **International HPC Summer School (IHPCSS)**, XSEDE, PRACE, R-CCS, and SciNet HPC Consortium, 2021
- **Abaqus/Explicit - Advanced Topics**, Dassault Systèmes, 2019
- **NSF Cyber Carpentry: Data Life-Cycle Training**, University of North Carolina at Chapel Hill, 2018

AWARDS

- **CEAS Modeling & Simulation Fellowship**, UC Simulation Center/Procter & Gamble, 2018 – present
- **University Graduate Scholarship**, University of Cincinnati, 2016 – present