

# Sayali Ravindra Kedari

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## SKILLS

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

## EXPERIENCE

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### Graduate Researcher, Vemaganti Research Group, University of Cincinnati

2017 – present

- Developing hierarchical Bayesian approaches for modeling and predicting the thermal and viscoelastic behavior of polymers.
- Developed optimal design of experiments based on information theory for soft biological materials and polymers.
- Employed Bayesian framework using Python, PyTorch, and message passing interface (MPI) for calibration and validation of viscoelastic and hyperelastic material models.
- Simulated the material response based on hyperelastic models for solids under different loads using Python, MATLAB.
- Implemented the parallel finite difference method to solve the Poisson problem using C++, MPI.

### Graduate Research Assistant, UC Simulation Center/Procter & Gamble

Aug 2018 – present

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

### 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.

### Engineering Intern, Hindustan Aeronautics Limited, Bangalore, India

Dec 2013

- Performed simulation of the wing tank refueling system and optimized the pressurization and transfer system of military aircraft

## EDUCATION

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

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

Expected Mar 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 : Investigation of constitutive theories 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

Senior design project : Computational Fluid Dynamics (CFD) analysis of filter assembly

## HONORS & ACHIEVEMENTS

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- **International HPC Summer School Training**, SciNet HPC Consortium, 2021
- **Abaqus/Explicit - Advanced Topics Training**, Dassault Systèmes, 2019
- **CEAS Modeling & Simulation Fellowship**, UC Simulation Center/Procter & Gamble, 2018 – present
- **NSF Cyber Carpentry: Data Life-Cycle Training**, University of North Carolina at Chapel Hill, 2018
- **University Graduate Scholarship**, University of Cincinnati, 2016 – present
- **University Graduate Scholarship**, Government of Maharashtra, India, 2014 – 2015